

# POLICY BRIEF



## LAND USE TRANSFORMATION IN KAJIADO COUNTY, KENYA: IMPLICATIONS OF A CHANGING CLIMATE

STEPHEN MOIKO | CLAIRE BEDELIAN  
MOHAMMED YAHYA SAID | ROBINA ABUYA | JOANES ATELA.

## Key messages

- Kajiado County is experiencing a rapid transformation of land due to population growth, urbanisation, and land privatisation, fragmentation and sales. This has important implications for how communities are able to respond to climate change.
- The land tenure system determines the strategies and options available to communities to pursue regarding climate change adaptation and land-use investment:
  - ◇ Communal land tenure: communities maintain mobility, move their livestock and settlements to access pasture and water, and zone their land into wet and dry season grazing areas;
  - ◇ Private land tenure: individual land owners fence and paddock their land, and practise rotational grazing. Before drought, they destock their animals as well as purchase or produce fodder for their livestock.
- The transformation of land tenure systems from communal ranches to private parcels has increasingly shifted livestock investment patterns from resource extensive investments to resource intensive systems. This locks out many poor pastoralists, whose knowledge and capabilities are aligned with extensive mobile pastoral systems.
- Women have less rights to land and have reduced control over land-use decision-making.
- Under both land tenure systems, conservancies act as dry season grazing areas, and are important refuge areas during drought. They also protect wildlife habitats and offer opportunities for tourism revenue.
- Findings call for: 1) land policies and land-use plans that facilitate mobility and pasture access for pastoralists; 2) investments and finance to enable private adaptation; and 3) support for different types of tenure regimes.

## Introduction

Kajiado County in Southern Kenya faces a number of sustainable land and resource management challenges, all of which have an impact on the county's capacity to adapt to the effects of climate variability and change. These challenges stem from a combination of policy, governance and economic factors that have gradually resulted in a land tenure context where uncoordinated and unsustainable land-use practices are currently being observed. When combined with the effects of climate change, these threaten the future of the sustainable management of resources and livelihoods in the county.

Adjacent to the growing Nairobi metropolitan area, Kajiado County is a popular location for expanding settlements,

industries and businesses, which means it has a steadily increasing population and, therefore, an increased demand for land. Land policy here, as in other semi-arid counties, has encouraged land privatisation and increased land subdivision and sales, progressively causing rangeland fragmentation, poor land-use practices and numerous land-use management challenges in a predominantly livestock-keeping area. Currently, across Kajiado County, flower farms, fences and diverse businesses and industrial plants speckle the landscape while increasingly obstructing livestock and wildlife habitats and dispersal areas.

The transformation of land use increases competition with pastoralists, who require

open landscapes to access seasonal pasture and water resources for their livestock, particularly during climate shocks such as droughts and floods. Unplanned land fragmentation, the spread of human and industrial settlements, and the enclosure of pasture areas can have implications for local communities and their abilities to cope with and adapt to climate change (Kabubo-Mariara, 2008; Osano et al., 2013).

Under the Representative Concentration Pathway (RCP) 4.5, a moderate climate change scenario, recent analyses of climate projections in Kajiado County indicate an expected increase in maximum temperatures of about 1°C by the 2030s, 1.55°C by the 2050s and 1.83°C by the 2070s (Said et al., 2019). The highest increase in temperature is observed under the RCP 8.5 scenario, a more pessimistic projection with high emission levels, where maximum temperatures will increase by about 1.35°C by the 2030s, 1.99°C by the 2050s, and 3.10°C by the 2070s (Said et al., 2019). These temperature increases are expected to have a large impact on the county's cattle population (Said et al., 2019). Predictions show that by the 2030s 74,000 cattle could be affected by increased temperatures, with knock-on effects for the economy and the livelihoods of those in Kajiado County (Said et al., 2019).

The increased frequency and severity of climate change shocks, such as droughts and floods, require pastoralists to be mobile and flexible in order to cope with the risks and losses associated with climate change (Ericksen et al., 2013). Climate change and land fragmentation are identified as

being two of the most important drivers of change in pastoral lands (Galvin et al., 2008). These drivers interact to result in reduced rangeland productivity, which requires adaptation options as well as the right policy and enabling environment to offset resulting impacts.

