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Junior Scientists Tandems
Final Report

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Introduction

This report outlines my personal and scientific research experience during a 6-month research stay at the International Livestock Research Institute (ILRI), Nairobi, funded by the Arbeitsgemeinschaft Tropische und Subtropische Agrarforschung (ATSAF e.V.) Junior Scientists Tandem (JST) Program. My background is in Agribusiness Management and Agricultural Economics. My research interests focus on sustainable livestock systems, including pastoralism, land use changes, climate change adaptation, sustainable intensification of livestock production, rangeland management and restoration, nature-based solutions, and the production and conservation of fodder and forages, as well as the adoption of improved forage grasses (IFG).

Background

On my way from my home to the airport, my head is fixed at the window as I take in as much of the countryside as possible before my eventual return to Germany. I can't help but count the several truckloads travelling in the opposite direction, coming from neighboring and distant counties, full of hay bales and straw to the brim, some even close to double the height of the normal load. It had only been six months since my arrival in Kenya in May, and the countryside was lush, with grasses waist-high in some instances, cattle gracefully grazing and swinging their tails in delight. After the wonderful performance of the March-April-May (MAM) rains, the rangelands had healed, and bare country had turned into seas of plentiful forage. Nothing could sum up my research stay than these two observations. The sharp contrast between the then plenty and the now lack, the prospect of sufficiency, but the now dependence on distant places for basic animal nutrition for survival. This is the exact question that led me from Germany to my host institution, ILRI Nairobi, armed with curiosity and a research proposal.

Drought is cyclical, and the distribution of water and pastures in the rangelands is temporo-spatially uneven. In the past, pastoralists would utilize mobility skillfully, moving animals to fresh grazing grounds and water points, earmarking certain areas as dry-season grazing grounds. Access and utilization were guaranteed by multi-faceted traditional governance structures that evolved with the variability of their climate.

One can argue that climate variability and cyclical droughts have existed for eons, and communities have adapted to live through them, and that it's not only the changing climate, but also non-climatic factors, precisely anthropogenic activities, that are to blame for the current crisis. Actions such as land subdivision and fragmentation, land use change, and

sedentarisation of nomadic communities have limited pastoralists' ability to utilize their traditional landscapes and greatly reduced their resilience.

Overview of Research Stay

On my first day at the institute, I was introduced to different teams in the Livestock, Climate and Environment (LCE) program, ranging from the Rangeland, KAZNET, IBLI, PPA, Jameel Observatory, and several Master's, PhDs, and Postdocs undertaking various research projects. One anecdote that stuck with me is "Don't get lost in the many interesting projects going on". The time at the institute flew really fast, but it was always interesting brainstorming and discussing my research ideas and getting feedback from different perspectives.

I had the opportunity to attend project meetings and understand technical processes undertaken by scientists, such as writing and bidding competitive proposals, funding sources for development research, and terms such as the 'burn rate'. Importantly, it was the time when the downstream effects of the USAID dissolution and cutting of development budgets were unravelling, with lots of project work affected and organizational restructuring leading to significant job losses. This was a steep learning curve, but important in understanding financing for development research projects and the evolution of the funding landscape.

I also had the opportunity to witness institutional collaboration, through the Accelerating the Impacts of Climate Change Research in Africa (AICCRA), bringing together ILRI, Kenya Agriculture and Livestock Research Organization (KALRO), and the Kenya Meteorological Department (KMD) to work out a framework for timely dissemination of weather-climate information to farmers and pastoralists across the country to enable accurate planning and adaptation.

Through the Livestock Nutrition and Feed Resources program at ILRI, I got to visit the forage and fodder trial field stations at the ILRI Nairobi Campus and also at Kapiti Ranch, where we witnessed the performance and characteristics of forages such as *Cenchrus ciliaris*, *Eragrostis superba*, *Rhodes grass* (*Katambora*/ *Boma*), Lucerne, *Dolichos lablab*, and many more. This was quite informative and essential for me as I familiarized myself with the agronomic aspects of the improved forage grasses (IFG) before the commencement of my field work.

I also attended the first Kenya Feed and Fodder Investment and Contracting Action (KEFFCIA) organized by the Kenya Feed and Fodder Alliance (KEFFA) as part of the Resilient African Feed and Fodder Systems (RAFFS) project of the African Union. This was a first-of-its-kind conference, highlighting the strategic shift from a reactive drought-oriented perspective to proactive feed systems development.

Demand was cited as the weakest link in the fodder value chain. Stakeholders addressed this by taking into account the seasonality of demand and supply for fodder. They highlighted efforts towards building long-term stability and resilience, leading to broader sector growth and development. The key message was fodder first, followed by the herd, and that with robust and resilient feed and fodder systems, we could boost livestock productivity, improve rangeland conditions, and reduce methane emissions. The conference brought together fodder producers from the intensive dairy systems in the Kenyan highlands, organized in cooperatives, and rangeland/pastoral fodder producers together with private investors, NGOs, and government institutions. I got to meet some of my key informants and interview respondents through this forum.

Field Experience

Through liaison with the Assistant Livestock Director at Kajiado County, the Olkejuado Pastoralists Development Organization (Dupoto-e-Maa), and the pastoralist fodder producers I met at the KEFFCIA conference, I was able to kickstart my fieldwork easily, and they acted as a stage for further snowballing. I successfully managed to sample my targeted groups and gathered key insights into fodder production from a collective perspective. I traversed Kajiado Central, Kajiado West, and Kajiado East sub-counties, covering a total of 7 farms, and holding interviews with the (agro-)pastoralists. I conducted 2 online and 4 in-person key informant interviews to supplement and validate the insights I had gathered.

Conclusion

An important takeaway from my fieldwork is that all fodder producers interviewed mentioned that they did not lose any livestock to drought in the preceding droughts and dry seasons. This is quite positive given the alarming figure of more than 400,000 cattle that died in Kajiado alone in the 2020-2022 drought. Additionally, it's not only about technical solutions, such as in this case, machinery or fodder production and conservation technologies, but the key realities and cultural contexts that the adopters are grounded in. With strong traditional values, adoption of new technologies and innovations can at times be akin to abandonment of long-standing cultures.

During my research stay at ILRI, I got a first-hand experience of how research in livestock, climate, and environmental systems connects with development outcomes through partnerships and initiatives with communities, NGOs, private, and governmental institutions. This has enriched my understanding of the feed, fodder, and livestock systems holistically

beyond the scope of my own project, and highlighted the need for strengthening multi-disciplinary approaches towards solving complex challenges.

The institutional exposure mentorship, field research, and glance into the cutting-edge livestock research have greatly contributed to my professional and scientific development, and ignited my curiosity and interest towards further research initiatives.

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To the Maasai pastoralists and respondents, I will always cherish the great hospitality and conversations where you shared tea, time, your knowledge, and experiences with me.

Pictures from the Field.

1. **Degraded vs Restored grassland**


2. Storage of hay bales



3. Sample photos from the field


4. Feed & Fodder Investment Conference