



Exploring how gender intersects resilience in the face of chronic uncertainty in the drylands

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Key words: pastoralism; drylands; resilience; climate crises; gender

Abstract

Resilience strategies in African pastoral systems face increasing scrutiny, particularly in the context of climate shocks. This article explores gender dynamics in the generation of resilience in a dryland socio-ecological system and amongst pastoralist communities in Moyale, Northern Kenya. The findings challenge existing assumptions of women's adaptive capacity and traditional gender roles, highlighting women's nuanced understanding of household needs and their ability to innovate during crises through strategies such as community savings groups, fodder production, and diversification. Men's resilience, traditionally linked to livestock mobility and herd management, is undermined by recurring droughts, with psychological stress emerging as a key concern. Youth face barriers in translating educational aspirations into sustainable livelihoods, emphasizing the need for inclusive resilience-building interventions. Together, these results demonstrate the need for a gender-sensitive approach to resilience that emphasizes local constructs of adaptive capacity and the need to support relational forms of resilience in ways that bridge social, ecological, and cultural systems.

Introduction

Pastoralism supports millions of livelihoods in Africa, contributing 40% to agricultural GDP (Glatzel et al., 2020). However, pastoral systems in African drylands, particularly in the Horn of Africa, face increasing vulnerability due to climate change (Godde et al., 2020). Repeated droughts, including the recent five consecutive rainfall failures in the Horn, have devastated water and forage availability, threatening the food security of 54 million people despite significant investments in resilience-building programs (GCA, 2024; WorldBank, 2022).

Gender plays a significant yet underexplored role in how resilience is constructed in these contexts. While men typically manage herding and mobility, women assume vital roles in domestic management and economic activities (Flintan, 2008; Hodgson, 1999). As a result, the current literature has identified that women's vulnerability is increased and that women have limited capacity to adapt to climate change (Grillos, 2018; Walker et al., 2022). As Semplici and Campbell (2023) highlight, framing pastoralists as inherently vulnerable leads to an oversight in which pastoralists are assumed as lacking adaptive capacity, without examining how they respond during crises and ultimately overlooking dynamic adaptation. This study explores how gender influences resilience strategies among pastoralist communities in Northern Kenya, emphasizing the importance of nuanced, gender-sensitive resilience-building approaches using a theoretical framework based on relational resilience (Reyers et al., 2022). By recognising the agency of pastoralists, this study aims to explore how

gender influences local resilience strategies in pastoralist communities in the Horn of Africa, contributing to a more nuanced understanding of resilience that will inform gender-responsive policies and development programming.

Methods

This study took place in six villages in Moyale, Marsabit County, Kenya, representing varying degrees of market integration and development (Figure 1). Data collection, conducted from January to February 2024, included 39 semi-structured interviews and focus group discussions with pastoralists, government representatives, NGOs, and researchers (Table 1). A pairwise ranking exercise was used during focus groups to understand the relative importance of gender and other actors in resilience strategies.

Table 1: Characteristics and research activities at study locations. Focus group discussions (FGD), key informant interviews (KII).

Location	Population Size	No. of FGD (women)	No. of KII (women)	No. of FGD (men)	No. of KII (men)	No. of FGD (youth)
Sololo		0	2	0	0	0
Madoadi		1	1	1	3	1
Walda		1	3	1	3	1
Bori		1	1	1	1	0
Amballo		1	1	1	1	0
Adadi		1	3	1	3	1
Total		5	11	5	11	3

Transcriptions were thematically analysed using Dedoose software to extract insights into gendered resilience pathways. Focus was placed on strategies such as diversification, destocking, mobility, and fodder management, with special attention to the evolving roles of men and women during drought crises.