This study was carried out as part of a multi-country research project, 'Pathways to Resilience in Semi-arid Economies' (PRISE) that aims to create new knowledge for climate-resilient economic development in the semi-arid lands. This study focused on the implications of changing land tenure on pastoralists and agro-pastoralists, and their climate change adaptation and investment options. The research aims to: 1) understand the trends and policies that underlie the transformation of land tenure in Kajiado County; and 2) explore the adaptation and investment options that pastoralists and agro-pastoralists utilise under different land tenure systems.

The research used a comparative methodological approach, comparing communities under communal and private land tenure systems in Kajiado County (see Figure 1). Methods included a household survey, gender- and youth-sensitive focus group discussions, literature reviews, and interviews with key informants including policy-makers at county and national government levels. This study contributes new knowledge on how the transformation of land tenure and access to land in Kenya's semi-arid areas influences community resilience and adaptation to a changing climate.



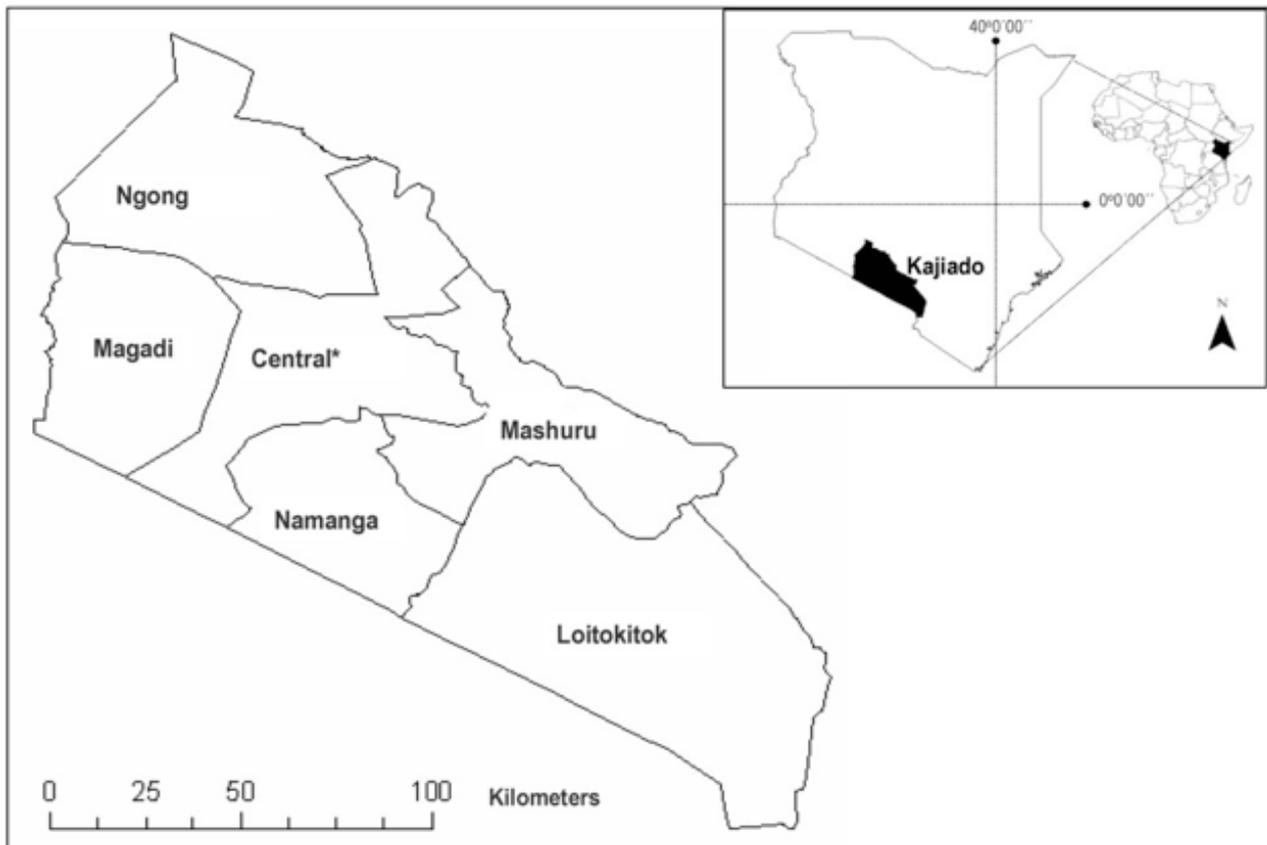


Figure 1: Map of Kajiado County, Kenya. Source: Mwangi (2016)

