

Junior Scientists Tandems

Final Report

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PhD research background

Arid and semi-arid lands (ASALs) account for more than 80% of Kenya's land mass. These regions, also known as rangelands, are distinguished by low and unpredictable yearly precipitation, and their scarce natural resources are dispersed unevenly across the surface. Thus, the availability of these resources fluctuates with time and space. Pastoralism is the primary livelihood strategy in these regions since the rangelands are unsuitable for crop cultivation. Pastoralism is described as a type of extensive livestock production systems on rangelands that relies on subpar and unevenly distributed resources to produce a variety of animals products. Pastoralist societies have historically employed interdependent strategies that allow them to thrive in their low-productivity environments marked by variability and unpredictability. These interrelated strategies encompass mobility, flexibility, diversity, reciprocity, reserves, and pastoral institutions.

Mobility is the cornerstone of pastoralism, enabling herders to move their animals across vast landscapes to access fresh pasture and water resources as environmental conditions change. It prevents overgrazing, reduces soil erosion, and allows pasture to regenerate. It also serves as a risk mitigation strategy for droughts, disease outbreak, and political instability. Flexibility enables pastoralists to tailor their activities to the current ecological and socioeconomic conditions. This involves changing mobility patterns, herd composition, and production strategies. Pastoralists maintain a variety of livestock species, including cattle, goats, sheep, and camels, to exploit different ecosystem types and adapt to changing environmental conditions. Social networks and mutual aid systems, such as stock associations, reciprocal grazing rights, and barter systems, provide social security and resource sharing during times of need. Setting aside distinct areas for wet and dry season grazing ensures resource availability during critical periods. Pastoral institutions are systems, structures, and organizations—formal or informal—that govern the management, use, and access to resources essential for pastoral communities. They are the backbone of pastoral systems, providing the structure and support needed for the other strategies to function effectively.

For decades, pastoralists have relied on communal land systems (pastoral commons), which are a collective approach to land ownership and management, to enable mobility. However, pastoral rangelands are undergoing transition in the form of fragmentation and privatization, which is significantly impacting pastoralists' access to critical grazing resources. Fragmentation is the dissection of previously contiguous rangelands due to changes in land use or cover, such as bush encroachment, crop farming expansion, and infrastructure development. It alters mobility patterns, forcing pastoralists to navigate inaccessible patches of land or migrate to new areas, which often results in conflicts, particularly in contested territories. Privatization is the formal allocation of communal land to individuals or entities, usually through legal processes such as policy reforms. It typically results in the establishment of private property rights on pastoral lands, which restricts access to crucial grazing resources. Pastoral land fragmentation could eventually lead to privatization. In the face of rangeland fragmentation and privatization, pastoralists are self-organizing by using various strategies to cope with reduced access to shared grazing resources. Scholars have termed this phenomenon as creating the "new pastoral commons".

Even while many pastoral commons scholars have reported on practices that pastoralists are employing to maintain access to crucial grazing resources after privatization, a systematic analysis of strategies for creating the "new pastoral commons" is lacking. There is also a dearth of common vocabulary for these strategies, which would allow for categorization and comparison across contexts to assess their broader implications. Previous study has mostly concentrated on the "new pastoral commons" that result from privatization, with little to no emphasis on fragmentation. Since pastoralists are creating "new commons", new institutions must emerge to govern them. However, there is limited knowledge, on how these new social institutions develop, define boundaries, create rules, and establish monitoring systems. Furthermore, there is a paucity of understanding on how the emerging institutions integrate traditional shared norms and values on which pastoralist societies have relied for decades. There is a dearth of quantitative analysis of the institutional changes resulting from the creation of the "new pastoral commons," as well as the long-term sustainability of these institutions and their implications for resource management and social relations.

My PhD research seeks to contribute to the existing knowledge gaps through three research objectives: (1) to systematically explore and document the various strategies that pastoralists employ to create new commons; (2) to explore the processes involved in creating new commons, identify individuals involved, and understand their rationale for pursuing specific strategies; and (3) to investigate emerging social institutions for governing the new pastoral commons, their effectiveness, sustainability, and implications. I will achieve these study goals by adopting a mixed-research approach comprising of ethnographic assessments, case studies, and experimental economics games.