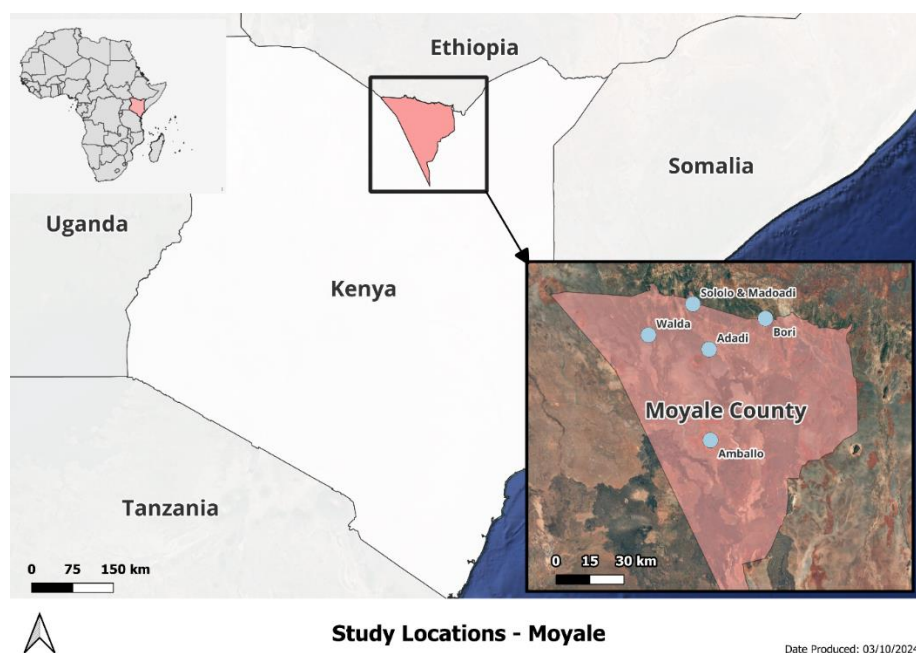


Figure 1: Map locations of study sites in Moyale County, Kenya.

Results

Resilience Pathways and Gender

Pastoralist resilience strategies during drought are multifaceted, with gender playing a central role in shaping both actions and outcomes. These strategies reflect the dynamic nature of pastoral adaptation and the evolving roles of men and women in responding to crises.

Small scale crop farming

Small scale crop farming has become an emerging resilience strategy for pastoralists, focusing on fodder cultivation or growing maize for livestock and human use. However, environmental challenges such as erratic rainfall and poor soil limit its viability. In some cases, poorly maintained infrastructure, like failed irrigation systems, exacerbates these difficulties. A participant from Madoadi noted, “Our land is fertile and has good soil, but the problem is that we don’t have much education on it, and also the climate is not constant.” Women often bear additional burdens in small scale crop farming, facing increased labour demands without sufficient training or support. Additionally, without external investments in education and infrastructure, crop farming often results in maladaptation.

Diversification

Both men and women have adopted diversification into non-livestock income streams, but women tend to drive this trend, especially during times of crisis. Women in locations like Walda, where infrastructure exists, have successfully engaged in camel milk trading, empowering them economically and enhancing their household resilience. Pastoral communities have also diversified their livestock to include a higher proportion of drought resilient species such as goats and camels to complement cattle.

While diversification can complement traditional livelihoods (McCabe, 2010), many pastoralists view it as a temporary survival strategy rather than a sustainable solution. One woman from Adadi reflected, “We didn’t even know that we were rich. It was only after the animals started dying... that we realized how many cows we had.” This sentiment underscores the cultural and economic centrality of livestock, highlighting the emotional toll of diversifying away from pastoralism.

Women’s and Community Groups

Women-led community groups play a vital role in resilience by pooling resources, offering financial support, and fostering solidarity during crises. These groups engage in diverse activities, such as brick-making and fodder production, while also serving as emotional support networks.

The impact of these groups extends beyond economic resilience, promoting social cohesion and enabling members to navigate the psychological challenges of drought. Men also acknowledged the importance of these groups, with one participant stating, “After the loss of the livestock, we had no other things to depend on unless the women’s groups sustained the family.”

Mobility

Mobility remains a cornerstone of pastoral resilience, allowing herds to access grazing lands and water. Pastoralists expressed concern that areas they had traditionally relied on for pasture and water were also suffering from repeated failed rainy seasons. One man from a focus group discussion in Walda said, “When the drought comes, we used to run away with livestock to other parts but when there is drought everywhere, that is when we lose all our animals when it reaches that point, we call onto government for help”. This research revealed the emergence of new mobility practices, such as using trucks to transport animals over greater distances. However, this option remains accessible only to a select few pastoralists with surplus income, often derived from educated family members working outside traditional pastoralism.