## Drivers and policies underlying land-use transformations

Here, we identify four broad drivers underlying land-use transformations in Kajiado County were identified. These are: 1. fragmentation of pasture land and reduced range productivity; 2. inadequate land-use planning: demographic pressure

and the expansion of settlements, towns and industries; 3. land commoditisation, land sales and land conflict; and 4. loss of communal spaces and encroachment on livestock refuge areas and conservation spaces.

### 1) Fragmentation of pasture land and reduced range productivity

The fragmentation of land began with the creation of a few private, individual land holdings allocated to political and community leaders just before independence. Large sections of customary land were also appropriated by the government and converted into national parks, reserves and forests (Hughes, 2005; Mwangi, 2006). In 1968, land fragmentation took up a faster pace with the enactment of the Group Representatives Act. This created group ranches for more intensified and commercialised livestock production,

and facilitated the registration of customary community lands as private communal holdings (Galaty, 1994).

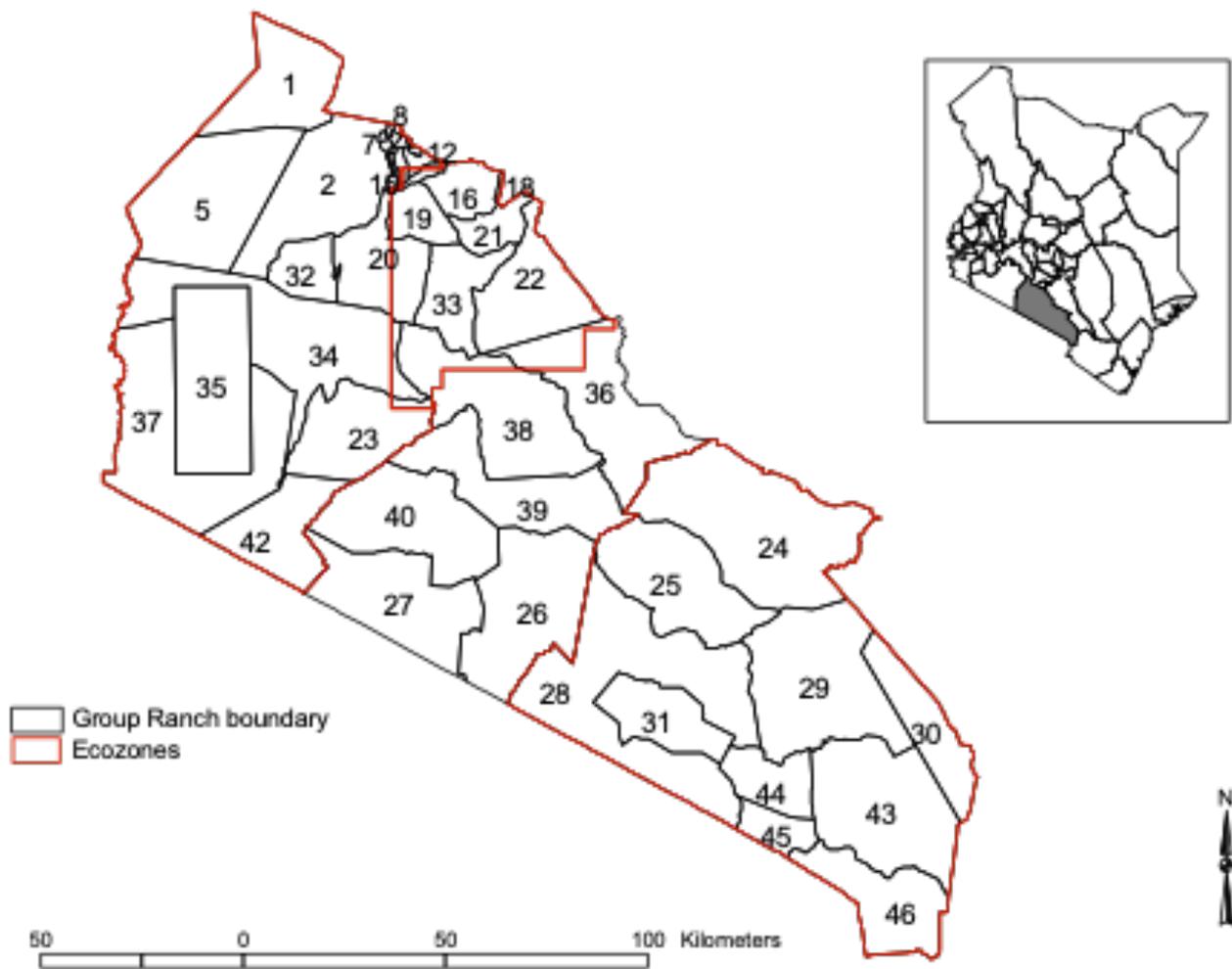
Many group ranches collapsed almost immediately after their creation, leading to a period of accelerated land fragmentation as they were subdivided into private, individual land holdings (Davis, 1971; Galaty, 1994). This research found out that by 2017, the land in Kajiado County had been fragmented to private individual ownership (64%), group ranches (20%), protected

