HEIFER® INTERNATIONAL

CASE STUDY REPORT

Kenya Livestock Market Project (KLMP): Building Resilience and Livelihoods by Transforming Women-Led Food Systems

CASE STUDIES FROM THREE KENYAN PASTORAL COMMUNITIES: ISIOLO (GOTU, NAKUPRAT) AND KAJIADO (NASARU), KENYA

ABSTRACT

This case study explores gendered barriers and economic strategies in Kenya's pastoral livestock systems, offering community-driven, evidence-based recommendations to enhance women-led livestock production.

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1. Background and Purpose of Case Study

In Kenya's arid and semi-arid lands, pastoralism as a sustainable livelihood strategy has existed for almost 5,000 years (Barthelme, 1985; Hildebrand et al., 2018; Lane, 2013; Sawchuk et al., 2018) – a system born from optimising productivity found in the heterogeneous spatiotemporal distribution of rainfall and pasture availability characteristic of these regions. Over the millennia, challenges such as extreme droughts, human and livestock diseases, and inter-ethnic conflict have ebbed and flowed, and yet, pastoralism has persisted as a testament to the inherent resilience and adaptive capacity of this livelihood system where it evolves and flexes to persevere through challenges.

However, as mortality rates decline and human populations rise, alongside reductions in grazing lands due to sedentarisation, privatisation, encroachment, and displacement, combined with more frequent climatic shocks (e.g. droughts, flooding), increasing demands for market integration, and a growing social conscience around economic and social equity, what new mechanisms can address these contemporary challenges whilst preserving the integrity and resilience of pastoral livelihoods? Furthermore, any proposed solutions must be community-driven, contextually relevant, and grounded in evidence, so they reflect local values and produce positive, sustainable outcomes for people without unintended misalignment or consequences.

A key pillar of the *Kenya Livestock Market Project* (KLMP) for Heifer International is to address the challenges facing modern pastoral life in Kenya, with particular emphasis on bridging the economic and social gaps that often exclude women as they seek equitable participation in livestock production and market systems. In these pastoral systems, women perform a disproportionate share of labour critical to livelihood success that remains largely invisible, unpaid, and unsupported. Although they engage in nearly every aspect of livestock care and management, they remain structurally excluded from decision-making power, equitable profits, and property rights. The lack of inclusion of women (and other marginalised groups) in the design and implementation of development and livelihood projects can often lead to sub-optimal outcomes, and there is an increasing risk that such efforts may unintentionally reinforce these inequalities through ignoring solutions that would have been identified or led by women, and / or overburdening women while consolidating male-dominated control of assets and further marginalising female labour.

1.1 Purpose of Case Study

This case study was conducted as part of the broader KLMP program to advance gender-sensitive programming through a contextualised understanding of women's roles, barriers, and opportunities within pastoral livestock economies. Recognising that women's participation in livestock markets is systematically constrained despite their central role, the study aims to provide an empirically grounded foundation for interventions that are locally responsive and meaningfully transformative. Outcomes from these efforts should reflect local values and contexts while also supporting the broader goal of improving the health of people, livestock, and ecosystems in ASAL areas.

This study will thus also meet the goals of Heifer's current program model to explicitly integrate the inclusion of participant women in program design and implementation as a core element of design.

Furthermore, it centres local, evidence-based contextualisation to promote resilient livelihood systems for producer communities whilst strengthening the principles that Care for the Earth.

Through sustained field engagement across three distinct pastoral communities, this research sought to identify the social, structural, environmental, and economic factors shaping pastoral women's engagement in livestock systems, both within domestic and market-oriented domains. At its core, the study aimed to answer a series of interrelated questions:

1. What are the practical and perceived barriers pastoral women face in accessing and succeeding within livestock markets? These may include tangible impediments such as land tenure, herd ownership, mobility, market access, and security, but also encompass social norms around gender roles, decision-making hierarchies, and modes of exclusion.

2. How viable are existing community-level women's organisations and groups as platforms for economic participation, collective action, or cooperative enterprise? Many of these organisations are nascent, under-resourced, or ill-defined in their structure. This study sought to evaluate their functionality, cohesion, and potential for scale (or not).

3. Third, how do women themselves perceive their roles and aspirations within livestock economies and their methods for addressing barriers to participation? What forms of knowledge, strategy, and economic reasoning do they employ, and how are these shaped by factors such as ethnicity, marital status, educational attainment, exposure to previous development programming, and access to resources?

A related line of inquiry examined how environmental variability, livestock health risks, and ecological degradation intersect with gendered labour burdens and decision-making power.

The aim here was to understand the ***One Health*** (in this case: health of people, livestock, and the environment) implications of developing women-led livestock initiatives in a landscape where grazing lands, water access, and veterinary services are unevenly distributed and often precariously accessed. Finally, the study considered what ***safeguarding mechanisms*** are necessary to ensure that initiatives targeting women do not inadvertently reproduce vulnerabilities (social, environmental, and economic) or overburden women with additional responsibilities without a commensurate increase in autonomy, income, or status.

This case study is grounded in the understanding that building resilient and equitable livestock systems requires close attention to the gendered dimensions of pastoral labour, rights, and responsibilities. It takes a holistic, community-driven approach, recognising that the success of women-focused livestock initiatives depends not only on technical inputs or market access, but also on the broader socio-political and ecological contexts in which women live and work.

Ultimately, the study aims to operationalise these data to generate actionable insights that support KLMP’s mission to promote gender-equitable livestock production in both domestic and market domains. This is not only within the case study communities, but across Kenya’s pastoral regions supported by Heifer International and amongst their global portfolio. By grounding recommendations in the strategies, frustrations, aspirations, and constraints voiced by women themselves, it affirms

that pastoral women are not passive beneficiaries of development but active agents whose resource strategies and livelihood visions must guide the design of any meaningful change.

2. Site Selection and Methods

The selection of Gotu and Nakuprat in Isiolo County and Nasaru in Kajiado County as focal sites for this case study emerged not from a rigid hypothesis-testing framework, but rather from the practical and strategic considerations that aligned with the broader ambitions of the KLMP. The goal was to engage with sites that reflected the diversity of pastoral contexts within the KLMP portfolio balancing depth of analyses with constraints inherent in multi-population sampling.

These communities offered diversity in regard to their ethnic group composition (Borana, Turkana, Maasai), linguistic families (Cushitic and Nilotic), levels of market integration (small-scale subsistence to emerging market integrated), proximity to neighbouring groups (interior vs. border populations), focus livestock species (shoats vs. cows vs. camels), political representation (northern vs. southern counties), religious adherence (Islamic vs. Christian), land tenure (communal vs. private ownership), amongst numerous other aspects of cultural variation.

The diversity within the case study provides a valuable comparative lens through which to examine gendered livestock economies applicable to the larger KLMP portfolio of intended target areas. This selection process thus reflected a pragmatic effort to ground the case study in locations where learnings could be immediately actionable, while still generating insights that hold relevance for other pastoral settings across Kenya and beyond.

2.1 Research Framework and Methods

The research followed a case study design grounded in socio-ecological systems thinking and a One Health theoretical framework. This approach enabled simultaneous attention to the interlinked dimensions of environmental, livestock, and human health and wellbeing. Data collection was designed to capture both individual- and group-level variation in women's engagement with livestock systems for both domestic and market-utilised livestock. The design did not aim to measure statistical significance nor hypotheses testing; instead, it sought to document patterns of practice, perception, and constraint in ways that could inform programmatic decision-making and cross-site learning.

Methods were chosen to foreground lived experiences, local knowledge, the social organisation of labour, resource access, and community participation. Qualitative data were triangulated across multiple instruments to ensure consistency and analytic depth and benefited from cross-validation with more than a dozen ethnographically-based studies Dr. Handley has conducted amongst pastoral communities in Kenya.

Core methods included: 1) semi-structured individual interviews, 2) focus group discussions, 3) key informant interviews, and supported by, 4) participatory mapping of land and resource use. Interviews further integrated a sub-set of structured livelihood and demographic questions to support basic comparative indicators (e.g., age, household size, marital status, educational attainment, asset ownership, market participation, etc.). The focus on capturing livelihood depth and variation across

these three sites necessitated spending adequate periods embedded within communities and engaging closely with participants in their daily environments. This integrated fieldwork facilitated rapport building, observing lived realities, and the gathering of nuanced insights necessary to meaningfully address the study's core questions.

2.2 Within-Community Site Selection and Sampling Strategy

Data collection occurred between 12 May and 20 June 2025 across the communities of Gotu (16 – 25 May), Nakuprat (26 May – 3 June), and Nasaru (5 – 19 June). Within-community site selections (i.e., field base of operations) were chosen in consultation with local authorities and community leaders prior to data collection to define the geographic scope of the data collection and to be a central, safe point from which to access the highest density of pastoral women (i.e., primary reliance on livestock) belonging to the Borana (Gotu), Turkana (Nakuprat), and Maasai (Nasaru) ethnic groups. Using these selection criteria, Gotu town (Gotu), Daaba Centre (Nakuprat) and Kunchu Rangers Outpost (Nasaru) were selected as optimal research base locations.

Each site was treated as a discrete sampling unit. Gotu, with women concentrated around the central town settlement, only required one sampling site, whereas Nakuprat and Nasaru having greater population distribution, were further sub-divided into their respective administrative units: Nakuprat (villages) and Nasaru (blocks and villages) to distribute sampling throughout each of these locations to account for any regional variation.

Individual sampling followed a purposive and stratified approach, with snowball sampling used for harder-to-reach individuals and key informants. Participants were selected with the assistance of local facilitators familiar with community composition and group dynamics that helped to ensure diversity across age, marital status, group participation, education level, household wealth, non-livestock income sources, and proximity to markets, etc. Focus groups were limited to Nasaru, where the density of women's groups required a group-level method to access a broader cross-section of individuals. A small number of pastoral men were also interviewed at each site to provide a gendered counterpoint on household decision-making, market dynamics, and resource utilisation. All participants and groups were drawn from within the defined geographic bounds of each case study area.

2.3 Research Team and Field Protocols

Each site's research team consisted of the principal investigator (Handley), 1–2 research assistants, and 1–2 community facilitators. Teams were gender-sensitive by design, prioritising women researchers and facilitators to ensure accessibility to women participants and to model inclusive research practice. Research assistants were selected based on their fluency in English and local languages (Kiborana, Kiturkana, Maa), as well as their prior research experience and familiarity with the sampling sites. Community facilitators were residents of the study areas and known, trusted figures within their respective communities.

Community facilitators coordinated daily interview schedules, identified participants based on predefined selection criteria provided by the researcher, and supported introductions and rapport-building. Interviews were conducted in locations mutually convenient to participants and the research

team, including participants' homes, central meeting points, and the research field camp. Interviews averaged 90 minutes in duration, balancing data depth with participant time burdens, and followed a semi-structured format with built-in flexibility to accommodate individual narratives, emergent themes, and varying levels of comfort with sensitive topics.

Interviews were conducted in the exclusive presence of the participant, researcher, and research assistant, with the exception of the Nakuprat sites where the community facilitator, who had conducted many prior household visits and was well-known to the community, also attended. Free, prior, and informed consent (FPIC) was obtained verbally in all cases, as literacy rates remain low in all three areas. Anonymity and voluntary participation were emphasised, with participants informed that the research carried no direct personal benefit. Interview data were recorded in handwritten notes and digitised post-interview, both by the researcher. In total, 71 individual interviews and 5 focus group discussions were conducted, yielding over 114 hours of qualitative interview data across the 3 case study areas.

2.4 Data Management and Analysis

Data were cleaned and systematised immediately following fieldwork. Thematic coding was conducted to identify key domains of inquiry related to barriers, strategies, and aspirations surrounding women's engagement in livestock systems. Themes were developed inductively from the data and cross-checked against the original research questions. Coding categories included but were not limited to: market access, decision-making, group dynamics, livestock health, environmental constraints, gendered labour, financial inclusion, and perceptions of development interventions.

Comparative analyses were used to examine variation across sites and ethnic groups. Codes were layered to capture effects of intersectional variables such as marital status, education level, and exposure to prior development programming, for instance. Attention was also paid to how environmental variables (e.g., drought severity, grazing regimes, water availability, etc.) intersected with the distribution of household labour and risks. These data were then mapped against One Health outcome domains to assess potential trade-offs, synergies, and risk factors associated with different forms of women-led livestock engagement.

2.5 Limitations

As discussed, the research was not designed to produce statistically representative data. Findings reflect in-depth qualitative insights that are specific to the sampled communities and shaped by the period of fieldwork (May–June 2025), which followed an unusually productive rainy season. Some interview data may therefore understate the severity of dry season constraints on livestock health, mobility, and income generation. Furthermore, as the intention of the study was disclosed to all participants prior to interviews during the FPIC process, there will be inherent biases towards participant overemphasis on livestock rearing and market participation in the responses. However, multiple safeguards including diverse sampling, facilitator familiarity, triangulation of instruments, and awareness of inherent biases were used to mitigate, or at least acknowledge, these limitations.

2.6 Dataset Summary

Using these methods, the table below summarises the scope of the dataset and some basic demographic information recorded from the participant communities.

Figure 2.1 Completed dataset details and demographic information drawn from qualitative interviews conducted among 3 pastoral populations in Kenya: Gotu (Isiolo County), Nakuprat (Isiolo County), and Nasaru (Kajiado County)

	TOTALS	GOTU	NAKUPRAT	NASARU
Interviews & Focus Groups	76 (interviews = 61 women / 10 men; 5 women FGs)	17 women / 3 men	20 women / 2 men	24 women; 5 FGs / 5 men
Focus Group # Individuals	34 total women	*	*	3-12 per group
Avg. interview & FG length	1:31	1:24	1:37	1:24
Total interview & FG data	114.5 hours	*	*	*
Ages women (range, median)	20-80, 38	20-70, 30	25-80, 40	22-75, 38
Ages men (range, median)	25-69, 46.5	*	*	*
Avg. # children (age adjusted)	5.5	5.0	6.2	5.2
Avg. # wives	1.6	1.5	2.1	1.3
% Women-HOH	38%	47%	48%	25%

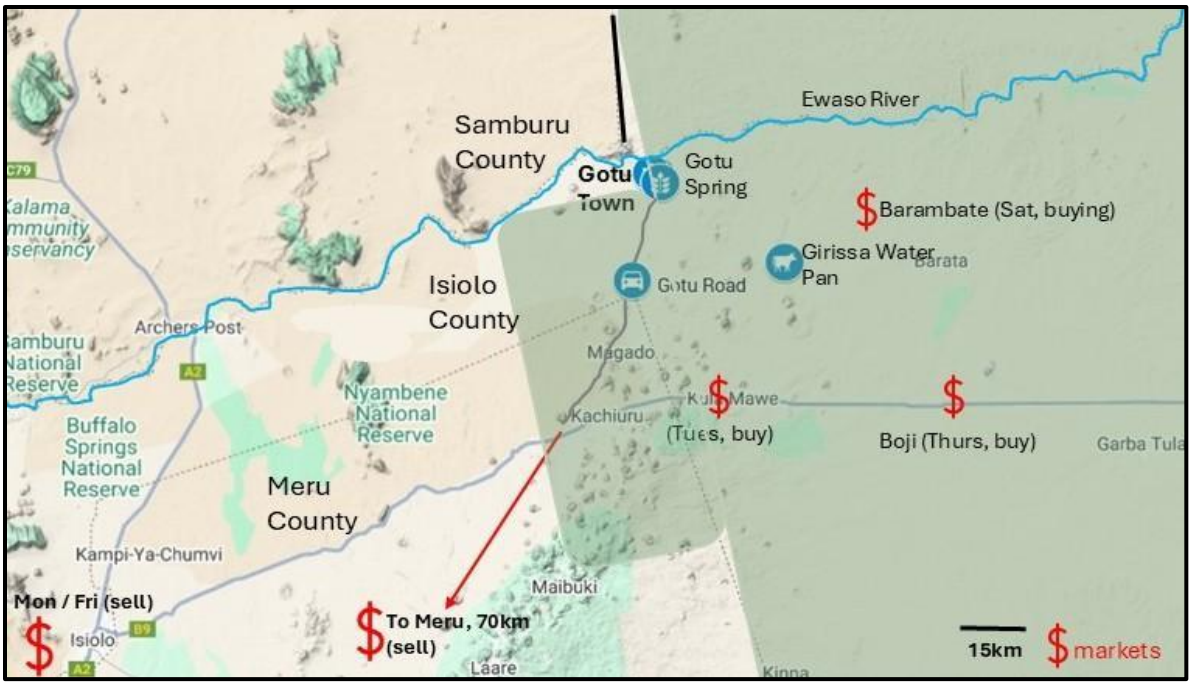
3. Site Descriptions

The following serves as a brief site description for each of the 3 case study areas, providing the relevant spatial, historical, and cultural background in which to situate further analyses. The map below covers all three locations; however, an interactive map can be found online at https://www.google.com/maps/d/u/0/edit?mid=1HGqa06864svCbKS1QTBGuRRaBb2_1nM&usp=sharing which provides further details for each waypoint collected.

Figure 3.1 Map of Kenya and detail of 3 case study areas (Gotu, Nakuprat, Nasaru). Waypoints were taken for locations of cultural, economic, ecological, or household significance for each area

3.1 Gotu

Figure 3.2 Map of Gotu community area, detailing town locations, water access points, county boundaries, key grazing areas (shaded green), roads (grey), and market centres



Gotu is a small pastoral town located in Isiolo County, at the border of Samburu County, with the Ewaso Ng'iro River forming a key geographical boundary between the two regions. The town itself comprises approximately 100 households, inhabited predominantly by Borana pastoralists, though smaller populations of Garre, Somali, and Sakuye pastoralists also reside within the area and surrounding grazing lands (grazing areas shaded in green in the above map). Founded within the last 40 years, the town's population has grown due to its location at a major crossing point of the Ewaso Ng'iro River enroute to Merti centre (a highly populated Borana town situated on the Merti Plateau to the northeast) and as a result of strong local leadership encouraging women to remove their children from herding activities in favour of taking them to school. As a result, the town is predominantly inhabited by women and their school-age children.