Decisions regarding livestock movement are typically made at the family or village level but are predominantly led by men, reflecting the entrenched tradition of male ownership of livestock (Flintan, 2008). During a focus group discussion with women in Madoadi, one woman expressed that, “All decisions are made by fathers. If

there could be involvement of women and maybe children or a family member, we would have not lost all this livestock.” Fostering greater involvement of both men and women in mobility-related discussions and decision-making processes can provide valuable perspectives and contribute to more equitable outcomes.

Destocking

Destocking of the herd emerged as a crucial practice aimed at supporting remaining livestock and acquiring feedstuff for humans. This study found that decision-making surrounding destocking was predominantly led by men, reinforcing the prevailing sentiment from interviews that livestock ownership is traditionally associated with men. It was often not until later in the drought, when animal condition deteriorated and resources became scarce, that animals were sold, typically at a minimal ‘giveaway’ price. These findings highlight destocking as a gendered resilience strategy that necessitates more inclusive dialogues and reflective practices to enhance decision-making processes for better future outcomes.

Buying Fodder

Purchasing fodder is an emerging strategy, often funded through partial destocking or community savings. Many pastoralists bought fodder for the first time during the recent drought, underscoring their adaptability. However, challenges around pricing and quality remain significant. One participant described the fodder as “Poor, because it was just for business,” while another added, “We bought it because we didn’t have other options.”

Both men and women participate in fodder buying, reflecting evolving gender roles. Streamlining this practice through improved quality control and support for local fodder production could enhance its effectiveness as a resilience strategy.

Collecting Fodder

Collecting branches and twigs for livestock feed is predominantly a women-led activity. This physically demanding task often becomes a last-resort strategy during severe droughts, with women expressing frustration over men’s disengagement. One woman from Sololo noted, “Men sit idle, chewing mirra (khat), while we search for fodder.”

This dynamic highlights the gendered burden of resilience strategies, as women shoulder the dual responsibilities of livestock care and household management. Addressing these inequities through targeted support and training could alleviate the strain on women while enhancing overall resilience.

Cooking Human Food for Livestock

During extreme scarcity, women prepare human food such as maize or boiled feed for livestock, prioritizing herd survival over their own nutrition. This practice underscores women’s adaptability and commitment to maintaining livestock health. However, it also reflects the dire circumstances faced by pastoral families, emphasizing the need for timely interventions to prevent such drastic measures.

Humanitarian Aid

Humanitarian aid, particularly cash transfers, plays a pivotal role in supporting pastoralist households during crises. Women, who are often the recipients of these transfers, effectively manage the funds to meet immediate needs. The fact that women predominantly managed cash transfers reinforces their role as key actors in maintaining household resilience, underscoring their capacity to stretch limited resources in ways that ensure the family's immediate needs are met. One participant remarked, “The money helped us buy food and water for the children.”

However, delays in aid delivery often limit its impact. A pastoralist lamented, “If only they held our hand while we still had strength.” While essential for short-term survival, aid must be complemented by long-term strategies that reduce dependence and enhance local resilience.

Pairwise Ranking

Pairwise ranking exercises revealed that women are consistently viewed as the most critical actors during crises, followed by men, NGOs, youth, and the government. Women's central role in managing household resources, community groups, and resilience strategies underscores their importance in crisis response. A participant from Bori summarized, "Women are the ones who keep families alive when the animals are gone."

Discussion

While both men and women contribute to resilience-building in pastoralist communities, the roles they assume are shaped by deeply ingrained gender norms. Women often take the lead in household management, resource allocation, and community support, particularly during times of crisis. Participants from both gender groups acknowledged that women are central in efficiently managing available resources, including money, food, water, and livestock through fodder collection and the preparation of human food for animals. Their multifaceted role reflects broader literature that positions women not only as primary caretakers of their families but also as key contributors to the community's well-being during hardship (Flintan, 2011; Huyer et al., 2024).