Research collaboration with International Livestock Research Institute (ILRI)

ILRI is the CGIAR's only center dedicated only to animal agricultural research, with an emphasis on improving food security, reducing poverty, and improving lives in developing nations through livestock production. ILRI is a world leader in pastoralism research due to its long-standing legacy, field-based, systems-oriented research approach, and the development of high-impact, practical innovations that directly address the unique challenges faced by pastoral communities. My research collaboration with ILRI stemmed from synergies between my PhD study and the current research work of one of its senior scientists, Dr. Fiona Flintan. She specializes in natural resource management and land governance and tenure, participatory land use planning, pastoralism, and participatory rangeland management (PRM). During the early phases of my PhD, I contacted Dr. Flintan to learn more about her study on pastoral land governance in Kenya, and after several discussions, she proposed that we formalize our research collaboration with me joining ILRI as a PhD fellow. Accordingly, I joined ILRI's Livestock, Climate, and Environment (LCE) program in July 2025, and my contract with them will end in March 2027, when I complete my PhD. Our arrangements require me to produce at least three research outputs, such as original research and policy briefs publications, as the first author. Essentially, my current PhD research will inform Dr. Flintan's collaboration with Professor Jeremy Lind of the University of Sussex's Institute of Development Studies (IDS), which focuses on the various strategies that pastoralists are employing in response to reduced access to shared grazing resources. They have an upcoming research paper that was recently accepted for publication, which highlighted potential future research gaps that my PhD research will contribute to fill.

Pre-fieldwork planning

My pre-fieldwork research objectives, developing a detailed research plan, and logistical preparations like obtaining permits, making contacts with local communities, and scheduling. It also involved preparing data collection tools, understanding the local context, and conducting an exploratory visit to assess feasibility of my proposed research. In August 2024, I conducted a n exploratory visit in one of my study regions: Narok county. I used exploratory fieldwork to test the feasibility of my adopted research questions and hypotheses based on what I observed in the communities; to collect initial data that later led to a more structured research; to gain a deep, nuanced understanding of the social, cultural, and environmental context in which the PhD research will take place, which would be crucial for accurately interpreting data and ensuring the research is relevant to the local communities; and to build a rapport with the local communities for my subsequent main fieldwork.

Research ethical approval

Before beginning my fieldwork, I had to seek for research ethical approval from ILRI's Institutional Research Ethics Committee (IREC), and after adequately responding to reviewer comments, I was granted approval under reference number **ILRI-IREC2025-29**. After obtaining IREC approval, I applied for a research license from Kenya's National Commission for Science, Technology, and Innovation (NACOSTI), which was granted under **Ref No: 77114**. Prior to acquiring these approvals, I could only carry out pilot research operations. So, as I waited for approvals, I utilized the serene office space provided by ILRI to look deeper into the existing literature that my research is based on, polish my fieldwork tools, network with other CGIAR scientists, organize my fieldwork logistics, and attend trainings and seminars. During this time, I joined the Jameel Observatory (JO) community, which is made up of scholars whose research focuses on ASALs regions. I've attended numerous scientific seminar presentations organized by JO, where I was able to network with researchers whose work is relevant to my PhD study. I will include my IREC and NACOSTI approvals with this report.

Fieldwork experience

Between September and November, I conducted fieldwork for my PhD research in Kenya's pastoral regions: Baringo and Narok counties. During my first week in the study locations, I trained my research assistants on how to use my data collection tools and translated my fieldwork guides into the local language. In Baringo County, I conducted research with pastoralist communities where Dr. Flintan's team is implementing participatory rangeland management (PRM) initiatives. I stayed in the communities for a month and a half, conducting research activities such as focus group discussions (FGDs), key informant interviews (KIIs), household surveys, participant observation, and experimental economic games. I conducted 10 focus group discussions, 9 key informant interviews, a sociodemographic survey of 63 households, and experimental games with 60 participants. I conducted research on 7 clans from the Pokot pastoralist ethnic group, and my sampling frame comprised of 5 villages. Dr. Flintan has no present research activity in my second study region, Narok county, which has fully privatized its pastoral land; yet she was open to the idea of me undertaking research in the region without the assistance of ILRI to boost my research independence. For around a month, I undertook research activities with 2 clans from the Maasai pastoralist ethnic group. My sample frame also consisted of 5 villages. I conducted 6 focus group discussions, 14 key informant interviews, a sociodemographic survey of 71 households, and experimental games with 64 participants. The fieldwork was not without challenges. Given that I am not from any of my study regions, I had to take a back seat and rely on my local research assistants to help me with my activities in the local languages. At times, I couldn't help but feel like I had given them too much control over my research activities. As an outsider, some community members viewed me with distrust based on previous experiences with researchers. Study sites in both of my study regions were very remote. We could encounter bad roads that could delay our arrival at a chosen fieldwork destination, in addition to weak communication and internet connectivity, and frequent blackouts. At times, my scheduled fieldwork activity could overlap with an impromptu community activity, forcing me to cancel the activity.