Gotu's spatial configuration is shaped by both opportunity and insecurity. Its location adjacent to the Ewaso River, Gotu spring, and Girissa water pan affords year-round water access; however, its positioning as a neighbour to Samburu County (and the Samburu people), exacerbates the inter-ethnic livestock raiding that has persisted between these populations for generations. The town operates as both a place of refuge and a logistical base, with women and children often residing in the town itself during the school terms while livestock are taken to *arjal* (grazing areas) further afield by herders.

While women have constructed semi-permanent (with a few permanent) homes in Gotu town to serve as a base for their children to attend school, they themselves engage in a bifurcated lifestyle where they regularly shift between domestic and pastoral spaces in order to maintain contact and oversight of their livestock. This dynamic has created a mobile, women-centric town population with strong seasonal migrations tied to livestock needs and school calendars.

Land ownership in Gotu is mixed where plots within the town boundaries are most often considered owned (though formal titling remains incomplete), while surrounding lands revert quickly to

communal grazing zones. Insecurity prevents livestock from residing in or near the town for most of the year. However, during the dry season, when water and pasture in the interior grazing areas become scarce, herders are forced to return to Gotu to access its water sources and preserved pasture. Livestock water is obtained from the Ewaso Ng'iro River while pasture close to town has remained intact precisely because insecurity has kept animals from grazing there during the rest of the year for fear of raiding. In the wetter months, livestock are moved to pasture areas generally to the south and east to graze, where they may be able to access temporal water sources, such as the Girissa water pan. When looking at limiting factors of resource availability, one woman clearly identifies water as the key factor, surmising that:

"When thinking about pasture or about water, what is keeping the animal population low here is the lack of water because you have nothing without water. Everywhere there is water, but the water can finish before the pasture is finished like in Girissa water pan. There are a number of places that are like that." – Gotu, woman, 31 years old

Livestock in Gotu primarily consist of shoats (goats and sheep), with some cattle and camels to a lesser degree. Milk production is seasonal (reducing or ceasing in the long dry season), and livestock serve both subsistence and commercial functions. Women here must weigh the time and cost of accessing their own distant livestock to benefit from their products (e.g., milk, meat) versus conveniently purchasing these items locally in town. Women express a preference for herding and caring for their own animals, particularly the small stock, when domestic duties are not requiring them to be in town with their children (e.g., others are caring for children, school is on holiday break). As one woman states:

"I prefer life of arjal but was pressured saying that kids will do nothing if you don't take them to school. I really like to be with the animals. These people really love animals. You could die hungry in town easily because you have no job, and you are not with your animals." – Gotu, woman, 39 years old

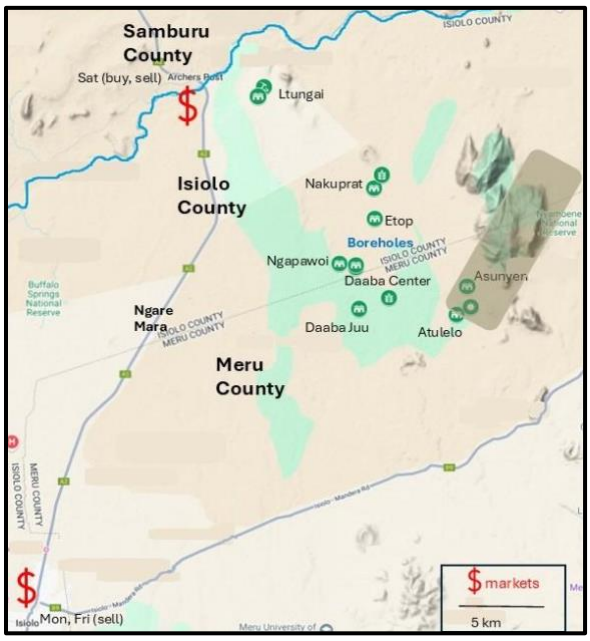
Otherwise, livestock may be herded by a related or trusted man (e.g., husband, son, brother, father, neighbour, friend) or by hiring a paid herder from the Borana community or an outside ethnic group. As more children in the area attend school, hired herders are increasingly being used to replace the labour previously provided by children.

Animal health is managed through a mix of Indigenous knowledge and agro-veterinary pharmaceuticals sourced from Isiolo town, approximately 52 miles / 85 kms from Gotu centre, though access to veterinary care is inconsistent and largely dependent on individual initiative. In fact, Isiolo town, although distant, serves as the source for most economic activities within Gotu including livestock markets and access to cheaper food, clothes, and goods purchasing.

Aside from the Isiolo livestock market, the other significant market attracting buyers and sellers from a wider region is the Meru market. However, participants reported much lower attendance at Meru, with a preference for Isiolo, likely due to the higher concentrations of other Borana communities within Isiolo as compared to Meru. Similarly, several local livestock markets, with notably reduced customer attendance and sales activity, take place in Barambate, Kulamawe, and Boji on a weekly

basis. Direct buying and selling of small quantities of livestock may also occur between individuals within *arjal* areas.

As for local amenities, Gotu houses a government school through secondary, a Safaricom mobile network tower, an engineered bridge, an individually-owned butchery, several general shops, 3 hotel eateries, a tourist lodge (empty), and a combined Administrative Police (AP) and Anti-stock Theft Unit (ASTU) post, however to very little effect at improving security. Furthermore, a tarmac road is currently under construction from Isiolo town moving eastward through Kachiuru, where a dirt road diverts northward to Gotu. The paving of the road between Isiolo and Kachiuru will greatly improve long-distance transportation times between Isiolo and Gotu in the coming years. At least one daily bus passes both northbound and southbound in transit between Isiolo and Merti, which is the main transportation reliance for both people and livestock moving to market centres.



3.2 Nakuprat

Figure 3.3 Map of Nakuprat community area, detailing town locations, water access points, county boundaries, key grazing areas (shaded army green), roads (grey), and market centres

Nakuprat sub-location spans a narrow land corridor straddling the borders of Isiolo and Meru counties, inhabited predominantly by Turkana diaspora communities, and Samburu County bordering to the north. The area encompasses approximately 1000 households spread across eight villages: 1) Daaba Centre, 2) Daaba Juu, 3) Atulelo, and 4) Asunyen, making up what is referred to as the “Daaba Zone,” and 5) Nakuprat, 6) Ngapawoi, 7) Etop, and 8) Ltungai, making up what is known as the “Nakuprat Zone.” This location forms the Nakuprat section of the wider Nakuprat-Gotu Conservancy, under the conservation umbrella of the Northern Rangelands Trust (NRT).

The Turkana here are resettled individuals and families having migrated from Turkana County over the last 1 – 2 generations following livestock loss from drought and insecurity. Livestock ownership is primarily shoats, with some cattle kept by wealthier households.

Nakuprat’s landscape is ecologically constrained but given its high concentration of pastoral peoples in close proximity to towns, such as Isiolo and Archers Post, it has attracted the assistance of development projects from multiple international donors (e.g., USAID, KOICA). This has resulted in relatively high service coverage for infrastructure such as schools, a health dispensary, mechanised boreholes, domestic water kiosks, central water piping (to a selection of plots), and conservancy carbon credit programs. As in the case for Gotu, land titling is underway. Formal titling is most prevalent closer to Daaba Centre with open, communal grazing areas becoming more prominent within the landscapes to the north and east of the centre. Given Nakuprat’s corridor location nestled

between Meru and Samburu counties, livestock insecurity persists, particularly in the northern outlying village of Ltungai.

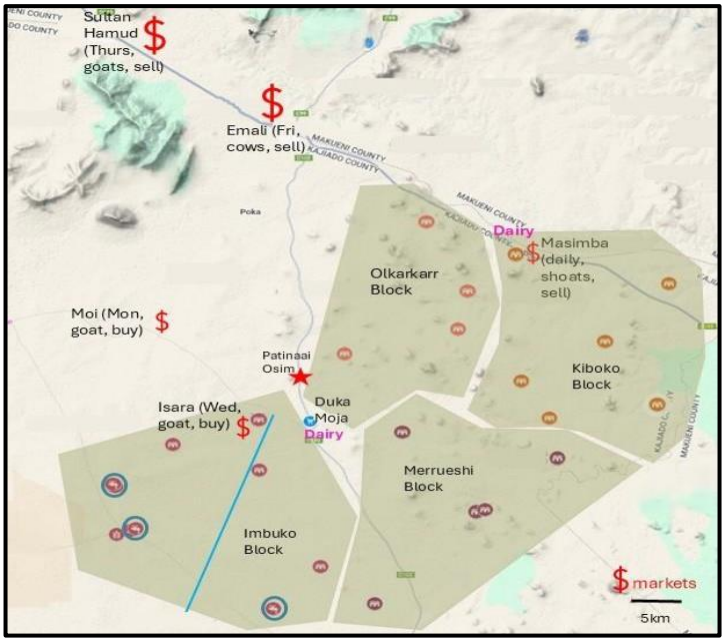
The spatial limitations of this corridor have produced compressed grazing zones. Pasture rotation follows a narrow seasonal path where livestock are managed within grazing corridors. During fieldwork when productive pasture was in high abundance, animals were directed within a grazing line between Atulelo and Asunyen (see green grazing zone in the above map) and are likely to move eastward as the dry season progresses. The Atulelo – Asunyen corridor allowed livestock to access sufficient pasture, remain close to many of the homes yet not graze within densely inhabited areas (such as Daaba Centre), and these more “interior” areas offer livestock protection from the Samburu community bordering Ltungai. If animals must shift to a distance where they are unable to return home in a day, the small stock may be divided to keep some animals at home (particularly milking animals), and the rest are kept out in pastures (known as *nabor* in Kiturkana). In secure locations around the home, animals may graze themselves or be looked after by the children or wives of the family, and more distant animals are most often herded by elder sons of a family with some oversight by their fathers. In this case, a family’s children, particularly the sons, will be divided between those who will attend school and those who will herd animals. This remains a common practice for Nakuprat’s families.

Due to the multiple infrastructure development projects in the area, water sources for livestock are abundant, with a number of water dams and solar boreholes allowing livestock access to water throughout the location. While the water infrastructure is comparatively well-developed for livestock, women occasionally face domestic water shortages because shared piping may preferentially be directed to livestock troughs rather than to domestic water kiosks. When large numbers of animals come for watering throughout the morning and afternoon, the water collection towers that are powered by solar pumps can be depleted by livestock use and may not have sufficient solar time to refill for adequate domestic collection. This situation is common. Furthermore, unused stagnant water within water troughs has been cited as a source for disease outbreaks for livestock.

Key amenities include two primary schools (total attendance approximately 400 students), several nursery schools, a health dispensary, a community farming plot, a Safaricom tower, approximately 3 well-stocked shops, and numerous home-based general shops. Nakuprat benefits from its relative proximity to both Isiolo town (~20 miles / 32 kms) and Archers Post (~15 miles / 24 kms) from Daaba Centre. The Isiolo livestock market, held on Mondays and Fridays, serves as the principal sales outlet and offers comparatively favourable prices due to its volume and buyer diversity, and Archers Post hosts a Saturday livestock market favoured by the more northern villages of Nakuprat Zone. However, unlike Gotu, where multiple small-scale buying markets operate throughout the week, Nakuprat residents tend to source animals through intra-community transactions, drawing on existing relationships and minimizing travel where possible. Similar to Gotu, Isiolo serves as the source of most economic activity in terms of livestock selling and wholesale purchasing of goods and foods for resale within Nakuprat.

3.3 Nasaru

Figure 3.4 Map of Nasaru community area, detailing administrative blocks, town locations, water access points, county boundaries, dairies, roads (grey), and market centres



Nasaru Olosho is a vast conservancy area located in Kajiado County, comprising a network of formally titled, privately owned parcels of land held predominantly by Maasai pastoralists. The population is distributed across four primary administrative blocks, which together encompass 36 villages.

Figure 3.5 Table with names of all villages within each of the 4 administrative blocks for the Nasaru community

Imbuko	**Merrueshi**	**Kiboko**	**Olkarkarr**
Block Villages	**Block Villages**	**Block Villages**	**Block Villages**
1. Kunchu	1. Emirishoi	1. Esiteti	1. Osotua
2. Esarunoto	2. Olkatetemai	2. Olosinya	2. Oldonyo Lenkai
3. Olembuya	3. Ilkelunyieti	3. Noomao	3. Ewaso
4. Nengerr	4. Ilooiborr Soito	4. Noonkoben	4. Olkoilanga
5. Osotua	5. Oldonyio Sampu	5. Nemasi	5. Ilmangua
6. Isara	6. Noosidan	6. Enkonerei	6. Enyuata
7. Imbuko	7. Merrueshi	7. Osewan	7. Paranae
8. Mamorra	8. Oiti	8. Oltukai	8. Nkusso
		9. Olepolos	9. Esukuta
		10. Masimba	10. Olomayiana

The landscape is expansive and sparsely populated, with landholdings ranging from a few dozen to more than one thousand acres per family. Nasaru lies within the broader Amboseli–Chyulu Hills wildlife corridor and is characterised by a high presence of wildlife, though non-conservation development activity remains comparatively limited. The vastness of the location is matched by a severe lack of water infrastructure with only four functioning boreholes serving the entire area. Lack of access to domestic water is routinely cited as a critical constraint, particularly for women and school children. Without access to fresh water, it is a common occurrence for women and children to share water sources designed for livestock, including from the water pan pictured in the following figure.

Figure 3.6 Image of water source behind one respondent's home that was being used for livestock, human domestic water, and wildlife due to the relative scarcity of potable, functioning, accessible boreholes in Nasaru.

Despite scant existing water pipelines, such as that which runs from Isara to the southwest, many homesteads remain too far to benefit from piped infrastructure.

Land tenure in Nasaru is unique relative to the other two case study sites in that it is fully privatised. Nasaru has been officially titling and deeding lands for several generations, and land ownership may transfer solely through purchasing or inheritance. Importantly, the area benefits from a lack of inter-ethnic insecurity where livestock raiding is not a consideration due to its interior location and relative stability with its ethnic neighbours, the Kamba people.

The preferred livestock species in Nasaru is cattle, which are highly valued by the Maasai people both culturally and economically. Shoats are kept primarily for sale or as a savings strategy to accumulate assets for later "up-grading" to cows. Cow milk is produced both for household consumption and for sale through local dairies (collections in Duka Moja and Masimba). Herds of shoats and cows are grazed within each family unit's private land, within extended family land, or through leasing access to others' land, particularly during times of environmental stress or prolonged drought. Livestock can either be herded by male heads of households, easily combined between family members (brothers, uncles, etc.) and herded by 1-2 family members, or as is often the case due to high security in the area, animals may be allowed to free-graze.

Key amenities within Nasaru remain limited due to the sheer geographic scale of the land area. School access varies widely depending on homestead location, usually requiring significant travel for even very young children to access nursery and primary schools. Health services are minimal and under-equipped, necessitating travel to the town centre of Emali to access adequate services. Shops are typically home-based and dispersed, as are hotel eateries. Mobile coverage is limited within Nasaru, where the closest tower is within the small town of Duka Moja.

Market access is heavily dependent on proximity to Emali (~25 miles / 40 km) and Sultan Hamud (~30 miles / 50 km), which serve as the primary livestock markets. Emali market focuses on cattle sales on Fridays, where Sultan Hamud is predominantly a shoat market operating on Thursdays. Smaller markets in Moi, Isara, and Masimba provide opportunities for reduced-price animal purchases but offer less favourable prices for sales and reduced numbers of clientele. Poor road infrastructure throughout Nasaru's four blocks remains a major barrier to consistent market engagement and generally for movement throughout the landscape.

3.4 Learnings and Principles – Site Descriptions

1. In all sites, especially Gotu and Nasaru, livestock and household survival hinge more on reliable water availability than on pasture, with women disproportionately managing water procurement, particularly for domestic spaces.

2. Insecurity (e.g., raiding in Gotu and Nakuprat) restricts grazing choices and livestock proximity to homesteads, while secure, privatised land tenure in Nasaru without contentious borders, enables livestock free grazing.

3. Women must often navigate between domestic spaces (e.g., education for children) and pastoral duties, balancing household needs with livestock care, often relying on hired herders or kin networks as schooling replaces available child labour.

4. Areas with stronger donor and infrastructure investment (e.g., Nakuprat) enjoy improved access to schools, health posts, boreholes, and nearby markets, while Nasaru's vast geography and weak infrastructure limit women's access to potable water, health facilities, and markets.

5. Borana and Turkana households emphasise shoats within their herd composition, whereas Maasai in Nasaru prioritise cattle as symbols of wealth, status, and long-term security, with shoats serving mainly as liquid assets.

4. Gender Dynamics

This section provides a characterisation of gender dynamics across the three study communities, offering essential context for understanding the social conditions in which daily life is negotiated. Gendered expectations, roles, and constraints shape what individuals, particularly women, can or cannot do within pastoral systems, and must be accounted for when assessing livelihood opportunities. These characterisations are not based on single statements nor direct questions but are inferred through the triangulation of behavioural patterns observed across multiple data sources. They draw from both men's and women's narratives and are grounded in consistent themes reinforced by field observations.