areas (4%), long concession by the Magadi Soda Company (4%), and transition from group ranch to private ownership (8%) (see Figures 2a and 2b).

The breakdown of group ranches has adversely affected sustainable rangeland governance in Kajiado (Galaty & Munei, 1998). The resulting land fragmentation has restricted pastoralists from accessing and managing temporally and spatially variable grazing resources, making pastoralists vulnerable to drought and other climate shocks. The loss of dry season grazing areas and the inability of communities to engage in reciprocal pasture sharing has had negative consequences for drought mitigation (Ericksen et al., 2013). Land fragmentation impacts the resilience of rangeland ecosystems and diminishes their productive capacity, resulting in

pastoral livelihoods becoming increasingly vulnerable to the effects of climate change (Galvin et al., 2008).

Where private land holdings are fenced off or transformed into non-pastoral land uses, the direct outcome is a reduction in available grazing resources for pastoralists. Such reductions in available landscape trigger intensified use of pasture and range resources, which precipitate range degradation and diminished productivity (BurnSilver & Mwangi, 2007; Flintan, 2011). Reduced productivity and land fragmentation also mean – especially where livelihood diversification options are limited – a decrease in livestock populations, an increase in household poverty, and reduced socio-economic resilience (Ericksen et al., 2013; Reid et al., 2004).



**Figure 2a:** Land tenure status in Kajiado County. Protected areas include Amboseli National Park (31) and Chyulu (30). Group ranches that are not subdivided (34 & 37). Semi-privatised group ranches (28, 29 & 43). Land under lease (35). Public forest (9 & 15). The remaining group ranches are privatised. Source: Said et al. (2019)

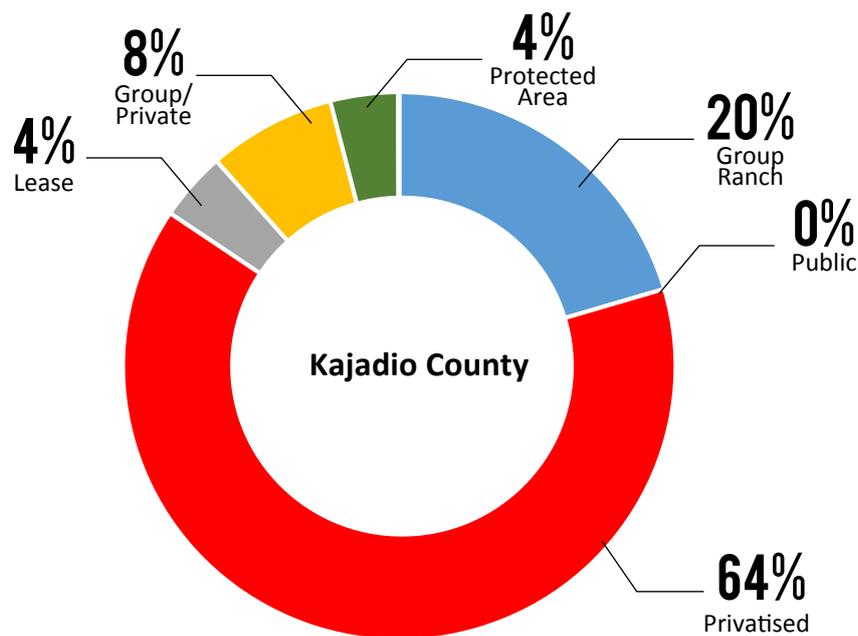


Figure 2b: Land fragmentation in Kajiado County: Source: Said et al. (2019)