These findings challenge the dominant narrative in some of the resilience literature, which portrays women in pastoral communities as the least resilient due to increased vulnerability and reduced adaptive capacity (Huyer et al., 2024). Contrary to this perspective, women emerge as key actors in sustaining lives during shocks, particularly through short-term household resilience strategies. This calls for a rethinking of gendered assumptions in resilience studies and underscores the importance of strengthening the pathways women use to support households, such as community savings groups, diversification activities, and water management practices. However, resilience-building programs must also address socio-cultural barriers that limit women's involvement in broader decision-making processes.

Rather than focusing on access to capital assets and income, such a perspective on resilience emphasizes the social, relational roles that women play in supporting households, often as part of collective efforts, both with men but also particularly other women. These efforts align with the concept of relational resilience, emphasizing the dynamic interconnections between social, ecological, and household systems. Women's expertise in navigating uncertainties and complex socio-ecological systems positions them as pivotal actors in both immediate and long-term responses to shocks. The capacity of women, rather than their associated capital, and their ability to draw on relational networks therefore emerged during this study as important factors for ensuring resilience through drought, across the activities. These findings align with wider perspectives on resilience theory explored by Reyers et al. (2022) and the highlighting of relational resilience as central in pastoral systems (Konaka et al., 2024; West et al., 2024).

As droughts intensify in the context of climate change, gendered roles become more fluid. Women increasingly take on additional responsibilities, while men face new psychological and emotional challenges. Studies indicate that men's traditional roles in pastoralist communities, particularly in livestock herding and mobility, are increasingly undermined by climate-related shocks (Hanigan & Chaston, 2022). This disruption often leads to heightened psychological stress, with some men turning to distractions like mirra (khat), contributing to disengagement as livestock losses mount (McPeak & Little, 2019). This study echoed these findings with substance use reported among men highlighting the need for mental health interventions that are culturally sensitive and embedded within existing community structures. Addressing men's mental health is crucial not only for their well-being but also for maintaining their active role in long-term resilience strategies, particularly in adapting livestock management to changing conditions through mobility and livestock care.

Meanwhile in terms of external support through 'resilience' programs, even though overall they were ranked low, some NGOs were acknowledged for their life-saving interventions, even though pastoralists expressed frustration over the delayed arrival of aid, a critique echoed in other studies that document the lag in humanitarian responses in pastoral areas (Fitzpatrick, 2024). The government was ranked as the least essential

actor, often seen as offering minimal and delayed support, reinforcing findings on the lack of timely state intervention in pastoral regions.

Furthermore, the shifting dynamics observed during the depths of drought suggest a broader evolution in gender roles (Karmebäck et al., 2015). As men become increasingly dependent on women for household survival during crises, this dependence has the potential to reshape gender relations beyond the immediate crisis period. There is a need for more longitudinal research that tracks how gendered resilience strategies evolve over time in response to recurring shocks (Bryan et al., 2023; Juran & Trivedi, 2015). While much of the existing research focuses on short-term responses to crises such as drought, little is known about how men's and women's roles in resilience change across multiple cycles of shock and recovery. This could offer insights into the sustainability of certain strategies and whether they are becoming more or less gender-inclusive over time.

To foster holistic, gender-sensitive resilience, interventions must address socio-cultural barriers limiting women's involvement in decision-making while equipping men with the mental health and adaptive capacity-building support needed for sustainable livestock management. Aligning with relational resilience, which emphasizes context-sensitive, adaptive strategies rooted in local knowledge, such efforts can better navigate the uncertainty characteristic of pastoralist systems.

Acknowledgements

This research was supported by the Australian Centre for International Agricultural Research (ACIAR) under the project, *Exploring Local Constructs of Resilience in the Face of Chronic Uncertainty in the Drylands* (LS/2022/144). We also thank the Center for Research and Development in Drylands team for their ongoing support and assistance. We acknowledge the family of research assistant Dahabo Guracha for their support during the project. Financial support for fieldwork in Kenya was provided by the Crawford Fund and Westpac.

Ethics approval was granted by Jomo Kenyatta University of Agriculture and Technology (JKUAT) under approval number JKU/ISERC/02316/1112.

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