4.1 Gendered Responsibilities and Women's Subordination

Across all three communities, traditional gender roles follow a broadly consistent pattern. Gendered divisions of labour and marital practices shape the expectations placed upon men and women from

a young age and continue to structure the organisation of pastoral life. Polygamous marriage is practised in all three populations, governed by exogamous clan rules whereby women are married out of their natal homes to settle with their husband's extended family and take on the clan affiliation of their husband. This system produces strong male-bonded communities, where fathers, sons, brothers, and uncles live in close proximity to one another. Conversely, the transference of wives into these male-bonded communities results in weakly-bonded, individualised women having few (or no) relatives or fictive kin (i.e., chosen family) on which to rely. Several times during interviews, women lamented the loss of connection with their own natal families and the support that they might provide. As one woman recalls,

"I came here to Merrueshi 10 years ago because I was given out by my family to my husband. I cried when I first saw my husband because I didn't know him at all. I feared this old man, and I didn't know the place that I was going to. It was not comfortable at all, but you are given out so you have to make it work…I didn't next see my own mother until I gave birth for the first time. Between the time of my marriage and the first birth, I did not communicate at all with my mother…Men don't want you to even talk to your own sister because your sister can tell you to just quit your husband" – Nasaru, woman, 28 years old

A payment of a bride price from the husband's family to the wife's family at the time of marriage, most often in livestock, formalises the transference of women into the husband's family. One participant from Gotu explained,
"I was given out when I was in class 3 and married by the time I was 18 years old. My parents sold me to a man for 18 shoats and 2 cows." -Gotu, woman, 22 years old

This bride wealth system is widely understood to confer a degree of ownership over the woman, both symbolically and in practical terms. It is not uncommon for men to refer to their wives by saying, 'I paid for her,' particularly when asserting her responsibility to fulfil domestic roles within the household. Even decisions regarding the payment of bride price are reserved for men, but this norm may also be supported by women due to the familial benefit conferred in a practice where female choice is lacking, and bride price reinforces stock friendships and livestock bonds between the two families (e.g., Evans-Pritchard 1946, 1951). A woman from Nasaru underscores this point when she discusses the bride price for her own daughters saying,

"I was not involved in the discussions for bride price. I don't want to be involved because I simply cannot be allowed to be there as a woman. Bride price is good because your girls cannot be given out for free. Boys don't get a payment when they marry because the boy is not going anywhere. They are not leaving their homes where they were born." – Nasaru, woman, 40 years old

Within this framework, men are traditionally expected to herd and protect large, valuable stock, particularly the cattle and camels and especially during dry seasons when animals must be taken farther from homesteads to access water and pasture. Women, by contrast, are traditionally tasked with the domestic care of small stock and milking animals, childbearing and rearing, and maintaining the home environment. Their responsibilities are spatially anchored to the family homestead. As one elder from Gotu plainly stated, "*A woman is a home.*" -Gotu, man, 69 years old.
While these gendered norms remain widely cited throughout the interviews as the cultural standard, actual household configurations vary in practice. Women consistently identified ways they contribute

to livestock production outside of the home and among the larger stock in ways not formally acknowledged. Moreover, women are increasingly taking on responsibilities associated with non-livestock labour and income generation, such as owning a small shop or selling charcoal (see section 7 for more information on women's income sources). Nonetheless, the prevailing cultural *expectation* expressed across communities is that women's labour should remain within the domestic sphere, while men engage with broader economic and pastoral systems beyond the home.

Within the expected divisions of labour, there is an inherent hierarchy at play that relies on the subservience and subordination of women and a privileging of traditionally male labour. Unsurprisingly, women's labour, and their social status generally, are diminished. Demonstrations of this are numerous and widely voiced by both men and women in all three communities, as one man expresses,
"Women are subordinate, but they are not oppressed according to the culture. Subordination is okay, and I encourage it because it is a continuation of what I found from my own father and mother...God made it this way. A man is able to have 3 wives, but a lady would not be able to have 3 husbands because a lady cannot manage 3 men or 3 women…A man is able to direct compared to a lady," and he goes on to discuss the problems of women conducting business by saying,

"The demands of [a] position are overwhelming her…it is the culture that keeps women in place and discourages them. A lady cannot speak in front of a man, and she cannot stand in front of them without holding grass in order to speak. It is the nature of a lady to see things in an incomplete way…A woman is just a woman…Men are still the breadwinners in the community because they sell their animals from their own bomas for income, and this is where most of the income comes from. Ladies do small things like charcoal burning, and own shops, and beg from friends and family." – Nakuprat, man, 48 years old

Taken together, these norms and narratives illustrate how pastoral gender roles are not only socially constructed but structurally reinforced through marriage practices and labour systems that continue to privilege men's authority and diminish women's status within the community. Proposed interventions must recognise gendered social and labour hierarchies and either work within the slow process of economic and cultural change and / or respectfully navigate around these barriers in culturally acceptable ways.

4.2 Family Structures and Heads of Household

Recalling the information presented within the demographic table at the end of section 2, almost half of the households in Gotu and Nakuprat were women-headed (47% and 48%, respectively), while only a quarter of households in Nasaru were headed by women. However, a major distinction between the Gotu and Nakuprat figures is the origin of single female households for each community.

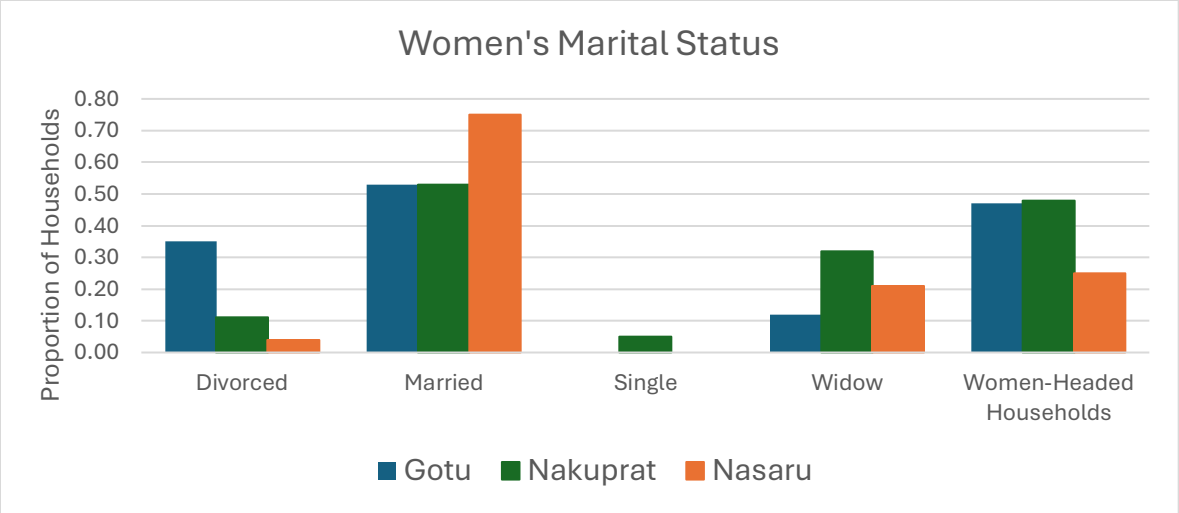


Figure 4.1 Graph displaying women's marital status amongst respondents in Gotu, Nakuprat, and Nasaru pastoral communities.

The figure above shows that for women-headed households, divorce is more than three times as common in Gotu as it is in the Nakuprat households, and it is almost nine times as prevalent when compared to Nasaru. Seemingly, divorce is a viable and comparatively well-exercised practice amongst the women in Gotu, where the qualitative data supports the principle that divorce can be initiated by women as a matter of choice. For instance, one woman comments,

"There are so many divorced women here because most men chew miraa, and they are sleeping all the time, and they are not making money. They are useless." – Gotu, woman, 27 years old.

While the cause for initiating divorce likely differs from home to home, each recorded incident suggested women had at least equal control in the decision-making process of becoming a single parent household. Furthermore, women exercised this option with limited restraint, demonstrating a measure of confidence that female-headed households can be an economically viable option for them.

Contrasted with Nakuprat, where women-headed households were three times more likely to result from a husband's death than from divorce, this suggests that women there are exercising less choice in becoming heads of household compared to those in Gotu. Likewise, but to a lesser extent, the women of Nasaru are more than 5 times as likely to become heads of households due to a husband's death than through divorce, but the overwhelming majority of women interviewed in Nasaru (75%) live in a married, male-headed home. These data indicate potentially greater female choice in household dynamics and women's relative independence in Gotu as compared to Nakuprat and Nasaru.

4.3 Property Ownership and Inheritance

In the strictest sense, livestock ownership and control fall under the exclusive authority of the married male head of household across all three populations, while livestock products such as milk and animal skins are typically managed by married women within the household. As one Turkana woman noted:

“Turkana women can be given animals, but they transfer to the husband regardless, and the women cannot make decisions on them. It is a symbolic ownership for the woman because she cannot make any decisions about those animals. This is very disappointing, but you have no choice, and you cannot resist. You just feel bad about it. Men own all of the animals regardless of what generation they belong to or whether their wife has gone to school or not.” –Nakuprat, woman, 34 years.

Among Borana women in Gotu, this rigid division of ownership is somewhat mitigated by comparatively higher rates of divorce and the influence of Islamic inheritance practices. One woman, describing her daughter’s divorce, explained:
“What she has is her Mahr (mandatory gift presented from groom to bride at marriage)…I myself received 5 goats and 5 sheep from when I married. I was given 1 animal at birth. When my father dies, I will get more animals. The division is Islamic Sharia of girls receiving 1/3 and boys receiving 2/3. The traditional Borana system is the same way.” – Gotu, woman, 39 years.

Through this Islamic practice, Borana women are able to hold and manage a subset of livestock and their offspring, often with decision-making autonomy. Arguably, this practice fosters a broader sense of economic agency among Borana women in Gotu than is evident in Nakuprat or Nasaru. As another Gotu participant reinforced by saying,
“The animals are mine so I can make decisions about them as I like, but I ask for advice from my children and mainly from the daughter who is herding with me.” -Gotu, woman, 65 years old

Property rights to this degree are generally not afforded to women in Nakuprat or Nasaru, even in cases of divorce or widowhood. Upon the death of a husband, livestock may remain consolidated under the household if the sons are still young or unmarried until the time that they are grown and themselves form their own households. In this interim period, the wife (or wives) may continue to steward the animals but without full ownership nor decision-making authority. As one Maasai woman explained at the passing of her husband,
“The in-laws like the brother-in-law will stand for the family in the place of the deceased husband. It is always a man who stands for the house.” -Nasaru, woman, 37 years old

Another widowed mother in Nakuprat described the hardship of her sons mismanaging the family’s livestock following her husband's death, which they had the right to do. When the mother tried to intervene and counsel her sons regarding appropriate management, she lamented that,
“No one cares if I talk, and no one values the word of the mother.” -Nakuprat, woman, 69 years old

While personal livestock ownership is often challenging or eclipsed to women in Nakuprat and Nasaru, women in Nasaru have developed alternative strategies to safeguard women-owned assets outside of the control of men. They have done so through the formation of women’s self-help groups where a core mechanism of these groups is to build collective assets in group livestock ownership. These groups, which will be examined in greater detail in section 5, provide a formal mechanism for livestock acquisition and management outside of the household unit. Many of these groups are officially registered with the County Government Ministry of Gender, Social Services, Culture, Tourism, and Wildlife, which allows them to purchase and retain livestock as group-owned assets with legal recognition. As one Maasai woman described,

“[Men using group animals] is not allowed because there are very specific rules - the women will talk and decide the punishment for the man who does this. A man follows the rules of a group because a man cannot control a group of women. If a man doesn't follow a fine or a punishment that a group gives, then they take him to the chief. It has happened a lot before, and the chief makes sure that the money is paid back to the group. There has not been a time when [groups] have not reported issues to the chief - they always report if something has happened.” – Nasaru, woman, 35 years old

Group versus individual livestock ownership will be discussed later in some detail, but what is important to note here is that group ownership, as is practiced in Nasaru, may be a productive pathway toward expanding women-centred livestock initiatives and lessening the barriers that all women face in domestic spaces.

Conversely, land ownership rights are more difficult to compare directly across the three communities due to structural differences in tenure systems. In northern Kenya, formal land registration is ongoing, and both Gotu and Nakuprat participants reported that women’s names were occasionally included in land registries, particularly for central plots within Gotu town or Daaba Centre. In some cases, both spouses’ names were entered. Overall however, there seems to be a documented preference for listing the husband or, if deceased, the eldest son within land registries. In contrast, Nasaru’s land tenure system is longstanding and highly formalised. Titles are issued almost without exception through the paternal line, and women are largely excluded from land ownership by both custom and practice. As one Maasai man stated,
“The Maasai say that women should not have land…I am not putting my wives’ names on the title deed because I am only supposed to divide the land between my children.” – Nasaru, man, 42 years old

Land ownership through the paternal line is a more formalised and established practice for the Maasai communities of Nasaru, thus creating barriers for women to secure and exercise equal land rights.

Despite important variations across sites, women’s ability to own, manage, and inherit property remains circumscribed by gendered norms and institutional barriers. While some women have forged alternative paths through Islamic inheritance or collective group ownership, property rights for most women remain fragile, contingent, and largely male-controlled.

4.4 Equality and Autonomy

While patterns of gender inequality are shared across all three communities, the mechanisms through which women navigate personal autonomies differ to a degree. In each site, the vast majority of women remain structurally subordinate within household and community hierarchies. Property ownership, mobility, and public decision-making are consistently mediated by male authority, though the degree of rigidity varies. Borana women in Gotu hold relatively greater economic and social autonomy, shaped by Islamic inheritance customs and the normative acceptability of divorce, which may extend and be generalisable for community-level acceptance of women’s rights to personal freedoms. As one man offers a critique of traditionally chauvinistic behaviour,

“The money that women get from the savings groups, they use that money for many things, and men don't take their money because they support the women and do not want to take their property. By helping women, you help the community…There are many men who are angry that women are getting projects and being empowered through development. Some men refuse their wives to go to workshops or seminars, but other men will try to stop those bad men by identifying them and calling them out and talking to them and shaming them. A wife whose husband acts in this way can come to the more reasonable man and ask them to talk to their husbands and make them allow their wives these opportunities. Sometimes the men fine those husbands by making them slaughter an animal. Men can be jealous people.” – Gotu, man, 69 years old

This statement illustrates the relative permissiveness granted to women to engage in self-improvement, based on the principle that empowering women yields benefits for the entire community.

Turkana women in Nakuprat and Maasai women in Nasaru, by contrast, experience more rigid social restrictions, with property and authority consolidated more tightly within patrilineal structures – even deferring decisions regarding women’s personal movements to one’s male children. One elderly woman notes,
“My husband is deceased so I need to get permission from my grown sons in order to go to the market. I have to ask my sons for things like whether or not I can go to a market and if I want to go to a far home for a sleepover. I once took care of these kids, and now I have to ask permission from them because they are now taking care of me.” – Nasaru, woman, 70 years old

While women in Nasaru largely lack livestock ownership within the domestic domain, many have gained significant personal autonomies through formal women’s self-help groups. These groups are widely respected and offer an alternative structure through which women exercise collective power. Still, the contrast between group-based autonomy and domestic dependence remains stark. Even within group activities, such as buying and selling animals, it is common for husbands to assist / manage the practicalities of these activities that are carried out in male dominated spaces (particularly for the buying and selling of cows as compared to shoats). One Maasai woman notes, “I have never bought and sold goats or other animals because that is a man’s business…It’s very rare for Maasai ladies to buy and sell…Maasai women can go to the market, but they go with their husbands. I sometimes go with my husband, and I was consulting with my husband on what to do at the market when we were there, but I wasn’t actually buying and selling myself. It was him that was doing it. I can’t sell myself because that is the responsibility of a man, and a woman cannot go against man’s work…Even though I have a good relationship with my husband, the rest of the community will talk and say that women are ruling their husbands and controlling the money if a woman is to go and sell at the market. It is like they have overtaken their husbands in some way. It will give both her and her husband a bad name.” – Nasaru, woman, 53 years old.

This illustrates that women’s participation in markets remains limited, as their choices are still mediated by men and are subject to community judgment.

Furthermore, these examples raise a critical paradox that women’s economic gains alone do not necessarily translate into greater respect, influence, nor personal freedom for women, challenging

the common theory of change assumption that economic empowerment will systematically lead to social empowerment. For instance, in Nakuprat, the link between income generation and social empowerment is tenuous. Women may participate in savings groups or livestock-related activities, but social norms continue to tightly regulate gender roles and limit the social status of women and her power to make autonomous decisions. This limitation is recognised by both men and women in the community. One elderly man states,
“When ladies get empowered, they become aggressive, and they can become too independent. Now there are so many single mothers by choice so they are breaking up the family. They just decide to separate from the men…If women get financially empowered, who will clean the house for me, and who will cook for me? I feel like I will be helpless. The children are a source of happiness for me so now what will I do without them?...You should not just focus on women because they can then run out of the family and abandon the man.” – Nakuprat, man, 67 years old

His view is seconded by another man in the community, who frames women’s financial contributions as a reason for men to disengage when he says,
“I think that the groups were good because women were able to provide for their families so that meant that the men no longer had to provide for them.” – Nakuprat, man, ~45 years old

This sentiment is echoed by a businesswoman living in the village centre, who describes the social impact of this dynamic,
“Men like hard working women because it takes the burden off of the man to work hard. There is so much hard work being done by women, that the purpose of a man is to just top them up with food contributions. Men are not going to be concerned about changing gender power dynamics because women can just keep on doing their own things. The men's power will not be challenged.” – Nakuprat, woman, 34 years old

Taken together, these quotes demonstrate that economic gains for women may not equate to commensurate increases in social status, nor do they necessarily yield broader economic benefit when men withdraw from household responsibility. Rather than challenging gendered power structures, women’s financial contributions may reinforce them, positioning women as the community’s labour base while excluding them from its decision-making class. In this way, it may be prudent for implementation strategies to attempt to safeguard against men’s commensurate withdrawal from economic activities and frame women’s improved livestock engagement as a means of household level empowerment in the manner of ‘a rising tide lifts all boats.’ Furthermore, although women’s equality is long overdue, real change is often incremental and slower than many would hope, yet ultimately, this steadfast process may yield more lasting results.

4.5 Methodological Note Regarding Language Use and Interpretation

It is important to interject a note here on clarifying language use during interviews, as this is a question that is sure to come up in interpreting these qualitative data, particularly around gender dynamics. During interviews, participant responses oscillated between interpreting statements as “notifying” a partner or spouse or “asking permission” from them, where the former implies a sense of mutual respect, and the latter indicating a distinct power imbalance. Efforts were taken to ask a series of follow-up questions to understand and verify the respondent’s language choices. This linguistic ambiguity must be interpreted within context, as illustrated in the following statement:

“I am not fully in control of my own life because I cannot take a loan from the VSLA or sleep over at a friend's house without asking my husband's permission first. I am fine about asking his permission and notifying my husband of these things. Instead for him, my husband will just tell me that he's doing these things; he will not ask my permission.” – Nakuprat, woman, 25 years old

Whether a spouse is ‘notifying’ or ‘asking permission’ is almost immaterial from a linguistic perspective, as the result reveals a deeper imbalance: the expectations placed on women differ markedly from those placed on men. More critically, when these norms are violated, the consequences tend to be far more severe for women. As one Maasai woman explains:
“If he did something with the animals without my permission, I would just tell him that's bad, but I can't punish him. If I sold the animals without telling my husband, he could tell me to go and get the animals back. If I couldn't get them back, then he would send me away from my home.” -Nasaru, woman, 40 years old.