## 2) Inadequate land-use planning: Demographic pressure and the expansion of settlements, towns and industries

The rapid spread of settlements, towns and industries in Kajiado County is occurring within an inadequate land-use planning and enforcement context. This has resulted in the uninhibited expansion of settlements, towns and industries, and a mosaic of incompatible land-use activities with disruptive effects on livestock management practices.

The pressure for land and resources in Kajiado County is a product of a rapidly growing population, which is partly due to its proximity to Nairobi. In 2009, the population of Kajiado County was estimated at 687,312 and was projected to reach 1 million by 2017 (GoK, 2011). The county has an average annual population growth rate of 5.3%, far higher than the national average of 2.6%, indicating a faster population growth and possible in-migration of people into the county. Based on the county's average annual population growth rate (5.3%), analysed projections indicate that the county's population will reach 2.03 million people by 2030 (Figure 3).

Adequate land-use planning is therefore imperative for Kajiado County given its above-average population growth rates. Land-use planning provides an important avenue to plan for a growing population and heightened demand for land. Well-designed and enforced land-use planning practices help to inhibit the uncontrolled expansion of towns, settlements, industrial establishments and unsustainable land-use activities.

Land-use planning is also important for providing structure in order to adapt to the effects of climate change. Land zoning can ensure that important grazing pastures and wildlife habitats are safeguarded against the encroachment of settlements, towns and industries. If provided for, livestock corridors and wildlife dispersal areas facilitate the efficient mobility of livestock and wildlife, making it easier to access and utilise sparse pasture resources. Land zoning and livestock migratory corridors thus function to protect livestock against the negative effects of drought and other climate change shocks.

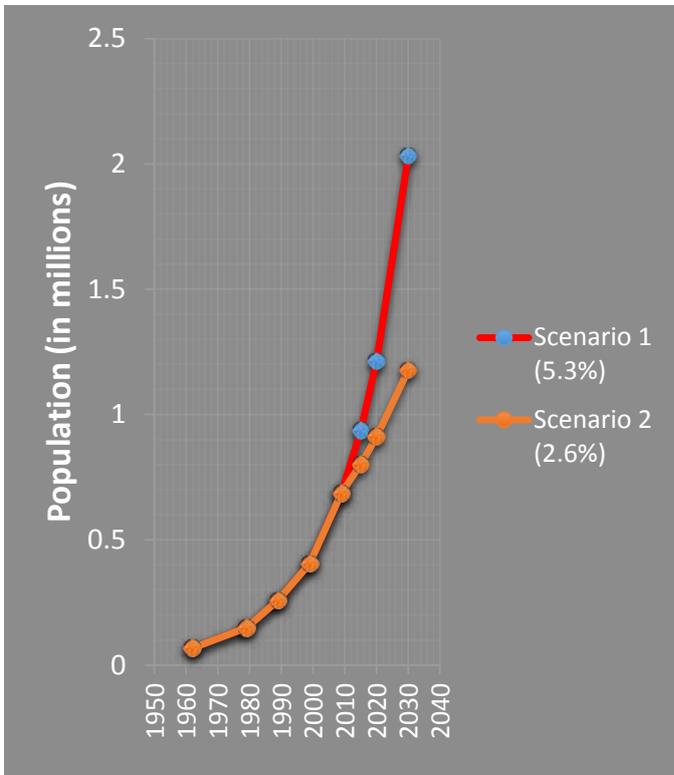


Figure 3: Human population growth scenarios for Kajiado County Source: Authors own

### 3) Land commoditisation, land sales and land conflict

Kajiado County is experiencing severe land commoditisation and land sales (Campbell, 1993; Kabubo-Mariara, 2005; Rutten, 1992; YESS Kenya, et al., 2014). Land sales are driven by diminished returns in pastoral livelihoods and facilitated by an unregulated land market, all of which occurs in an area adjacent to Nairobi with high land-demand (Figure 4). This has triggered land insecurity and conflict, further complicating land tenure governance and climate change adaptation strategies.