Post-fieldwork

Given that my fieldwork activities in both study regions were conducted in local languages, the research assistants were required to translate my data into English before I left the region. When I returned to the ILRI campus, I started cleaning up my data and coding it for qualitative analysis, which is an ongoing process. I also began compiling a comprehensive scientific fieldwork report to share with my university supervisor, Prof. Martin Petrick, and ILRI supervisors, Dr. Fiona Flintan and Todd Crane. I am also working on a draft of an original research manuscript, which I envision to submit for publication in early 2026. I'll be presenting my preliminary results at an ILRI seminar scheduled for December 9th.

Preliminary results

From my literature review process, came up with 18 categories of strategies for creating the "new pastoral commons" including: Leveraging on social networks and kinship ties, reciprocal grazing, paying grazing fee, community-based conservation, social sanctioning, cross-border grazing, community solidarity, combining herds, adverse possession, negotiating access to private lands, grazing on adjacent areas, illegal grazing, reoccupation of abandoned lands, strategic purchase of private lands, herd distribution, voluntary combination of private lands, forming grazing associations, and shift in herd composition. I am pleased that both my study regions I could identify some of these strategies. In Baringo county I observed cross-border grazing, shift in herd composition, paying grazing fee, grazing on adjacent areas, illegal grazing. While in Narok county I observed community-based conservation, herd distribution, social sanctioning, paying grazing fee, illegal grazing, voluntary combination of private lands, grazing on adjacent areas, strategic purchase of private lands, negotiating access to private land, cross-border grazing, and reciprocal grazing. Some of the emerging institutions that I observed in Narok county include the new rule which stipulates that whoever encloses their private lands should not be allowed to access other peoples' lands when their livestock need additional grazing resources. When it comes to the strategy of negotiating access to private land, a livestock owner must stick to the number of animals that have been granted permission to avoid depleting the resources on a particular landowner's grazing field. As for community-based



conservation, its members are required to only fence up to 10 acres of their total land parcel, usually only around their homesteads.

Data analysis

For qualitative analysis I plan to conduct grounded theory, content analysis and thematic analysis, translated transcripts from FGDs and KIIs clearly indicated some distinct prevailing trends in regards strategies for creating the new pastoral commons. Thematic analysis will identify, analyse, and report patterns (themes) within FGDs and KIIs data sets, with a goal of providing detailed accounts of people's experiences, views, and opinions. Content analysis will be used to identify and quantify the presence of specific words, subjects, or concepts in the FGDs and KIIs transcripts. The goal will be to transform qualitative input into quantitative data to reveal communication patterns. Grounded theory will be employed to develop a new theory directly from the data itself, rather than starting with an existing hypothesis. Three strategies from my Narok fieldwork stood out and they would probably be used for grounded theory, thus, community-based conservation, social sanctioning, and herd distribution. While for quantitative analysis I plan to adopt for results from experimental economics games and sociodemographic surveys include descriptive statistics, inferential statistics, and econometric modelling. Descriptive statistics will be employed to summarize the data to identify overall patterns of behavior and compare them to theoretical predictions. Inferential statistics will be adopted to test hypotheses adopted in the experimental games and draw conclusions about the pastoral communities based on the sample data from the experiment. While econometrics will be used to model complex relationships and control for various factors.

Conclusions

I am delighted to report that my research stay at ILRI was fruitful and valuable to my PhD study. I feel I will depart ILRI as a different researcher than when I first joined. First, I have been able to network with several scholars whose work I have drawn from, and I am likely to collaborate with them on further research. I improved my research and interpersonal abilities by attending frequent seminars and training sessions at ILRI. I had firsthand experience with the fieldwork process, which included rigorous planning, execution, and post-fieldwork reflection. My fieldwork was a success based on the quantity and quality of data I collected, which I am convinced will answer my research objectives and questions and make significant additions to pastoral commons research. The presentation of my PhD study at the ILRI seminar was a good opportunity to receive feedback on "work-in-progress" from both senior researchers and fellow students, which helped me sharpen my arguments and overall improve my research. My ILRI supervisor, Dr. Flintan, is a renowned rangeland governance specialist in the region, and I took advantage of my affiliation with her to learn as much as I could from her works and expertise. Dr. Flintan is also on the editorial board of one of the scientific journals focusing on pastoralism, so I believe I will be able to benefit from her invaluable, practical insights into the often-obscure peer-review and publication process, increasing the chances of my future manuscripts being accepted for publication.

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Photo highlights



Photo caption: Local research assistants facilitating focus group discussions in Narok County



Photo caption: Local research assistants facilitating focus group discussions in Baringo County



Photo caption: Fun time with other ILRI graduate fellows, including some ATSAF scholars