What matters here is not the exact translation, but the underlying power dynamic at play when men and women ‘notify’ or ‘seek permission’ from one another and the social and physical costs borne by women for apparent transgressions of these norms.

4.6 Gender Based Violence

Unfortunately, consequences for violating gender norms are often enforced not only through social sanction but through the threat or use of gender-based violence. Across all three case study communities, women shared accounts of violence used to reinforce male authority and reassert control, particularly when women were perceived to have overstepped the boundaries of their prescribed roles. In Gotu, violence appeared primarily in the context of intimate partner abuse. As one woman recalled:
“We divorced because he was beating me too much, and he cut me with a panga. When he would beat me, I would come to Gotu to my own family, and they told me to leave my husband.” – Gotu, woman, 30 years old

In Nakuprat, women described violence as a backlash against women-centred economic development, particularly around savings groups and moments of financial visibility:
“There is a problem of men commenting that women are raising their standards, and they think that this is where families are breaking up, but ultimately, they are not against women having more money because it exempts the man from taking any financial responsibilities. Men become insecure when women are meeting in groups, and they take a long time. The men questioned them why the women are taking so much time away from them. There has been violence towards women during some of the times where they are sharing out from the group at the end of the year. The husband took everything from his wife, and he assaulted her.” – Nakuprat, woman, 45 years

Elsewhere, violence was used explicitly to regulate women’s mobility and reinforce expectations for domestic labour. One Maasai woman described the consequences of coming home in a timeframe that conflicted with her expected duties as a wife, which was a scenario repeated by a number of other women in the community:
“When my husband is at home, between the hours of 10:00 AM to 5:00 PM I can be out, but I need to be back at home for 5:00 because I need to take care of the goats and the livestock. If I came

home at 7:00 PM, then I would be beaten…When he doesn't know where I am, he has chased me out of the home before. I went to my brother-in-law's home, and my brother-in-law asked my husband for me to be able to come back home. I was scared at that time." – Nasaru, woman, 32 years old

Men in Nasaru also acknowledged these dynamics as routine:
"The circumstances where [a beating] might happen are if animals are lost, then the husband might beat the wife for this. If there is no food that has been made, then he may also beat her. All ages of men do this in their homes, but it is especially prevalent in older men's homes." – Nasaru, man, 42 years old

When asked to describe their relationships with their husbands, many women in all three communities used the same word: fear. As one woman explained:
"Men believe that all decisions for their community and for their home come from them only. Women fear husbands when something is not going well in the family. It is the rudeness of men that causes women to fear them. It is the husband's harshness that won't let her speak. And if a woman were to tell her husband to do something, she knows that he will not do it so she will just keep quiet. Some women can be beaten up if they speak up to their husband." – Nasaru, woman, 35 years old

These accounts underscore that control over women in these communities can be maintained through coercion, intimidation, or violence—mechanisms that are socially tolerated, and in some cases, openly admitted by male respondents. Moving forward, Heifer International will need to carefully consider the pace of change its programs promote, how men may interpret these shifts, and how such changes alter community perceptions of women and their roles within the household. Safeguarding strategies must be built in to protect women from backlash while avoiding overly paternalistic approaches, striking a balance that supports women's own desires for change with sensitivity and diplomacy.

4.7 Learnings and Principles – Gender Dynamics

These findings illustrate that women's engagement in pastoral livestock systems is deeply shaped and often constrained by social structures, marital dynamics, and gendered expectations that regulate women's access, autonomy, and decision-making power. As Heifer International considers how to strengthen women-centred livestock production, it is essential that interventions be grounded in the lived realities of gendered power relations, not solely reflective of technical or market-based needs. Furthermore, without intentional safeguarding, such efforts risk exacerbating household tensions or exposing women to greater vulnerabilities.

Here are some of the key learnings and takeaways relevant to gender dynamics in these populations to help inform potential intervention strategies:

1. Exogamous, polygynous marriage and livestock-based bride price relocate women into male-bonded kin networks that inherently and overtly weaken women's support systems and ability to form internally-cohesive groups. Nasaru women's self-help groups may act as a replicable model to promote more positive and effective group activity across all three locations.

2. Women's work is domestically anchored and devalued even as they contribute to greater household income. Interventions must account for (or carefully circumvent) these slow-changing social hierarchies.

3. Higher divorce-driven women-headed households in Gotu indicate comparatively greater female choice, while widowhood-driven heads of household in Nakuprat and Nasaru reflects tighter patriarchal control. Interventions that capitalise on the relative social freedoms of women in Gotu may result in more rapid uptake while those in Nakuprat and Nasaru may require longer timescales for cultural acceptance.

4. Overall, men control livestock and land; however, Borana women in Gotu gain limited agency via Islamic inheritance, while Maasai women in Nasaru leverage legally recognised women's groups to protect collectively owned livestock. Despite these degrees of freedom, moving forward with women-led livestock production must acknowledge this deeply-entrenched reality and find openings where they exist and may be positively exploited.

5. Women's income and economic advancement can prompt male withdrawal or violence, and therefore, programming must pace change, engage men, and embed robust safeguarding without crossing into overt paternalism.

5. Women's Groups and Individual Livestock Participation

As demonstrated in the previous section, the ways in which women organise (individualised or collective action), acquire autonomy (via divorce or widowhood), and are subject to societal practice (religious protections or traditional cultural norms) can significantly influence their ability to access support networks that help them navigate and bypass domestic and societal constraints. Amongst these conditions, women's participation in cooperative action, or not, appears to have the most impactful bearing on a woman's ability to meaningfully participate in livestock enterprise, particularly outside of the home. To this end, presented here will be a discussion of the brief history of women's groups in each of the study locations, how they operate, their potential benefits, and the challenges that women face in forming, optimising, and maintaining group benefits. The table below provides a section summary of these key points for each community.

Figure 5.1 Table displaying the history, function, activities, benefits, and barriers of women's groups in each of the case study areas.

	GOTU	NAKUPRAT	NASARU
Levels of Group Participation	Low group participation (estimated 30% of women)	2021 - 2023: High group participation due to (Nawiri, estimated 80%) Currently: mixed participation (estimated 50% of women)	High group participation (estimated 100% of women)

Barriers to Group Formation & Function	*Lack of awareness of groups, their function & benefits *Low societal trust *Highly mobile women *Population distant from development activities	*Uneven understanding regarding group functions *Uneven participation & benefits w/in groups *Difficulty raising weekly contributions	*Minimal barriers
Types of Groups	*14-20 members per group, predominantly women *Traditional Savings and Loan Design 4 main groups: *Takouma *IBSE *Odha *Youth Group *Additional groups are loosely organised, comprised of herders (men & women)	*~20 members per group, predominantly women Nawiri Groups (2021-2023) *Savings & Internal Lending Communities (SILC) *3-person business groups Non-Nawiri Groups (spin-off groups, post 2023) *Traditional VSLA groups *Ltungai Ballast group *WhatsApp Local Marketing Group	*~20 members per group, all women *Self-help groups *Business-based groups (beads, tomatoes, milk, honey)
Group Functions	Savings & Loan Groups *Contributions (e.g., 500+20 KES/wk) *500 = personal savings *20 = group savings *20% “no interest” loans given to members *Loan interest + 20 KES contributions = total group savings Personal Savings: *Annual share out <u>Group Savings:</u> *Charitable causes (school fees, hospital bills, weddings, etc.) *Annual share out *Merry-go-rounds *Purchase assets	SILC / VSLA (see Gotu): *Contributions *Individual Savings *7-10% loans Personal & Group Savings: *Annual share out *Merry-go-rounds 3-person businesses: *20-30k investment *Businesses: utensils, livestock, or clothes buy & sell *Weekly profit share out WhatsApp Marketing: *5 members *digital marketing & selling aggregation of livestock *profits shared b/w members Ltungai Ballast Group:	Self-help Groups: *Contributions for group savings only *Rare loans, 20% interest *Purchase rentable assets to generate income Group Savings: *Purchase Assets *Upgrade Assets *Charitable contributions *No annual share out / liquidation of assets Business Groups *Labour for tomato farming (see Ltungai Ballast model) *Milk aggregation (see WhatsApp Marketing model)

		*crush & sell ballast *profits to school fee payment & salary	*Nasaru Bee Queens Honey Cooperative (no market, nonfunctioning) *Patinaai Osim Beadworks
Groups' Stated Goals	*Accumulate group animals *Accumulate rentable group assets (rental houses, events halls) *Create individual livestock business (under-developed)	*Savings to meet basic individual needs *Loans to create individual businesses	*Build group assets (livestock, land, rentable assets) *Help others *Spread risk *Create group businesses (under-developed)
Group Challenges	*Building knowledge of groups *Building commitment to groups *Building internal trust & group cohesion *Highly mobile women hinders group meetings & engagement *Stated preference for individual pursuits *Remote community / distance to market centres *Insecure location	*Building internal trust & group cohesion *Avoiding loan defaults *Start-up investments redirected to cover basic needs *Building knowledge of group functions & mechanics *Stated preference for individual pursuits *Activities are home-based (low mobility) *Insecure location	*Building women's confidence in male spaces & activities (i.e., markets, buying, selling livestock) *Developing clear business ideas & goals * Too many groups = financial efforts & attention spread thin *Activities are home-based (low mobility)
Women's Group Strengths	*Entrepreneurial *Keen understanding of livestock *Hard-working *Highly mobile *Greater social freedoms *Women-owned livestock potential	*Individual talents (community standouts) *Long-distance kin networks (Turkana County) *Historical perspective (tested models) *Proximity to 2 market centres	*Strong group cohesion *Strong inter-reliance / helping ethos *Long established groups *Well organised and structured *Well administrated / formally registered *Possess group assets *Activities demonstrate economic discipline *Meeting basic needs does not derail savings *Area security to build assets

5.1 Understanding Comparative Differences in Women's Groups Across Study Sites

While a deeper analysis of the mechanics of each one of the women's groups detailed in the table above would be valuable, it falls beyond the scope of this study. For the purposes of this report, the following provides a foundational overview of how these groups function, the challenges they face, and the lessons that may inform strategies to enhance women's roles in livestock production.

The comparative landscape of women's groups across Gotu, Nakuprat, and Nasaru reveals significant variation in levels of participation, organisational maturity, and functional scope. Gotu shows relatively low participation (estimated at 30% of households within Gotu), limited by low awareness, high mobility among women, and limited exposure to development programming. In contrast, Nasaru demonstrates near-universal group membership (estimated 100%), with self-help and business-based groups deeply embedded in community life. Nakuprat occupies a middle ground, showing strong engagement during the Nawiri program (USAID-backed initiative focused on ending child malnutrition), estimated at 80% of households but tapering to roughly 50% following its conclusion in 2023.

Group types also vary: Gotu and Nakuprat are largely characterised by traditional village savings and loan associations (VSLA), while Nasaru has focused more on a self-help model that seeks to build assets and collective savings for charitable group emergencies (school fees, hospital bills, etc.) In this sense, Gotu and Nakuprat are more individualised (i.e., you get out what you pay in, plus small group profits), while Nasaru groups, who do not share out annual savings and profits, emphasise the collective. In Nasaru, a member requests assistance from the group when needs arise, and she is unable to cover her expenses through typical household means alone. This also signals more overall economic stability within the Nasaru population as compared to the relative economic precarity of Gotu and Nakuprat, where savings and loans groups (and group business start-up capital) have been used habitually to cover typical household expenses.

To assess the pros and cons of different group types, Nakuprat's history with Nawiri development assistance provides a valuable record of experimentation with models such as SILCs, business triads, and digital market aggregation via WhatsApp. Through exploring these models, important lessons can be drawn from the relative successes and failures of each group type that may be applied to future women's group (or individual) development.

Functionally, groups across all three communities serve as critical savings and social safety nets, offering both individual and group-based savings systems, annual share-outs (for Gotu and Nakuprat), and income-generating activities. Yet, group challenges reflect context-specific barriers: Gotu groups struggle with internal trust and member commitment; Nakuprat groups face difficulty maintaining focus and oversight after project withdrawal and in sustaining productive business ideas; Nasaru groups, despite strong formal structures, must contend with limited business ideation and women's lack of confidence in accessing male-dominated market spaces. Despite these obstacles, women's groups in all three communities exhibit resilience and economic ambition and provide a possible scaffolding upon which to build and enhance women's livestock production activities.

5.2 Group Lessons to Apply to Women's Livestock Production

While the origins and internal dynamics of women's groups vary across the three communities, several core insights emerge that warrant deeper reflection, particularly in relation to the limitations of a group model in advancing women-centred livestock production. The following section outlines key lessons that are both salient and broadly applicable to all three groups:

1. Acknowledge and address persistent structural barriers: drought, insecurity, and school fees

Despite notable perseverance with some women's groups maintaining group membership, participation, and contributing to asset growth for more than 15 years, respondents were asked why these efforts had not resulted in self-sustaining group assets nor consistent income streams for all members. The most commonly cited reasons were:

- drought
- insecurity
- the financial burden of paying school fees

All three groups reported drought and school expenses as major constraints, while insecurity was identified primarily in Gotu and Nakuprat.

The impacts of drought in this context are extensive and multidimensional, affecting nearly every facet of livestock health and production. Drought is consistently identified as the most significant driver of livestock mortality, primarily through prolonged malnutrition leading to starvation or increased disease susceptibility from malnutrition. Group-owned animals have been lost in large numbers, with all study groups reporting severe losses (~60-80% of livestock assets) during the most recent 2022–2023 drought.

Beyond direct animal deaths, drought also depresses livestock market value, as weakened livestock body condition reduces the saleability of animals and limits potential income when women attempt to sell group assets (please see section 9 for further details).

Additionally, drought may disrupt women's access to livestock entirely, as herds are moved far from homesteads in search of pasture and water. This seasonal displacement often includes the migration of (typically male) herders to accompany the animals, leading to prolonged separations that undermine women's ability to engage with and benefit from group livestock enterprises, such as milk production and livestock sales. Furthermore, women's businesses that depend on stable, local clientele (such as hotel eateries or general shops) are also negatively affected, as consumer populations become more transient during drought periods with returns to home settlement areas becoming increasingly infrequent.

In short, drought not only causes livestock deaths and depresses market value, but it also limits women's access to both animal products and group-owned animals as herds migrate. Concurrently, customer bases for women's group businesses become inaccessible, as herders (and sometimes households) relocate alongside their livestock in search of pasture and water.

Insecurity, particularly in the form of inter-ethnic livestock raiding, is closely linked to drought in its impact on women's group activities. Insecurity, or the threat of insecurity, significantly undermines the ability of groups to grow and manage livestock assets. In both Gotu and Nakuprat, proximity to the Samburu County border makes communities especially vulnerable to livestock theft due to inter-ethnic raiding. While losses can occur through active raiding, the ongoing threat of insecurity also forces livestock to be kept at a distance from homesteads located near border areas. As with drought, this separation limits women's access to animals and their products, reduces livestock supply, and thus constrains opportunities for sustaining high-turnover livestock businesses. Arguably a key element that has allowed asset accumulation over years for the Nasaru women's groups is their lack of inter-ethnic livestock raiding, which allows them to not only invest in livestock but also "upgrade" their stock from shoats to more valuable cows with more assurances that they will be able to maintain these animals (however, see drought above).

Finally, the high costs of ***school fees*** are a painful reality of modern pastoral life in Kenya, particularly in Nasaru where school attendance is comparatively higher than for the Gotu and Nakuprat communities. As increasing emphasis is placed on formal education, families are struggling to keep up with rising educational expenses. In Nasaru, many women's groups have chosen to consolidate savings and invest in group assets to help cover school fees, rather than liquidating savings annually for individual share-outs, as seen in Gotu and Nakuprat. However, even with this strategy, most groups report being able to support school fees for only 1 – 2 mothers per term out of approximately 20 members due to the high expense. As a result, many groups feel caught in an exhausting cycle: save collectively, invest in assets, sell assets to pay school fees, and begin again, with little opportunity to build long-term financial stability or break free from the burden of recurring educational costs. Similar patterns exist in Gotu and Nakuprat; however, as these groups are based more solidly within savings and loans schemes, parents may take loans or accrue debts to afford school fee coverage. The end result is the same that group assets or annual personal savings can be depressed in the constant school fee cycle.

If there is a silver-lining to this particular challenge, it is simply that unlike drought and insecurity, the timing and relative costs of school fees are known, regular, and largely predictable, therefore providing opportunities for possible solutions. While insecurity and drought are linked phenomenon, they are irregular in their severity and probabilities of occurrence, and therefore, more difficult to meet these challenges. Intervention strategies seeking to strengthen women-centred livestock production, whether group- or individually-based, must acknowledge and incorporate mitigation strategies that address these three highly influential forces.

2. Mixing business models with savings models may present group dynamic challenges

Many of these groups began under a traditional savings and loan (S&L) model, which in some cases evolved to include business ventures, group investments, and collective asset management. A defining feature across all three populations is that group membership is typically capped at 20 individuals—a figure likely not locally determined but rather introduced as a development standard applied ubiquitously. While 20 members may be a manageable size for an S&L structure, where coordination is less central to operations and the main objective is to pool funds, it may be less suited for business models requiring consistent individual participation and regular profit-sharing. This is especially true for more individualised populations like Gotu and Nakuprat.