Land sales are a key driver in uncontrolled settlement and industrial growth, and unplanned urban sprawl. They lead to the fragmentation of pastoral landscapes and open up land to enclosure as well as conversion into forms of land use that are incompatible with sustainable extensive livestock production. These reduce communities' options for climate change adaptation, especially where strategic

resources are sold and enclosed or where critical livestock migratory corridors are obstructed.

Land can be sold without the appropriate consent of family members, including women and youth, which leads to disinheritance, loss of family wealth, and invariably, conflict. Kajiado County also experiences land conflict and tenure insecurity that stem from many unresolved land disputes and issues relating to public land holdings and group ranches (Galaty, 2013).

In an effort to deter rampant sales of land, the county government imposed a moratorium on land sales in 2012 (Michira, 2012). While it was not supported by the central government, the moratorium still had a significant impact, which proves that appropriate policy and law could have a major role in directing land tenure management.

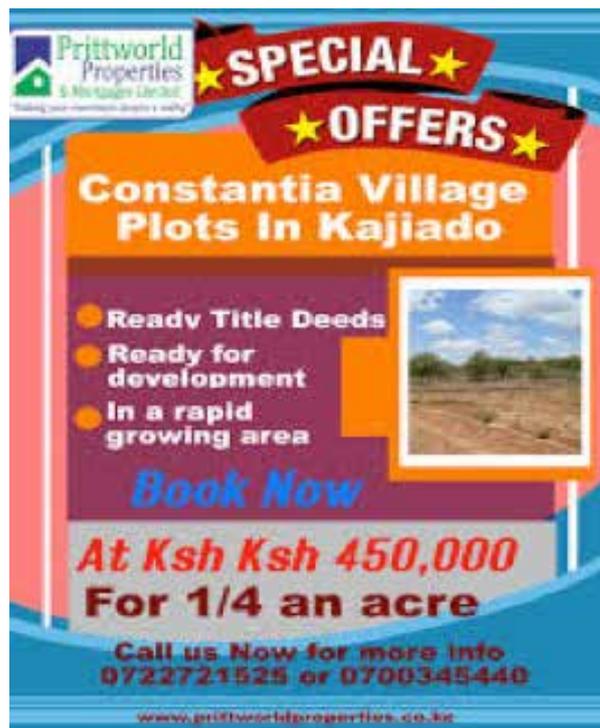


Figure 4: An online advertisement for land sales in Kajiado. Source: The Star classified, 2018

#### 4) Loss of communal spaces and encroachment on livestock refuge areas and conservation spaces

The conversion and constriction of communal spaces in the county is having adverse implications on habitat preservation, wildlife conservation and livestock-based livelihoods. Communal lands (group ranches and public areas) and conservation areas, provide open habitats for livestock and wildlife. Protected areas, such as forests and game areas, act as refuge for livestock and wildlife during extreme climate change events (Mwalyosi, 1995).

In Kajiado County's group ranches, the communal land tenure system has allowed communities to reserve areas of land as livestock dry season grazing areas that double up as conservation areas for wildlife (Russell et al., 2018). These provide drought season pastures and grass banks that help pastoralists respond to the impacts of drought and climate shocks. Grass banks also provide crucial habitats for wildlife and biodiversity. Across the county, however,

communal spaces – including conservation areas, group ranches, livestock holding grounds, and community centres – are being increasingly targeted for privatisation and subdivision. Removing them from use as dry season grazing areas increases communities' vulnerability to mounting climate variability and change. Declines in communal land and open spaces in the county have been accompanied by a decrease in cattle and wildlife populations and an increase in human-wildlife conflict (Ogotu et al., 2014).

Appropriate land-use planning is a way to safeguard communal land for both livestock and wildlife use. This can provide ways to maintain the mobility of livestock and wildlife; increase resilience to droughts and other climate shocks; reduce human-wildlife conflict; and offer the necessary conditions for sustainable mobile livestock production (Moiko, 2013 Robinson et al., 2017).

# Climate change adaptation practices

## ***Land tenure and climate change adaptation***

Communities' options and capacity for climate change adaptation are dependent on land tenure system: communal or private.

### Communal land tenure

Under communal land tenure, communities zone their land into wet and dry season grazing areas. Depending on pasture and water availability, pastoralists move their livestock and settlements between these zones. Livestock also remain highly mobile and migrate throughout group ranches and

through negotiated access to adjacent counties (Narok, Machakos, Makueni, Taita Taveta and Nairobi ) and into Tanzania. Communal systems appear to provide inclusivity and resilience for different social categories.

### Private land tenure

In contrast, in subdivided group ranches under private land tenure, individual land owners do not have community grazing reserves on which to rely. Instead they fence and paddock their land parcels, and practise rotational grazing in order to best utilise their individual pasture. During drought, livestock owners destock or reduce herd size and rely on purchased sources of fodder to feed livestock at home. These adaptation strategies offer resilience for individual land owners and reduce their need for large-scale livestock mobility, a strategy which is constrained under private land tenure.

Nevertheless, despite the individualised nature of land and grazing management

under private land ownership, social networks and reciprocal grazing remain important for access to pasture or water. In some circumstances socially connected units, such as kin, clan or neighbours, grant reciprocal access to land and share grazing and water resources. This effectively facilitates land consolidation or reaggregation, where land owners continue to use their land communally, a strategy that is particularly important for creating grazing reserves that can be used during droughts. This mechanism builds upon traditional pastoral grazing strategies and has been found in communities throughout the county (BurnSilver & Mwangi, 2007; Archambault, 2015).

### Conservancies

An adaptation strategy found in both communal and private land tenure systems is the formation of conservancies. These protect and formalise dry season grazing zones in communal group ranches, such as the Olkiramatian and Shompole conservancies, or can involve the reaggregation of individual parcels of subdivided land, such as the Mara conservancies in Narok County (Bedelian

& Ogotu, 2017). In each case, these conservancies act as livestock grazing zones while also protecting wildlife habitats. Other benefits of conservancies include income generation from tourism and externally funded development projects, which often expand employment and education opportunities available to women and youth.

## **Land tenure and livestock investments**

The dramatic changes in land tenure from communal to private, more individualised systems has resulted in diverse investment patterns. Whereas investments in communal landholdings are centred more on traditional pastoral strategies such as mobility, flexibility and reciprocity, investments in private tenure systems are characterised by resource-intensive and more market-based technological ventures, such as hay and fodder production, milk-selling and packaging, and meat processing, among others. These technological investments offer opportunities for higher productivity levels and transformation within the livestock value chain, which can help build climate resilience and adaptive capacity in traditional pastoral systems.

However, on privatised land, there is concern related to the distributional implications of livestock investments. The changing livestock investment patterns

drive vulnerability patterns by determining who benefits and who does not. Some groups, especially resource-endowed private investors, are stepping up livestock investments through value chain investments and subsequently reaping more benefits from expanding markets such as in fodder and feed production and improved dairy farming. Other groups, such as livestock keepers who do not own or control land, may be pushed out of the livestock value chain as the use for extensive pasture land transitions to more intensive livestock uses, or non-livestock businesses. This renders these livestock keepers more vulnerable to climate change. Most traditional inhabitants of Kajiado County align their capabilities and cultural aspirations with the traditional mobile pastoral system, so it can be difficult for them to cope with changing investment patterns and the increasing loss of useable land.

## **Land tenure and women**

Women face diminished rights to land. Their rights are inhibited by the patriarchal social and land ownership systems that confer control of the household, and its land and livestock assets, to men. During the subdivision process, land is allocated to men and women's access to that land is mediated through their husbands or other male relatives. Women thus have reduced control in decision-making over land-based adaptation and investment options. A step in the right direction to ensure that women must be involved in the sale of family land is a recent requirement<sup>1</sup>, which has been put into law that calls for spousal consent when selling family land.

In communally-owned group ranches, women said that they felt as though they had ownership over the land just as much as men, since land is owned by the whole communal group. Whereas in privatised tenure systems, men hold the title deeds and therefore have ultimate ownership and decision-making capabilities. Still, some women in privately-owned areas said that they have greater opportunities to get involved in other land-use activities beyond livestock, such as cultivation and market trade, which can offer them some financial independence. Women with financial means can also buy land and obtain decision-making power that way.