In these two communities, women frequently reported inconsistent attendance at meetings, unequal distribution of workloads, varying levels of business interest and skills, difficulty reaching group consensus, a higher risk of internal conflicts, and concerns about financial transparency and opportunistic exploitation by 'con men' in the group. These challenges have led many women to advocate for support in developing individual businesses rather than collective ones. As one woman explains:

"Development can help women by investing in individuals for business. Individual business is better than group business because people don't cooperate in groups. If individuals benefit, you are going to pull yourself together and work hard." – Gotu, woman, 45 years old

Even the carbon credit funds disbursed through the conservancy in Gotu, originally intended for collective group projects, shifted to individual payouts in the second and third years due to disagreements over fund allocation and fears of elite capture. A similar issue undermined the 3-person business groups established under Nawiri in Nakuprat. One woman recounts,

"My group did not continue with the goat and sheep business after Nawiri left because the animals started dying in the dry time, and we could not always find animals to buy and sell, and people were getting discouraged because we were not doing well so we just broke up the group. No groups continued after Nawiri left…No one was taking it 100% seriously. There was no one really owning it. If I were doing it by myself, I would know that was my only source of income so I would work really hard to make it work. [The group] even skimmed off about 20,000 KES initially from the first investment because that was the first money that we had ever been given by anyone. We were buying fewer animals than we needed to make a profit because we had skimmed off the initial investment. There were problems right from the start." – Nakuprat, woman, 40 years old

By contrast, the relative harmony within Nasaru's women's groups and their collective emphasis on charitable, equitable support for all members may offer a stronger foundation for launching livestock-focused enterprises. While labour was not equally distributed within these groups, none of the women interviewed in the Nasaru groups expressed concerns about this imbalance, including those contributing more effort than others. However, it is important to note that the Nasaru women's groups interviewed only bought and sold livestock intermittently when raising money for school fees or upgrading from one form of livestock to another. In practice, this activity did not function as a business with habitual buying and selling for the purpose of generating regular profits. That said, this tolerance for unequal distributions of labour, and the sense of collective obligation that underpins it, is a defining and remarkable feature of Nasaru's groups that may be strategically leveraged.

Ultimately, if future interventions seek to build on the existing scaffolding of women's groups, it will be essential to ***align group dynamics more deliberately with business models***, ensuring that operational structures match the level of engagement required for commercial success. Looking closely at the group businesses in all three communities that are operating and productive, we see that they function more as organisational support systems for individual workers, rather than a singular business with multiple employees receiving equal compensation. For instance, the ballast group (Nakuprat), tomato harvesting (Nasaru), and Patinaai Osim bead and handicrafts (Nasaru) all are comprised of individual contributors whose individual payment equals their individual labour. The benefit of the group component is that the individual labourers share access to resources (e.g.,

planting fields, handicraft workshops, sewing machines, ballast crusher, etc.), and they may offer some form of groups savings for specific expenses, such as school fees.

The other form of group success in a 'business' is when there are low to no labour costs within the business. The clearest example of this is groups that invest in rentable group assets (e.g., chairs, event tents, land, etc.) where these products can be rented for group profit without requiring individual labour from within the group membership. Assets are equally owned, and profits are equally shared.

Forming small (~3 person) or large (~20 member) groups for the purpose of a livestock business that would provide sustained and regular profits for all members violates the above two principles of successful group businesses in these communities because: 1) the business is not designed to get out of it what you put in as an individual, and 2) there are consistently high labour costs required in the caring for, managing, purchasing, and selling of livestock. In fact, as group numbers increase, the disparities of this model also increase. This principle is illustrated in the failures of the Nawiri 3-person livestock business and potentially underpin the preference for women in Gotu and Nakuprat to favour individual pursuits over group participation in livestock marketing.

Where we see some differentiation and apparent economic success is in Nakuprat's WhatsApp Livestock Marketing Group, which is a hybrid of a very small (5-person), highly controlled, specialised group that is supplied by local individual producers. Except for the five members of the group who receive the lion's share of the profits, for the individual producers, input equals output. However, this arrangement cannot be considered a group business for the producers as they are not formalised into a group with potential group benefits, and the individuals selling to the WhatsApp group will vary depending on who has animals available at the time of a bulk sale. In practice, this is a highly specialised 5-person group business; however, this model should be explored for opportunities to formalise producer contributors and provide additional group benefits to encourage engagement.

In sum, it would be prudent to separate the highly successful group strategy of group savings and group asset sharing away from any loan activities (that can derail savings activities, see point #6 below), where group assets are either used for savings or emergency purposes (e.g., acquiring group livestock as assets), or where assets can be rented to generate profits that requires low to no labour costs. Group businesses should closely adhere to the principle that individual benefits reflect individual inputs, and the utility and benefits of the "group" function is through sharing access to costly / specialised tools, knowledge, networks, and designated group savings (e.g., school fees funds).

3. Business profitability must be immediate in high-precarity contexts

The socio-ecological and economic precarity in these communities requires that business profits be available to meet basic needs almost immediately; otherwise, businesses (and their start-up investments) are likely to dissolve. This is yet another reason to keep group sizes small for business ventures, as profits must be divided among members. When businesses encounter challenges or reach impasses, the initial capital investment becomes vulnerable. As one Turkana woman recalls: "I was part of one of the buying and selling businesses within a group of 3, and I did that for a year. As a group, we received 15,000 KES profit so we had 5000 KES each, but we broke up the business

and shared out the startup money of 20,000 KES. The problem that we had is that we were trying to sell animals in a drought. We stopped the business because the area was so dry, and we were struggling to buy healthy animals and sell them, and it became too much of a struggle." – Nakuprat, woman, 25 years old

Many women in Nakuprat spoke about the difficulty of preserving financial capital during unprofitable periods, especially when urgent household needs, such as food or school fees, took priority. Capital investment is only the first step in supporting business development in pastoral contexts or women's groups. Often ***missing is recognition of and mechanisms for financial buffers*** needed to weather shocks and setbacks when profits are low and basic needs remain unmet.

It should be noted that even in Western contexts, small business sustainability is challenging. According to the U.S. Small Business Administration Office of Advocacy, most small businesses take at least 2 – 3 years to become profitable, and more than half fail within the first five years. While the conditions for business development differ significantly across the two settings, pastoralist communities generally have fewer safety nets, institutional supports, or fallback options. This places even greater pressure on women's businesses to turn a profit quickly whilst lacking the time or resources needed to grow sustainably.

4. Identify and utilise individual variation and strengths in group settings: context matters
While efforts toward inclusion should remain a priority and aim to deliver the greatest benefit to the greatest number, broad-scale investment and participation may be better suited to household-level interventions, such as strengthening women-led livestock production within domestic spaces rather than at the group level. The reasoning behind this approach is that striving for equitable, uniform investment in group-level models can inadvertently flatten individual variation, overlook distinct strengths, and suppress the nuanced characteristics that often underpin successful and profitable group enterprises. Put simply, when investing in group-based activities, it is critical to support uniqueness, innovation, and entrepreneurial drive in ways that build on these assets rather than stifling them in pursuit of evenly distributed benefits to all group members. Therefore, equitable access to livestock opportunities may ultimately be more effective when rooted in individual, household-level activities.

Recognising the variation both between and within these communities, it is clear that a one-size-fits-all business approach will have limited benefits. Some individuals are enthusiastic about group participation, while others are not. Some are technologically literate, others less so. Certain groups, like those found in Nakuprat, have unique characteristics like strong familial connections to large supplies of inexpensive shoats sourced from Turkana County. Groups in Gotu are composed of highly mobile, gregarious women, whereas others, like in Nasaru, are more sedentary but overall have more stable economies. In these cases, disregarding unique group characteristics may limit group potential. For instance, designing group business models around sedentary assumptions risks missing the opportunity to harness the strengths associated with mobility.

Similarly, aiming to create universally applicable group businesses may at the same time limit the potential of standout, remarkable women across all three communities, having distinct skills and circumstances. One critique of the Nawiri 3-person business model, while well-intentioned and ambitious, is that it functioned more as a "business in a box," asking women to plug into a fixed

design, rather than designing business models organically from the group's unique talents and proclivities. While the "business in a box" model elevated the capacity of some, it also constrained the potential of others and is generally not the basis for any successful entrepreneurial endeavour operating in a free-market economy.

5. Loans should favour business investment, not personal expenses

As briefly mentioned above in point #2, a critical weakness of savings and loans group sustainability arises when members use borrowed funds to cover personal or household expenses without a reliable means of repayment. While the financial pressures on women are both urgent and understandable, the diversion of group capital toward unproductive, high-risk loans jeopardises the entire system. When repayment is delayed or uncertain, the group cannot meet its planned schedule for sharing profits or reinvesting collectively. The costs of these missed opportunities are borne by all members and stifles group growth. As one Turkana woman explained:

"Children are going back to school so there are a number of women asking for loans at that time, on which they will pay interest. A major problem is that it is currently May, and we have not yet broken the group, which we should have done in January because there is 80,000 KES of outstanding loans that is missing. We should have already shared out the profits from the group, but we cannot do that with the money that is missing. I am worried that this money is not going to be paid back." – Nakuprat, woman, 45 years old

This scenario illustrates how personal borrowing when not backed by a clear income-generating plan can paralyse group progress, compromise trust, and convert cooperative systems into cycles of debt. Interestingly, Nasaru self-help groups greatly limit individual loans, unless for business purposes with a clear repayment strategy, and do not rely on loan interest for their primary group savings generation mechanism. While loans may help women in Nakuprat and Gotu to meet some of the very real economic challenges women are facing in these communities, this practice may further exacerbate economic vulnerabilities and jeopardise the potential for protecting group assets.

6. Profitability relies on eliminating production and transportation overheads

A clear pattern emerges when examining the sustained, long-standing income-generating activities pursued by women across the three study communities: ***profitability is heavily reliant on access to natural or freely acquired resources and the elimination of transport costs***. These activities are not new nor experimental. Instead, they are strategies that have endured because they are grounded in the socio-ecological and economic realities of these environments. Across both group and individual efforts, success hinges not on scale nor innovation, but on ***minimising input costs in contexts where margins are slim and capital is limited.***

For instance in Nakuprat, women burn charcoal using locally available trees and sell directly to motorbike transporters within the community who then aggregate and take charcoal to the larger markets in Archers Post and Isiolo, thus avoiding any financial input (i.e., trees are free) or transport costs by the women producers themselves. Similarly, the Ltungai Ballast Group have made use of a stone-crushing machine left behind by a Chinese road construction crew after construction of the A2 highway that passes close to the community. This women's group turns nearby stone, a natural and free material, into sellable ballast for the group's school fees and individual profit sharing, again with buyers collecting directly at the site, thus avoiding transportation costs. Even the WhatsApp Local

Marketing Group relies on networking and digital platforms to source animals (freely) and builds bulk orders where buyers incur all transportation costs. As the chairlady of the group explains,

I take orders now, so I don't go all the time to the market. The WhatsApp group gives us orders of between 100 to 150 animals at a time…each [member] bring[s] animals to fulfil the orders. The women are from all over, but they are primarily from Daaba Centre because these are very active women and not from faraway places…We do all of the marketing of the animals ourselves. We market the animals through the WhatsApp group by taking pictures of the animals and posting to the group, something like 100 animals. Buyers come from places like Isiolo, Meru, and Naro Moru. These buyers likely resell these animals to even bigger buyers. We met these buyers initially in the Isiolo market, and it grew from there. The buyers actually come to Daaba in order to pick up the animals after the animals are all gathered. Everybody stays with their animals at their own homes and then on the morning that the buyer comes, they all bring the animals to the meeting place to sell them." -Nakuprat, woman, 37 years old

Preserving profits through local-sourcing and zero spent by local producers on transportation is the key to the viability of this activity.

In Nasaru, women work in groups to harvest tomatoes from others' farming plots, walking to the sites, and are paid directly by the long-distance transporters. The money is saved by the groups for school fees and small individual profit. Many others sell milk from their own cows directly to motorbike middlemen transporters that sell to Emali and Masimba dairy collection points, thereby presenting no costs for the women suppliers. These examples underscore a critical lesson: where profit margins are narrow, eliminating overhead is not simply advantageous; it is essential. Interventions should therefore prioritise models that build on existing, low or no cost resource access and preserve or replicate this minimal-input structure wherever possible.

5.3 Learnings and Principles – Women's Groups and Individual Livestock Participation

In summary, while women's groups serve as valuable platforms for savings, asset-building, mutual support, *potential* business development, risk spreading and social safety nets, their ability to support livestock production is highly dependent on group cohesion, context-specific business models, and the minimisation of risk and overheads. Where trust is strong, input costs are low, and business ideas are matched to the unique characteristics of these contexts, women's groups have the potential to meaningfully advance women-centred livestock participation, yet where these conditions are absent, group-based approaches may struggle to deliver sustainable impacts.

Based on this understanding, here is a summary of some of the key learnings and takeaways relevant to women's groups and individual livestock participation that can inform Heifer's intervention strategies:

1. ***Building community resilience first protects individual and group investments***. Funding improved water access, secure drought fodder reserves, basic animal health care and disease management, skills and knowledge training, improved access to markets, and dedicated school funding mechanisms before capital investments (in

individuals, groups, or businesses) will greatly reduce overall precarity and increase the likelihood of sustainable outcomes for women.

2. “Ring-fencing” group savings from loan activities (if any) protects group assets and encouraging savings for profit-making, low / no labour group asset investments sustainably and equitably grows group finances. Creating a dedicated, term-aligned school fees fund helps so that education costs do not cannibalise group capital.
3. Business operations favour individual pursuits or small groups (2-4 members) where individual input equals individual returns. Larger groups (~20 members) are more beneficial for savings and rentable asset generation.

4. Adopting written ***rules*** (with enforcement mechanisms), ***transparent*** cash handling, rotating oversight, and establishing external dispute paths (e.g., chief) promotes group cohesion, longevity, and efficacy.

5. ***Eliminating / limiting overheads*** (e.g., materials costs, transportation) is a fundamental requirement for business viability and profitability in these narrow-margin ventures. Strengthening buyer to producer methods (i.e., buyers engage producers within community areas) increases women’s livestock market participation and reduces producer transportation costs.

6. Without ***immediate profitability*** and / or economic buffers, business ventures and investment capital may not survive shocks (e.g., hospital bill, acute food scarcity, etc.).

7. Where security is fragile, investment in movable livestock assets increases risks from raiding. Therefore, women living in insecure areas may benefit from non-livestock asset investment (i.e., rentable assets) and / or from improving connectivity between women and their distant herds.

8. The apparent success of the WhatsApp Livestock Marketing Group in Nakuprat warrants further exploration in replicating this model, or variations of this model, more ubiquitously and within other contexts, potentially formalising individual producers into regular suppliers.

6. Comparative Livestock Ownership and Household Wealth

Determining “success” in implementing support for women-led livestock production in these three communities (and beyond) when there is a high degree of cultural, organisational, and contextual variation amongst them can be challenging. One method for beginning to parse causational factors is to first have a basic understanding of comparative differences in livestock ownership and general household wealth found in these communities.

As such, this section provides an approximate comparison of household economic security as inferred through livestock holdings across the three study communities. These estimates are not intended to represent exact household wealth nor provide systematic quantification, but rather to identify patterns and enable a comparative understanding of relative economic standing between

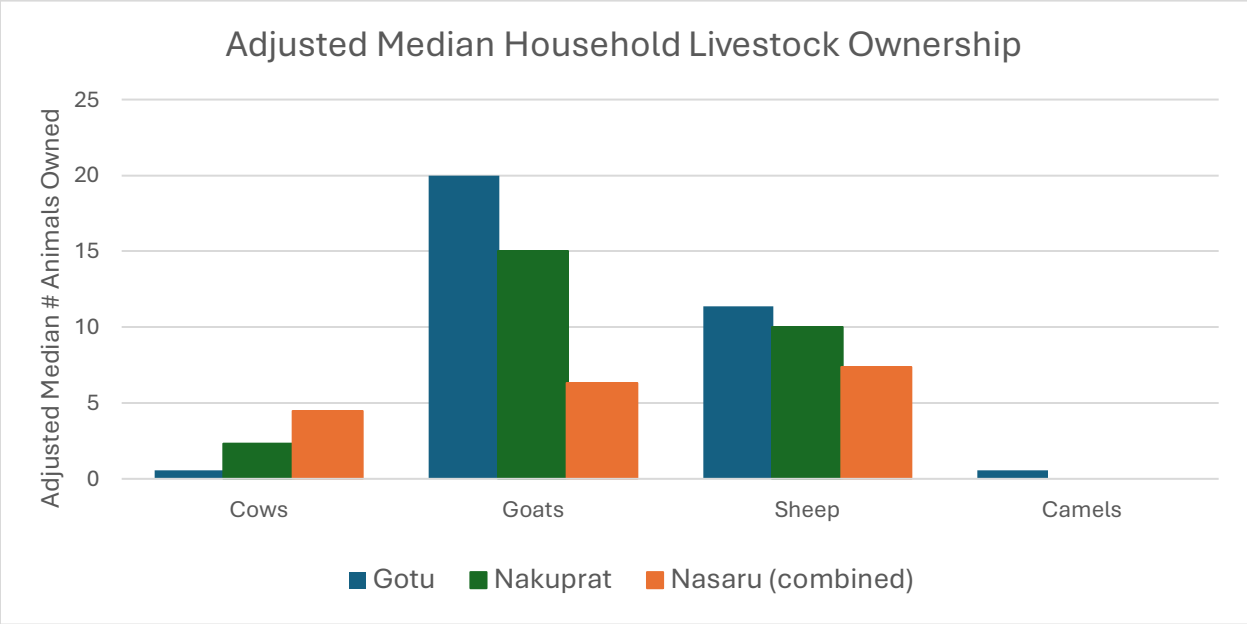
these groups. As this study was not designed to directly census nor count verify livestock assets, all data are based on participant estimates and are therefore subject to both intentional and unintentional misreporting. Respondents may over-report, under-report, or selectively exclude animals for a variety of reasons, including privacy concerns, perceived benefits from under-reporting, or social expectations tied to wealth visibility.

In light of these methodological limitations, the plots included here should be interpreted as broad patterns rather than precise measurements and should not be used as baseline data for subsequent post-implementation evaluations. The intention is not to scrutinize the reported totals, but to draw out the general contours of livestock ownership and the types of assets women have at their disposal.

6.1 Median Household Livestock Ownership Comparisons

The first plot below presents approximated adjusted median livestock ownership by household (not just women's assets alone) for each type of livestock species in the three communities, as reported by respondents. Furthermore, due to the prevalence of women's groups in Nasaru to hold livestock as group assets, the figures for this community include the adjusted median ownership of both those held by households and by groups.

Figure 6.1 Plot showing estimations for adjustment median household livestock ownership for Gotu, Nakuprat, and Nasaru, using both household and group ownership information (n=48 households and groups), separated by livestock species



The data suggest several clear trends. Most notably, goats, and to a lesser extent sheep, are common investments across all three communities. They are a preferred species regardless of region, ethnic group, or socio-economic status. Reasons cited for goat preferences were: their inexpensive purchase price, ability to browse on marginal lands (which also allows the ability to keep goats closer to homes), attractive for quick selling as goat meat is ubiquitously consumed in Kenya,

ability to produce enough milk for household consumption with potential excess for sale, and they are relatively drought tolerant.

The comparatively lower number of sheep kept across all three communities when compared to goats was explained largely by economic terms. Participants stated that goats tend to fetch higher market prices (due to their slaughter demand) and are more productive in terms of total milk yield, and therefore offer greater potential for surplus goat milk selling. However, pastoralists continue to keep sheep as they can produce young more often than goats, the head and the fat can be consumed as medicine, and the milk, although small in amount, is rich and creamy compared to goats. Sheep also do not require separate herding strategies and can be kept and managed within the same herd as the goats, therefore providing additional benefits without additional labour demands.

Cows (for all groups) and camels (mostly Borana, some Turkana) are highly prized; however, the overarching reason for low ownership amongst all three communities is an economic one – they are very expensive. They represent aspirational livestock ownership should the livestock keeper have the funds to purchase such animals and the high costs of maintaining these valuable assets through feed, medicines, specialised herding labour, ensuring security, and water access. Given the value of these animals, it is unsurprising that they are most often tightly controlled, managed, and marketed by the male heads of household, in communities where decision-making is highly gendered. Likewise, smaller stock, having a lesser monetary value, are comparatively more accessible to the care and management of women.

Along these lines, participant women frequently noted the relative ease of entering goat markets compared to cattle trading, where the latter remains a male-dominated domain. As one focus group in Nasaru detailed,
“[Women] go with men usually to the market, but sometimes they go by themselves. Most of the time [women] involve men when it is cows that they are buying or selling. Goats are easier for the women to buy and sell than cows are. It is the husband who will always follow a cow if the group wants to do business with it…[women] also don't know the value of an animal when they are selling it at the market, and men really know the pricing of cows in order to get the best value. It is much easier to be able to predict goat pricing.” -Nasaru, Women’s Focus Group #5

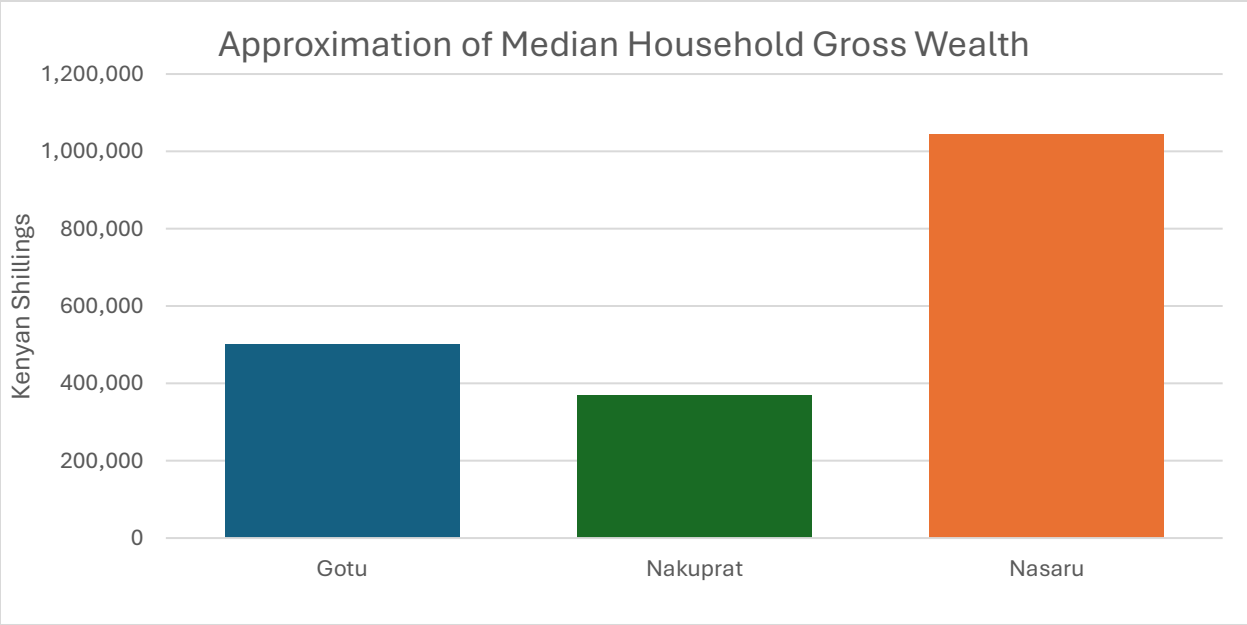
Not only does this quote demonstrate cow markets as male-dominated spaces but also the importance of market knowledge in determining livestock pricing. Because shoats are lower-value livestock, the variation in pricing is not as expansive as for cows. Cows’ price variation opens women up to greater exploitation of lost profits at markets as compared to shoats. Therefore, we can conclude that the learning curve for shoat marketing is far less steep than that of cows or camels, is more accessible to women, and has less scope for price exploitation. These are all components that bode well for strategising support mechanisms for expanding women-led livestock production.

6.2 Median Household Gross Wealth Comparisons

To better compare livestock-based, household-level economic security / precarity across the three populations when preferences for livestock species differ, a second plot approximates the total value of household livestock holdings by assigning average market prices to each animal type: 60,000

KES per cow or camel; 6,000 KES per goat; and 5,000 KES per sheep. While these figures are generalised and actual prices fluctuate widely based on livestock species, season, market location, and animal condition, the intention here is to provide a proxy for gross livestock wealth per household, which enables more meaningful comparisons across different herd compositions.

Figure 6.2 Graph providing an approximation of household median gross wealth, based on livestock ownership for each of the three communities (n=48 households and groups)

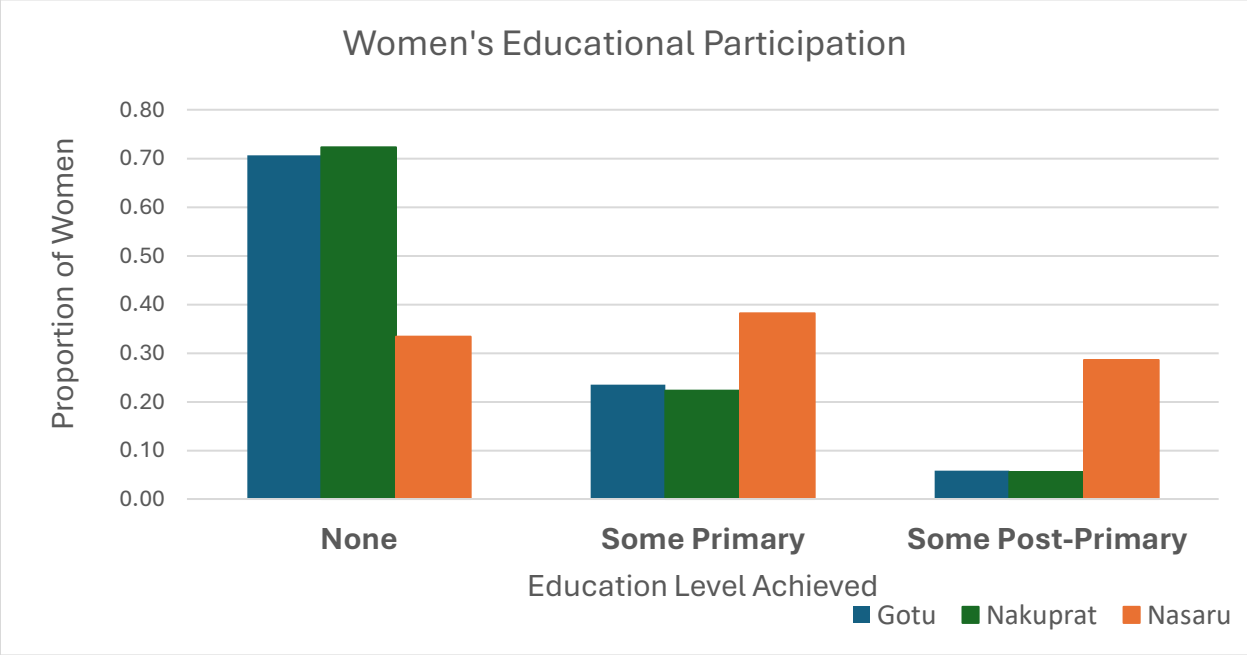


Given the small and skewed data set, we can assume that Gotu and Nakuprat likely fall within the margin of error, suggesting that overall household wealth is similar between these two communities. This analysis further reveals that any perceived difference in higher household wealth in Nasaru is largely driven by cattle ownership rather than total livestock numbers. Cattle, as high-value animals, significantly elevate household (and group) asset profiles. Their prevalence in Nasaru is not necessarily a reflection of greater livestock knowledge nor management skills but is more likely attributable to a markedly higher percentage of male-headed households (where cow and camel ownership is highly gendered) and the region's relative security. Unlike Gotu and Nakuprat, which face recurring threats of livestock raiding due to their proximity to contested borders, Nasaru does not suffer from the same level of insecurity. This permits families and groups in Nasaru to invest in and retain higher-value animals like cows without the constant risk of loss, thus expanding their asset base over time.

6.3 Women's Education and Variations in Livestock Ownership and Wealth

It is worth noting that while women in Nasaru report the highest levels of formal education among the three communities, this alone may be a misleading indicator of livestock-related success, though its role may be more tangential, providing support rather than direct impact.

Figure 6.3 Graph comparing women's educational participation across the three study sites, from never attending any formal schooling (none), attending somewhere between nursery to class 8 (some primary), or having attended any secondary schooling or college / university education (some post-primary), (n=56 respondents)



It is possible that higher rates of school completion among Nasaru women may support improved record-keeping, organisation, or engagement with extension services; however, these advantages do not fully explain their relative wealth in livestock assets. The comparative livestock ownership patterns suggest that the key differentiator is not necessarily education, but rather the broader socio-ecological conditions that determine what types of animals a community can reasonably sustain. As will be discussed further in section 8 regarding women's Indigenous knowledge within livestock care and rearing practices, Borana and Turkana women demonstrated equal, if not greater, individual proficiency in managing small stock such as goats, with strong knowledge of husbandry, market cycles, and milk production, regardless of lower educational achievement. While education can support women in navigating livestock markets and organisational systems, it should not be viewed as a prerequisite for participation in livestock programming. Women in all three communities have demonstrated a high level of skill, adaptability, and economic reasoning within the bounds of their available resources.

6.4 Learnings and Principles – Comparative Livestock Ownership and Wealth

Ultimately, livestock-based household wealth in these communities demonstrates a proclivity for shoat ownership across all three populations, and relative standards of higher wealth in Nasaru may be predominantly influenced by their ability to grow assets and sustain cow ownership in the absence of insecurity and inter-ethnic raiding. Targeted support tailored to each community's security profile, herd composition, and ease of access will be necessary to strengthen women's livestock production across all three settings.

Summarised here are some of the key learnings and principles regarding household livestock ownership and wealth, particularly for women, that may be used to inform strategies for strengthening women's livestock participation:

1. Goats offer universal entry points for expanding women's livestock participation due to their affordability, relative drought-tolerance, greater ability to keep nearer homesteads, and market accessibility to women with lower risk of price exploitation than cattle. Cattle markets require greater needs for safeguarding and / or intermediaries to prevent women's exploitation.

2. Cows and camels drive wealth but remain tightly male-controlled, largely cost prohibitive, and require high labour and resource inputs, making them less attractive for increasing women's participation in this form of herd-keeping and marketing.

3. Secure contexts (Nasaru) can sustain cattle and support wealth accumulation, whereas insecure areas (Gotu / Nakuprat) may benefit from prioritising shoats and investing in risk mitigation strategies. "Upgrading" to cattle may only be prudent where security and resources permit.

4. Formal education can be supportive but not decisive, with livestock success depending more on local ecology, security, and species strategies.

7. Household Income and Expenditure

What is emerging in this analysis is the principle that where a community is starting from and its relative levels of precarity will likely have bearing on its members' capacity to readily engage with and make effective use of certain strengthening mechanisms, while others may be, at present, partially or fully eclipsed to them. As Heifer International's KLMP program is focused squarely on improving women's overall livestock participation in both domestic and market spaces, it is important to understand how livestock fits into women's broader household economies and examine the full range of income-generating activities that women undertake in these communities.

7.1 Women's Sources of Income

To this end, the following heat map illustrates women's reported participation in various income sources across the three case study sites. The map does not reflect the amount of income earned, but rather the extent of engagement in each activity by women in the community where the darker the cell, the more common the activity among women respondents.

Figure 7.1 Heat map demonstrating the level of participation of women in each of the activities listed. Darker cells indicate greater numbers of women participating, where lighter cells indicate fewer women participating. For Nakuprat, the divided cells indicate participation during Nawiri-funded years (up through 2023) for the left-hand divided cell and post Nawiri (2023 to present) for the right-hand divided cell

WOMEN'S SOURCES OF INCOME	GOTU	NAKUPRAT	NASARU
Animals as assets (selling boma animals for needs)		*male dominated	*male dominated
Beadwork			
Brewing alcohol			
Carbon credit money and / or conservancy bursaries			
Charcoal burning			
Chicken & egg sales			
Fruit & veg from personal farm			
Fruit & veg resale (kiosk)			
Government / NGO assistance (orphan program, school bursaries, remittances)			
Group animals as assets (selling group boma animals for group needs)			
Group business: non-livestock (selling utensils, clothes, dish soap, rental equipment, guesthouses, brooms, mats)			
Group charity (free bursaries / money)			
Group livestock business (buying animals for the purpose of quick selling)			
Group loans			
Group savings & merry-go-rounds (get out what you pay in)			
Gum collection			
Honey production			
Individual livestock business (buying animals for the purpose of quick selling)			
Labour (cleaning, fetching water, wash clothes, stone crushing, tomatoes)			
Milk sale			
Miraa selling			
Nursery teacher			
Restaurant / hotel eatery			
Shop (general store)			
Tailoring			
Taking debts, free assistance from others			

In Gotu, the top three income activities women are participating in are: 1) rearing livestock for needs-based selling, 2) receiving annual carbon credit payments distributed through the conservancy (estimated at 50,000–60,000 KES per year), and 3) selling miraa within Gotu town, typically to male buyers. Though livestock sales are generally male dominated across all three populations, we see that the women in Gotu also operate in this space with limited levels of autonomy and decision-making abilities and identified this activity as a key strategy for meeting household needs.

In Nakuprat, the heat map distinguishes between participation in the Nawiri-era (up through 2023) and the period that followed, as demonstrated within the divided cells. Here we focus on the current post-Nawiri landscape. Women in Nakuprat participate in a more diversified set of income-

generating strategies than women in Gotu. Their most common activities include selling livestock for needs-based purposes (in this case, largely male-controlled), charcoal burning, chicken and egg sales, cultivating fruits and vegetables from individual plots on community-designated farmland, accessing group-issued loans, running small shops, and taking debts or informal assistance from others.

The women of Nasaru also demonstrate diversified livelihoods. Their primary income sources include selling livestock assets for needs (again, with high male control), selling beadwork to buyers within and external to the community, receiving charitable support through women's self-help groups, earning wages from labour (especially in tomato harvesting), and selling cow's milk to local transporters, towns, and larger dairies.

Across all three sites, the foundational income strategy is the sale of household livestock for urgent needs (e.g., school fees, bulk food, hospital bills, etc.). This is consistent with the study's purposive sampling of subsistence-based pastoralist communities, so this finding is expected and affirms the centrality of livestock to household survival.

However, a noteworthy pattern emerges when we examine the top activities that most women engage in across the three sites: they are overwhelmingly non-livestock dependent and, importantly, potentially more resilient to climate variability. Charcoal burning, for instance, is actually more feasible during dry spells when dead trees are abundant (see section 9 for more details). Only one of the top-ranked income activities in terms of participation levels, milk selling in Nasaru, depends directly on livestock production. This strategy is only viable due to the proximity of large dairies and the abundance of local transporters who purchase and deliver the milk, reducing the costs of transportation and logistics for women. Without this infrastructure, milk sales would not be a profitable nor practical option. Finally, the presence of activities like charcoal burning in Nakuprat and miraa selling in Gotu, which may be viewed as environmentally or socially harmful practices, may signal a limited degree of economic alternatives or maladaptive coping strategies in regions where drought and insecurity have narrowed the range of viable alternatives for women. Overall, these patterns indicate that there is a high degree of environmental, social, and economic precarity in these areas and that women, lacking control in male-dominated livestock production, often seek out non-livestock activities for their income generation. For Heifer International, it is necessary to clarify whether the primary objective is to advance women's economic empowerment and stability or to expand women-led livestock production, as these goals may not always align. To harmonise the two objectives, it may be essential to work within existing structural constraints and identify the specific niches where small-scale livestock opportunities can realistically be leveraged by women.

7.2 Men's Sources of Income and Gender-blended Income Approaches

Along these lines, to understand household-level income generation more fully, it is essential to examine the economic activities of men alongside those of women. The table below presents a similar heat map of men's participation in various income-generating strategies across the three study sites. As with the women's table, darker cells indicate higher participation rates among men in that activity. It should be noted that data for men's economic participation was extracted from interviews with both men and women in the sample.

Figure 7.2 Heat map demonstrating the level of participation of men for each of the activities listed. Darker cells indicate greater numbers of men participating, where lighter cells indicate fewer men participating.