<sup>1</sup>Land Registration Act 2012

# Implications and policy recommendations

The land tenure trends and drivers of land fragmentation identified in Kajiado County call for changes in policy and governance practices in order to prevent the negative trajectory of unsustainable land-use. Mobility remains a much-utilised strategy by pastoralists to cope with climate hazards (Carabine & Simonet, 2018), but fragmentation and enclosure of pasture land is inhibiting flexibility and access to strategic resources and will exacerbate vulnerability to climate change. When combined with the impacts of climate change and high population growth, it is clear that pastoralists need extra support to develop sustainable adaptation options.

There is need for enhanced public and private investments to support viable climate change adaptation options for pastoralists in both the communal and

private land tenure systems. Adaptation is locally contingent and context specific. As such it should be tailored towards the different land tenure systems. There should be inclusive consultation with local actors in prioritising adaptation action, bearing in mind that pastoralism remains the most valuable and sustainable livelihood option in semi-arid lands when given the correct support (Ndiritu & Said, in review; Bedelian et al., 2019). In any such interventions, care must be taken to ensure that marginalised groups such as women and youth are not excluded. Inclusion is particularly important when considering land-based adaptations or investments, since they have long-term implications on communities.

This research recommends the following policy measures and interventions:

- 1. Prevent land fragmentation and support the sharing of livestock resources:** The Kajiado County Government needs to implement the policies and laws that prevent the creation of land parcels of sub-economic size that are already in place. Existing administrative gaps that facilitate land fragmentation should be closed through appropriate legal means. Additionally, institutional arrangements that facilitate the reciprocal sharing of pasture and water, especially during droughts, should be supported. This could take the form of negotiated agreements that facilitate the access to and sharing of livestock resources between communities, group ranches, counties and neighbouring countries (such as Tanzania). In turn, such arrangements demand that livestock migratory corridors and wildlife dispersal areas are established and preserved to facilitate animal movement and resource sharing.
- 2. Improve land-use planning:** The Kajiado County Government must develop and

enforce a land-use planning framework anchored by appropriate laws to mitigate against uncontrolled land-use practices and to manage urban and industrial sprawl. This would ensure that existing and future land zoning plans would stringently be observed and that existing gaps in the plans would be identified and addressed. A functional land-use management system would safeguard land for appropriate production and reduce opportunities for conflict related to incompatible land uses.

- 3. Regulate land sales and support communal tenure regimes:** The Kajiado County Government should ensure that procedures and laws, especially those regarding spousal consent, are fully observed before any land sales and subdivisions are allowed. Land sale approvals need stringent controls to protect women and youth from dispossession through illegal land transactions. Regulatory guidelines for property agents should also be enforced,

and land surveyors should be made to observe applicable, professional procedures during land subdivisions in order to avoid land-based conflict. In addition, appropriate measures to protect the sanctity of communal property holdings need to be put in place to increase land tenure security among communal title holders and discourage calls for land subdivision, which are instigated by tenure insecurity.

**4. Safeguard communal and public lands, and protected conservation areas:** The Kajiado County Government needs to protect communal and public lands against uncontrolled subdivision and privatisation. Communal holdings and public lands, such as livestock holding grounds, provide the necessary space for pastoral livelihoods and livestock trade. Forests and wildlife parks provide critical habitats for biodiversity conservation, but also act as refuge areas for livestock during extreme conditions. Strategic measures and advocacy campaigns, which safeguard and sensitise the public on the importance and value of communal, public and conservation

areas, should be implemented to preclude any further transformation and privatisation of these holdings. Areas adjacent to conservation areas should be kept open since they also serve as dispersal areas for wildlife. Community-based ecotourism enterprises, with equitable benefit-sharing mechanisms, should be encouraged so communities are able to tap into available conservation revenue streams.

**5. Support pastoralists' climate change adaptation practices:** The Kajiado County Government, supported by development partners and the private sector, needs to ensure that adequate public and private investments, and an appropriate enabling environment, are developed to support pastoralist adaptation and build climate resilience, regardless of land tenure system. This includes investments in livestock marketing and infrastructure; climate services, such as timely climate information and early warning systems; and appropriate financial services, such as credit systems and livestock insurance schemes.



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## CONTACT US

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14 Riverside, Cavendish Block,  
2nd Floor, Suite B, Riverside Drive.



+254 20 2588343  
+254 722 201233



info@kenyamarkets.org  
www.kenyamarkets.org