MEN'S SOURCES OF INCOME	GOTU	NAKUPRAT	NASARU
Animals as assets (selling boma animals for needs)			
Casual labour (fencing plots, sand harvesting, farm labour, road construction)			
Group savings, loans, livestock			
Hired herder / pushing cows to market			
Individual livestock business (buying animals for the purpose of quick selling)			
Lease land for farming or grazing			
Livestock broker (at markets)			
Milk sales & delivery			
Motorbike (boda-boda) or transporter (charcoal, goods)			
Small business (butchery, hotel eatery, barber)			

Interestingly, men in Nasaru (as compared to those in Gotu and Nakuprat) participate in self-help groups, either male-only or mixed-gender, engaging in savings schemes, group asset building, and charitable giving to group members, following the same model as the Nasaru women's groups. This parallel adoption underscores how embedded these collective financial mechanisms are in the local social structure for Nasaru, suggesting that they are not only effective but culturally resonant and widely adopted across gender lines.

As expected, livestock rearing and the sale of household animals for immediate needs are the dominant income sources for men across all three populations. However, differences emerge in secondary income activities. In Gotu and Nakuprat, men show limited participation beyond livestock-related work, while in Nasaru, men demonstrate more diversified income strategies, often complementing the activities undertaken by women in the household. For instance, men work with their wives and other female milk producers by serving as transporters or buyers who aggregate milk and deliver it to dairies in nearby towns, such as Emali and Masimba. With daily loads of 80 to 100 litres carried by motorbike (in the rainy and shoulder seasons), men profit from small margins per litre that add up due to the scale and frequency of transport. Their personal ownership of motorbikes and ability to make regular deliveries transforms what would be a difficult logistical challenge and overly costly for women into a viable household income stream, demonstrating a mutually beneficial integration of men's and women's roles.

While a similar model might seem possible in Nakuprat, where women engage in charcoal burning and men transport loads to towns like Archers Post and Isiolo, key differences limit the viability of this arrangement. Charcoal production can be infrequent and irregular, with women producing between one and four 50-kilogram sacks per week and often falling on the lower end of that range. This irregularity undermines profitability and reliability for male transporters. Additionally, since motorbikes can carry only 1 – 2 sacks at a time, the low volume further reduces profit margins as time and fuel costs increase, making it difficult to sustain as a stable income source through this method. Interestingly, most women charcoal burners reported that the transporters they used were not their husbands, nor were many of them from the Turkana community. Many transporters were

coming from the Borana, Somali, Sakuye, or Garre communities instead. Therefore, there was less of an opportunity for a blended, family-based economic activity for charcoal selling in Nakuprat.

While we were not able to test this theory directly, the blended income approach (husbands and wives with separate but complementary income-generating activities) may contribute more successfully to the overall stability and economic health of the household than gendered, independent pursuits. While this is important to note, we must also keep in mind the high levels of women-only households in Gotu and Nakuprat (~50%) where the blended approach would have significant limitations. A further point to consider in the blended approach is the need to safeguard against or ensure that women are not eclipsed by men within shared activities. In fact, women most often explain that they structure their self-help groups or small business ventures as women-only because even a single man can dominate, silence, or take control of all decision-making functions for the group or household. Therefore, careful consideration must be given in creating blended opportunities that ring-fence complimentary, gendered activities without opening the door to exploitation or creating conditions for male dominance.

7.3 Estimating Women's Income and Profitability

To estimate the financial value of women's participation in income-generating activities, the table below displays low and high monthly profit estimates for commonly practiced income strategies among women in the three study communities. These figures have been extracted from real data but are not comprehensive nor absolute in and of themselves and should not be treated as exact measurements. Rather, they should be used for illustrative purposes to gain a general understanding of where women's time and energy may yield the greatest financial returns under both typical and ideal conditions. Activities involving livestock buying and selling are excluded here, as they will be addressed in detail in section 8.

Figure 7.3 Table displaying monthly income range estimates for women's activities taken from all three participant communities. Low-end and high-end estimates are provided; however, "typical" production would be considered at the lower end, where the higher end represents income during "ideal" conditions. Asterisk indicates activities where there are high seasonal and market variations in income, and there is a possibility these activities generate 0 KES income for a number of months.

Income Source	Costs and Overheads	Low Monthly Estimated Profit (KES)	High Monthly Estimated Profit (KES)
Miraa, 1-3kg daily	200 KES/kg transport	24,248	72,744
***Shop Profits, 100 – 500 KES / daily**	Stocking capital, transportation	3,031	15,155
***Charcoal Burning 1-4 sacks / week**	None	2,598	10,392
***Labour, including herding**	None	1,300 (tomatoes)	15,000 (construction)

***Goat Milk (Gotu), 2-5L / day**	Transport 30 KES/L / day	1,212	10,608
***Cow Milk (Nasaru) 5 – 80 L / day**	Transport = 0 – 200 KES / day	7,500	24,000

Because these estimates reflect only regular sources of income, activities with infrequent or irregular participation, such as beadwork or one-off charitable disbursements from self-help groups, have not been included. For example, many women in Nasaru may bead or receive occasional group assistance, but these activities may occur for an individual woman only 1 – 3 times a year and do not constitute a dependable income stream for most participants.

Across all three communities, the monthly profits from women's income strategies are generally quite low. The exceptions are miraa selling in Gotu and cow milk sales in Nasaru, which demonstrate potentially more favourable economic returns. Both activities share three key characteristics:

1) they involve highly perishable goods that must be sold daily,
2) they benefit from established and low-cost transportation systems (primarily motorbikes) that can carry these products in volume, and

3) they are supported by reliable, motivated buyers. In Nasaru, dairies located in nearby Emali and Masimba offer consistent, year-round demand. In Gotu, due to the addictive nature of miraa, this form of selling ensures a steady customer base.

Overall, the data suggest that while women's livelihood strategies provide some income, the majority of activities yield modest returns. Where women have achieved greater relative success, their strategies are marked by: 1) frequency of sale, 2) minimal logistical burden and transportation costs, and 3) dependable market demand. This is hardly revelatory as the principles of selling often, keeping overheads low, and having a reliable client-base are the foundational tenets of any sustainable business model. We are just seeing these principles play out in context. These findings point toward a clear programmatic insight: future efforts to enhance women's economic resilience should explore opportunities that meet these three criteria.

7.4 Household Expenditure

To fully understand household economics, it is important not only to assess income but also to examine patterns of typical expenditure. This helps to identify economic shortfalls that leave households vulnerable to financial strain, harmful coping strategies, or disruptions in basic needs. While this study did not aim to conduct a formal household economic survey, which can be referenced through organisations such as the FAO, World Bank, ILRI and others (e.g., Oxford Policy Management Limited, 2014; Kenya National Bureau of Statistics, 2018), the discussion here provides an overview of typical household expenditures for the 3 case study communities to illustrate the potential for economic shortfalls.

Figure 7.4 Table displaying household expenses most often cited by participants in the three study communities, along with their estimated cost ranges.

Case Study Area Typical Household Expenses	Monthly Costs (KES)
Food (fruits, vegetables, grains, oil, tea, sugar)	6,000 – 18,000
Nursery School (charged per parent, not per child)	500
Primary School (charged per parent, not per child @ 10,000 - 18,000 / year)	833 – 1,500
Secondary School (charged per child @ 15,000 - 60,000 / year; estimated here w/ 2 children)	1,250 – 5,000
Women's group contribution	0 – 5,000
Total Household Monthly Expense Range	8,500 – 30,000

Although household expenses vary significantly depending on family size, number of children, school enrolment, type of schools attended (government, private, boarding, day scholar, etc.), and the strength of extended family support, the interviews suggest some general trends. Food consistently emerged as the largest and most regular household expense. While food prices may rise slightly during the dry season, the overall food budget remains relatively stable and largely predictable throughout the year, purchased at regular intervals.

In contrast, school-related expenses are not paid regularly throughout the year, accumulating in three major payment cycles: April, August, and December. These fees not only include tuition, but also irregular add-ons for uniforms, books, examination fees, and a number of other miscellaneous expenses. Although the timing of the bulk of these payments is predictable, these expenditure spikes often require significant financial planning or large-scale livestock sales to meet the acute costs.

Despite these expenditures being well-known and somewhat predictable, many households, especially the large proportion of women-headed households in Gotu and Nakuprat, face regular deficits between income and expenses. To bridge these gaps, households consistently turn to a set of coping strategies that were commonly cited during interviews.

Figure 7.5 Display of three typical pastoral household economic coping strategies and the communities that most often employ each strategy (in parentheses)

Strategy A: Increased Vulnerability	Strategy B: Network Reliance	Strategy C: Livestock Assets
▪ Buy on credit (Gotu, Nakuprat) ▪ Loans from groups (Nakuprat)	▪ Mutual reciprocity (All) ▪ Group charity (Nasaru) ▪ High earner reliance (All)	▪ Sell shoats (All) ▪ Sell cows (All)

The strategies outlined in the table above can be understood along a continuum of household resilience. On the more precarious end (strategy A), families frequently purchase food on credit or

rely on group loans to meet immediate needs. In the middle range (B), households draw on traditional pastoral safety nets, depending on kin and community to help smooth expenditure, reflecting the ethos that “today you may have, and tomorrow I may have.” Arguably, the most economically secure households manage shortfalls independently, selecting livestock to sell based on the specific cash requirements they face (strategy C). As one woman in Nasaru explained, animals for sale are chosen not randomly but strategically:
“When you need money in the house, you choose an animal to be sold based on which one will bring good money at the market. That means that you select the one that equals the same amount of money that you need to raise, or you select a big one if you have lots of expenses to cater for.” — Nasaru, woman, 40 years old

All three communities draw on each of these strategies to varying degrees, though the prevalence of specific strategies varies by site. The communities listed in parentheses in the table above indicate where each approach was most commonly observed. Overall, this section highlights a key distinction among the study populations: households in Nasaru tend to demonstrate stronger economic resilience than those in Nakuprat and Gotu, which supports findings in previous sections indicating relatively lower household precarity in Nasaru as compared to the other two communities.

7.5 Learnings and Principles – Household Income, Expenditure, and Economic Resilience

Household economies across Gotu, Nakuprat, and Nasaru reveal that women’s ability to engage in livestock production is tightly bound to broader income and expenditure pressures. Women’s livelihoods are generally diversified, but most income strategies yield modest returns, leaving households vulnerable to predictable expenditure spikes (especially school fees) and recurring environmental shocks. For Heifer International, effective interventions must therefore align livestock support with household cash flow realities, safeguard against precarity-driven maladaptive coping, and leverage proven features of profitable activities: frequent sales, low overheads, and dependable markets.

The following points are some of the key learnings and principles drawn from the analysis of women’s and men’s income strategies, household expenditure, and strategies for coping with economic precarity that may be used to inform Heifer’s policies for strengthening women’s livestock participation:

1. Designing livestock initiatives around predictable expenses, especially school fees, and timing cycles (e.g., drought), helps to ensure that women can convert livestock or livestock products into cash when most needed.
2. Prioritising income strategies with daily turnover, low transportation costs, and reliable buyers contributes to higher overall profitability.
3. Household income tends to be more resilient when men’s and women’s activities complement each other (e.g., women producing, men transporting), but interventions must protect against male dominance within shared enterprises and acknowledge variation in women-only (Gotu / Nakuprat) versus 2-parent households (Nasaru).
4. In more precarious contexts (Gotu / Nakuprat), there may be greater immediate need to focus on stabilising basic household income gaps; whereas in more secure contexts (like

Nasaru), foundations may be in place to enable scaling strategies like upgrading from shoats to cattle or expanding / optimising milk sales.

8. Livestock Economic Models

Building on the analysis of household income and expenditure, it becomes essential to understand how finances are directly shaped by the ways pastoral households organise, manage, and utilise their livestock assets. The following section examines the primary livestock economic models observed in the study communities, along with some potential hybrid or refined strategies, that provides the context within which women could meaningfully participate in household livestock economies.

It is first important to note the origins of pastoralism as a sustained and resilient livelihood strategy within the unpredictable arid and semi-arid regions of East Africa. Primarily, pastoralism optimises extreme resource variable environments through the accumulation of livestock during periods of relative resource abundance. This allows a core portion of the herd to survive shocks, such as prolonged droughts, and provides a starter herd for future multiplication in a cyclical pattern of accumulation, reduction, and rebuilding (Dahl and Hjort, 1976; Behnke et al., 1993). This practice is not about hoarding animals for wealth but functions as a risk-buffering strategy in regions prone to climatic shocks and lacking formal risk mitigation support. Therefore, pastoral accumulation is a behavioural adaptation that has supported human habitation in extreme environments for thousands of years.

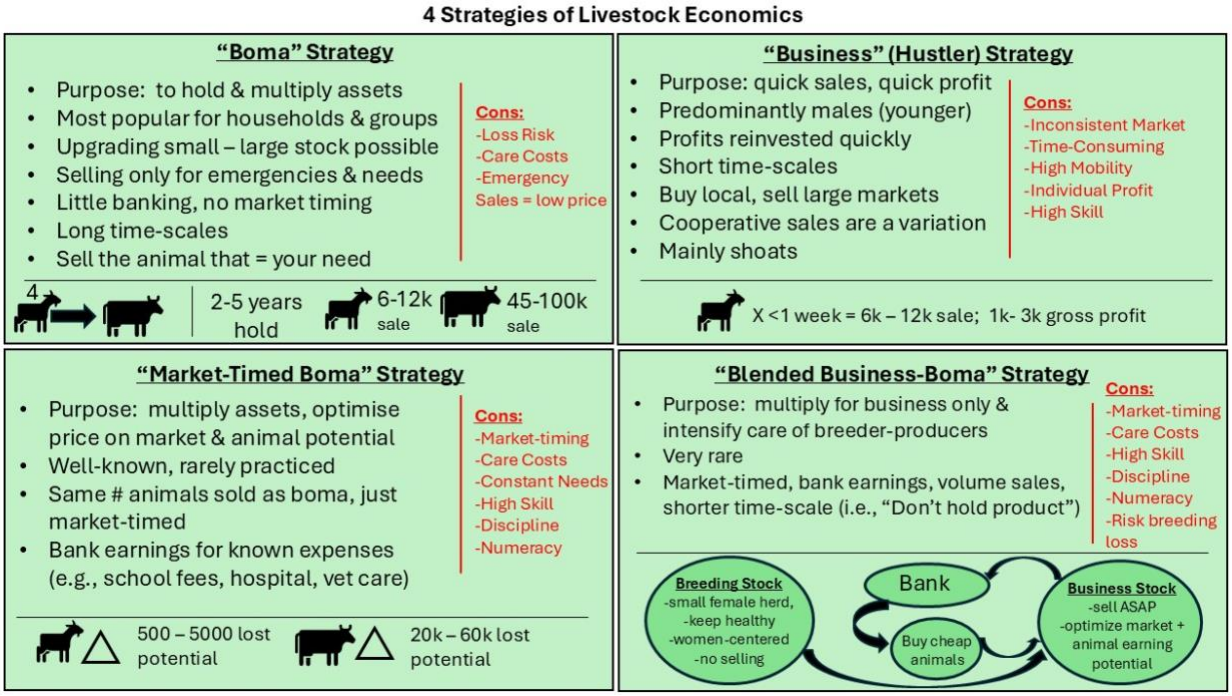
However, whether this system can remain viable into the future is uncertain. Climate models show increasing severity and frequency of droughts and extreme weather events (IPCC, 2023), which shorten rebuilding periods and hinder herd growth to levels necessary for resilience against subsequent shocks. At the same time, pastoral households increasingly depend on market foods and must cover recurring expenses such as school fees and medical costs, prompting periodic liquidation of livestock assets.

This convergence of changing climate conditions, market demands, and traditional herd management practices calls for a re-examination of how livestock economies can adapt. The goal is to identify models that: 1) support resilient pastoral systems, 2) strengthen their economic power, and 3) manage climate-related vulnerabilities. This section will examine four livestock economic models to assess how they meet these objectives. The first two models represent the most common strategies practiced in the 3 study communities (and other ASAL areas in Kenya) today. The third model is commonly discussed by pastoralists; however, it is not often practiced, for reasons that will be discussed within this and the following section. And finally, the fourth model is a theoretical, yet plausible, hybridised strategy that attempts to capitalise on the strengths of the previous 3 models whilst mitigating some of their inherent risks and offers opportunities to expand women's participation in the livestock economy. Importantly, these four models can be applied to both household livestock ownership or group-level ownership.

The graphic below outlines the four economic models, describing their function, benefits, and inherent vulnerabilities. The values provided in each of the strategies are real figures taken from interviews; however, they do not reflect the full range of potentials. For instance, a goat could be

sold outside of the range of 6,000 – 12,000 KES, or a cow could be sold for less than 45,000 KES or more than 100,000 KES, depending on its size, condition, market demand, and several other factors that will be discussed in the next section. Therefore, these figures give a benchmark of some typical values participants discussed and should not be taken as absolutes.

Figure 8.1: Figure 8.2: The four models of livestock economics found within / applicable to ASAL area pastoral communities in Kenya. “Boma” and “Business” strategies are readily observed within the study populations; whereas the “Market-Timed Boma” strategy is well known by pastoral families; however, is rarely practiced. The “Blended Business-Boma” strategy is aspirational, looking to hybridise benefits of the “boma” and “business” strategies whilst managing inherent risks and providing greater household profitability.



8.1 “Boma” Strategy: The ‘Traditional’ Pastoral Model

This strategy is by far the most ubiquitous among all three case study areas and is arguably the most common approach used by pastoral households living in climatically extreme environments globally. As discussed earlier, it is a defining feature of transhumant pastoralism. This strategy is employed not only at the household level but also by women’s and men’s groups that invest in livestock as assets. The primary aim is to acquire livestock through reproduction or purchase and hold them for the purpose of accumulation. Many groups reported that after a period of accumulation, animals are sometimes “upgraded,” for example, selling four goats to buy a small cow, or several small cows to purchase a larger bull. Except in the case of women’s groups and the small personal herds managed by Borana women in Gotu, ‘boma’ animals are typically managed by men, making this a male-dominated strategy, as is expected in these communities.

A key feature of this strategy is that livestock are sold only when specific household needs arise, such as paying school fees or hospital bills. Sales are triggered by expense, not by market conditions, herd size, or the condition of the animals. The animal selected for sale is chosen based on its ability to cover the cost in question, and all proceeds are directed toward that need.

Once an animal is born or purchased, it is considered part of the household or group's boma and is held until a future expense or upgrading necessitates its sale. Holding periods can last several months or several years. It is not necessarily the period of holding time that is a defining characteristic of this strategy, although this strategy tends towards longer timescales than other strategies, but instead, it is the *intention* when purchasing or breeding the animal. One purchases or breeds with the intention of holding the animal for asset growth until the need arises to sell it (or not) to cover the expense that requires its sale or to upgrade to a higher asset class (e.g., shoats to cows or camels; small cows to larger cows, etc.). It represents the consolidation of assets under a single logic: accumulate…and sell only if necessary.

This strategy is highly efficient, balancing purchases with needs-based sales. It also provides a clear and tangible form of wealth in areas where formal banking systems are limited or obscured. Many participants expressed a strong preference for this approach. As one woman in Nasaru explained: "The group doesn't put money in the bank because banks will also eat your money. You use the money, like for bursaries, or you just see it walking in the cows." – Nasaru, woman, 68 years old

The visibility of livestock assets makes the system transparent and trustworthy, and the overall sentiment is that the intensity or input of one's labour tends to reflect the output of the livestock one owns. In this way, the strategy is very simple and unobscured.

There are few inherent risks or barriers to this strategy itself, and it has proven resilient over generations. However, the external environment in which it operates has changed. As discussed above, climate shocks are becoming more frequent and severe, support services (e.g., water access, feed access, veterinary medicines, etc.) increasingly depend on external funding, and increased market engagement can expose individuals to new forms of vulnerability when it is time to sell animals. As a result, the boma strategy now faces three key challenges: 1) **increased livestock loss** due to drought, land degradation, raiding and insufficient time for herd recovery, 2) the **high costs** (time, financial, personal) of managing retained animals, including labour, purchasing feed, providing veterinary care, and personal exposure to extreme and insecure environments, and 3) needs-based selling generally results in **sub-optimal valuation of livestock** due to exploitative market conditions and market oversupply.

8.1.1 Role of Women in Boma Strategy and Women's Indigenous Knowledge

Looking specifically at the role of women within the traditional boma strategy, their livestock engagement has historically centred on the daily care of animals that remain near the homestead, particularly shoats, young calves, and occasionally cows during the periods that they are housed overnight in the household boma. Their labour is critical in sustaining animals that cannot be driven to distant pastures, including those that are weak, milking, or recently born. Primary tasks generally include watering these smaller (or weak) animals, ensuring that lactating mothers are milked at the right times, balancing domestic milk yields with milk given to livestock young, caring for the young or weak individuals left at home, ensuring that animals return to the homesteads at night, and constructing / repairing thorny bomas to keep animals contained and secured from predators. These responsibilities signify that even though men dominate decisions about herd accumulation and sales, women's labour and judgement underpin the viability of the boma system.

This point also underscores the incredible contribution of women's Indigenous knowledge to the management and daily practicalities of livestock rearing that are absolutely essential to the viability of herd accumulation, particularly for breeding stock. Women come to embody knowledge regarding how to graze shoats around homesteads in ways that minimise risks (e.g., insecurity, toxic plants, nutrient-dense fodder) while ensuring adequate feed, and they recognise early signs of illness by observing changes in appetite, behaviour, or coat condition.

A woman's expertise extends to methods for souring milk, producing ghee, and cleaning and preparing gourds or containers to store milk, fat, or blood. They may also prepare and apply local remedies, such as animal fat mixtures for wounds or herbal treatments for digestive problems, and they are skilled in handling births, assisting in deliveries, and protecting newborns when they are at their most vulnerable. One man discussed the importance of having this experiential knowledge saying,
"I don't have my moran sons herd my [young] animals because it is very hard to manage the small young animals when you are a moran because they need to protect them from the sun, wind, and predators. The morans like to focus on the bigger animals so they just leave these small animals behind so the older men have to care for them because they have more experience in these things. The lactating young ones stay at home if the mothers are still producing milk." – Nakuprat, man, 48 years old

While he is referencing the experience of older men here, as he himself is an older man, it stands to reason that the care of young animals, kept around the homesteads, would fall under the direct care and supervision of the women, as is typically the case. There is a kind of separation of roles, knowledge, and skills in total herd management where the youthful *morans* are charged with the care and protection of larger stock, particular during periods of distant migration, and women are predominantly responsible for small stock, young, and milking animals that are kept closer to homesteads. Married men are the decision-makers, overseeing the management of the entire stock and taking the *moran's* responsibility if his male children are not yet old enough, or if he is unable to hire herders or combine with other herds. Again, women's traditional responsibilities are largely circumscribed to domestic spaces in the care of small stock, weak, young, and milking animals.

However, women's roles are becoming disturbed in the modern era due to the effects of insecurity, climate change, and modern technologies. Where settlement areas are located along contentious borders (as is the case in Gotu and Nakuprat), the threat of raiding can keep women separated from their livestock for extended (or permanent) periods of time, where they no longer maintain livestock around the homestead areas. Likewise, intense droughts require more persistent and prolonged migrations to distant pastures where women lose touch with their livestock as the herders search for adequate pasture and water.

While new medicated treatments for livestock diseases can be highly effective, they come with greater human hazards, particularly for women. Chemical sprays and dips are not recommended for pregnant or breastfeeding women to handle, and there are concerns that those who prepare foods (i.e., women and girls) should also not come into contact with these chemicals due to the harmful effects of contamination. Furthermore, while men tend to handle larger stock during herding, watering, and grazing (mainly "low-touch" activities), women's care of livestock is hands-on,

frequent, and repeated, such as during daily milking, therefore increasing chronic exposure risks for women. As such, it is far safer at the individual and household level if modern livestock care and treatments remain or even shift more squarely under the direction of men, unless strict safeguarding can be rigorously applied and followed. Conversely, there may be great economic, safety, and gender-forward approaches that could be explored through the use of 'natural' remedies to combat livestock diseases that are more readily available, cheaper to use, and would be safer for women to directly manage.

These three forces (insecurity, climate change, technological hazards) have resulted in greater separation of women from their herds and, over time, from their embodied knowledge of livestock care and maintenance. As one woman in Nasaru stated,
"There is flu right now. We treat this by injecting the animals with Andamycin and a white injection. It is my husband that treats the animals…I want to be taught, but I have not asked my husband to teach me because I tried to inject a goat once, but the neck swelled up so badly that I don't want to do it again...If my husband were away, I would look for someone else or a son to treat the animals for me. – Nasaru, woman, 40 years old

This is a reinforcing dynamic that the greater physical separation begets greater knowledge loss, begets less direct animal care, etc. So, the essential question remains: how can women be meaningfully re-engaged into livestock management that is purposeful, respected, safe, culturally appropriate, environmentally sound, and economically advantageous in the modern era?

In attempting to answer this question, we must keep in mind one crucial foundational element that pastoral women provide in environments prone to extreme hazards and resource scarcity: strong social and kin networks. As discussed in section 4, married women move to the homesteads of their husbands, creating distance between their new households and their natal kin. When shocks occur (e.g., drought, raiding) and livestock are lost, there is greater risk spreading and distance buffering, meaning that the woman's kin are less likely to be affected by the same events. As a result, these relatives may be in a position to assist their daughter's family through restocking or lending animals. Beyond stock loss, these kin networks also enable the exchange of breeding animals, which strengthens livestock diversity and improves overall genetic resilience.

In addition, women serve as the primary transmitters of vertical knowledge to young children (both sons and daughters), passing on skills, techniques, understandings, and methodologies associated with appropriate livestock care and management. Preserving and nurturing these women-centred social bonds and networks and helping women reconnect with Indigenous knowledge systems of livestock care are essential to ensuring effective, women-integrated livestock production. This approach is not only applicable within the traditional boma strategy but also to the three other strategies discussed here.

8.2 "Business" (Hustler) Strategy

In economic contrast to the boma strategy, which prioritises long-term accumulation, the "business" strategy is defined by the absence of stockpiling. Instead, animals are bought usually locally at a reduced price with the intention of immediate or rapid resale at larger regional markets, and the process is repeated consistently and regularly.

If the boma strategy resembles something like long-term stock investing for asset growth, the business strategy is more akin to high-frequency trading, where profit margins per transaction are low but frequent trades result in meaningful aggregate returns. Animals may even be bought and sold on the same day in the same market if the buyer sees potential for a quick profit. More commonly, animals are held for only a few days or a number of weeks. The defining feature of this strategy is not the exact duration of holding but the consistent *intent* to sell as soon as is profitable. The focus is on maintaining high volume, frequent sales rather than holding animals until a need triggers their sale, or they are upgraded to other stock.

This strategy offers several advantages over the boma model, primarily by minimising risk and costs. With minimal time spent holding animals, there is minimal to sometimes no investment in feeding, watering, or veterinary care for the purchased livestock. The risk of death due to drought, disease, or theft is drastically reduced or potentially eliminated. Sellers also benefit from greater price certainty, as the shorter holding period limits market volatility between purchase and sale. Furthermore, for those less experienced in accurate market pricing, the purchase price of the animal sets a contemporaneous benchmark in setting the resale price.

However, there are key challenges to this approach. First, although the price difference between purchase and resale may remain stable over a few days or weeks, broader market trends fluctuate over the year. As we will see in the following section, some periods favour buyers, while others favour sellers, resulting in an inconsistent profit pattern. Second, while animal care is minimal, the strategy itself is time-intensive. Sourcing undervalued animals often requires travel to remote or smaller markets, and moving them to larger, more profitable markets takes effort, planning, and costs. Third, success in this strategy depends on high mobility and access to personal transportation, which allows the seller to operate across wide geographic areas and gain access to a wider array of buying and selling outlets. Fourth, while regular small profits can add up to a sustainable income for an individual, this model does not scale well to groups. Most pastoral household financial needs are episodic and relatively large, such as paying school fees or making bulk food purchases, so dividing small profits on a regular basis to group members will likely be “eaten” rather than effectively put towards covering these larger expenses. Small consistent profits may favour an individual rather than diluting profits even further amongst multiple members. Finally, success in this model demands a high degree of market knowledge, including price awareness, livestock valuation, negotiation skills, time management, supply and demand cycles, and established purchasing and selling networks. These are not innate skills but must be developed over time, making early engagement with this strategy potentially risky as proficiency is gained.

The business strategy is present in all three communities; however, due to the challenges and barriers involved in executing it, practitioners are typically men, and more often young men without families, who own their own transportation and do not have regular herding duties that keep them tied to livestock. To a lesser degree, women who live close to market centres and have reduced responsibilities at home may also engage in this strategy; however, the execution in this case tends to be intermittent, rather than regular. Therefore, this is a sub-optimal use of this strategy when it is only partially employed, resulting in reduced income potential.

Women's groups specifically in the three case study locations have tried to employ the business strategy to greater or lesser degrees. Nasaru women's groups vastly favour the boma model, typically purchasing goats, upgrading to small cows, then upgrading to larger cows until ultimately selling to fund school fee expenses or other charitable endeavours for group members. Timescales for them are longer with the purpose of accumulating livestock assets. Very few, if any, incidents of business strategy buying and selling for Nasaru women's groups were recorded, and local women who were reported to engage in this strategy came from other ethnic groups, such as the Kamba.

Likewise, none of the Gotu groups reported business strategy livestock selling; however, there were a few individual women who did engage in this model. These women also had access to inexpensive transportation (e.g., a family member with a motorbike), close contact with their herd while in *arjal* areas / personal herding responsibilities, a greater degree of autonomous livestock ownership, and reduced domestic commitments like childcare, which may be outsourced to another family member in town, such as a grandmother.

For Nakuprat, we have many examples of women engaging directly in a pure business strategy, particularly during the Nawiri funded years up through 2023. This consisted of 3-person businesses responsible for buying animals inexpensively from individuals or local markets and selling these same animals for profit in the larger regional markets of Isiolo and Archers Post on a weekly basis. Profits were distributed to members weekly, and the original capital was reinvested into livestock purchasing. As previously discussed, the failure of all of these businesses after Nawiri ceased funding and oversight were high transportation costs, small individual profits shared to the group, lack of adequate stock (particularly during droughts), domestic responsibilities commandeering their time, a lack of interest and / or understanding between all group members, lack of group cohesion, and the pressures of covering daily expenses eroding groups' capital investments.

While the business model has been attempted by both individual women and women's groups across the three community areas, its success and sustainability have been constrained by a myriad of practical, social, economic, and environmental factors discussed above. These challenges will be examined in greater detail in section 10, but it is imperative that any implementation strategies directly address and mitigate them if a reworking of the livestock business model is to succeed for women in the ASAL areas, where previous efforts have failed.

8.3 "Market-timed Boma" Strategy

While the boma strategy and the business strategy are the primary livestock economic models utilised by these communities, the remaining two strategies should be considered as 'tweaks' or hybrids of the two primary models. For the third approach, known as the "market-timed boma" strategy, there is only scant observable evidence of a small number of individuals within the study populations habitually practicing this approach, although it is a widely-understood concept. As the name implies, it mirrors the traditional boma strategy in all respects except one: instead of needs-based selling or upgrading, livestock are sold when market conditions are most favourable. The proceeds are then deposited into a formal bank account or long-term group savings account for future use.

Sales are triggered not only by favourable market prices but also when an animal reaches its peak value based on its body condition, depending on its breed, sex, age, and individual attributes. When both optimal market timing and peak animal condition align, the animal is sold, regardless of whether there exists an immediate financial need or not, because holding the animal any longer introduces risk without further economic benefit. At that point, liquidation is the most rational economic decision.

Despite broad awareness of this strategy's logic, it is rarely practiced due to several challenges. First, it is difficult to assess with certainty when an animal and the market have both peaked, as this knowledge is usually clearest in hindsight. Second, if money becomes available, household needs are persistent. Selling animals without a specific need and banking the funds requires a level of discipline and household security that is uncommon in these environments. Many participants feared that such funds would be spent on daily needs and therefore unavailable when larger expenses, such as school fees, arise. As one woman commented,
"You only sell animals when you have a problem so that you don't just eat that money and waste it." – Gotu, woman, 45 years old

This concept bears substantial consideration and attention. For these communities, needs will always be there. Keeping household funds in non-liquid assets like livestock is a form of asset protection. Local savings groups are preferred to commercial savings accounts for these communities, not just because they are local and members are known to the savers, but savings groups do not allow withdrawals from personal savings unless the group is breaking and sharing out for the year. It enforces the 'rules' of saving, unlike a commercial savings account when the account holder can access their funds at any time. In order for any of these economic models to be successful, this limitation must be acknowledged and adequately managed.

Third, there is emotional reluctance to sell healthy, well-conditioned animals. Pastoralists often feel pride, love, and attachment to animals they have raised successfully, making it difficult to part with them purely for profit. As one man explained,
"Most people do not bank a lot of money because they typically don't like to sell their animals when they see that the animal is fat. They prefer to admire it." – Nasaru, man, 42 years old

A frequent criticism of traditional pastoral livestock management is that herd owners maintain an 'irrational' attachment to their animals, choosing to keep them through drought (with greater possibility of death) rather than selling for profit. This view, however, oversimplifies the issue and risks being unfairly harsh. Globally, economic decision-making rarely follows strict rationality, where emotions often influence individuals to retain assets even when they lose value or generate long-term costs. It is therefore important to approach so-called 'irrational' choices in livestock keeping with nuance and compassion, recognising the complex motivations behind them.

Fourth, this strategy also requires strong market knowledge, numeracy, and technological skills to manage banking and budgeting, similar to the business strategy. While these requirements are becoming less prohibitive, with most households now having at least one member familiar with mobile phones and financial transactions, they may still present a barrier for some, particularly amongst older and / or non-literate individuals.

Finally, like the boma strategy, this model involves substantial care and maintenance costs while animals are held. In fact, it may demand even greater investment to maximise value at the point of sale, including accessing high-quality pasture, water, supplemental feed, and veterinary inputs.

While technically sound, the market-timed boma strategy demands a rare mix of market insight, financial discipline, emotional detachment, and resource investment, thereby making it an aspirational model that remains largely unrealised in practice. However, there may be great scope in this model for Heifer International to provide targeted support to help close the gaps that currently prevent its wider adoption, where relatively modest interventions could yield significant early impact. Improving women's financial literacy, exploring targeted financial products (e.g., school fee funds), helping to identify 'peak' livestock value, providing real-time tracking information on market timing, creating household-level budgetary costings and expense timing, assistance in opening individual or group savings accounts, etc. would all be low-investment methods for clearing the technical obstacles that women face when employing this strategy more broadly. That said, more gender-specific barriers, such as women's limited control over sales decisions or catering to everyday financial needs (e.g., household food), must also be addressed if the strategy is to reach its full potential.

8.4 "Blended Business-Boma" Strategy

The final strategy aims to combine the most effective elements of the previous three models into a cohesive and functional approach. It is also intentionally ambitious, recognising the male-dominated nature of the other livestock economic strategies and seeking to better integrate women substantively into livestock management systems.

The premise of this strategy is that it divides a household herd into two functional categories: one dedicated to multiplying stock (boma stock) and the other to generating profit (business stock). Breeding animals (females with herd sires) are retained solely for reproduction, producing either additional breeding females for the boma stock or male offspring to be added to the business stock.

Breeding stock must be intensively cared for to maintain their productivity and health. This would include accessing sufficiently nutritious pasture and plentiful water, treating livestock illness and disease swiftly and effectively, closely monitoring and balancing mother and off-spring needs, practicing breeding management, and reducing exposure to insecure landscapes. Optimally managing these requirements not only improves livestock mortality over time, but it also results in increased reproduction and therefore household milk supply, either for consumption or for sale.

Conversely, animals designated for business purposes are sold immediately upon reaching an acceptable body condition (for bucks and rams, estimated between 1 – 2 years after birth and 2.5 – 3.5 years for bulls) and when market conditions are favourable. Waiting for both peak body condition and peak market prices to align may result in long delays, so sales are made once both conditions are deemed 'adequate.' Profits from these sales are saved in formal bank accounts to be used for large future expenses, and if the household has capacity, to also purchase rapid-sale business stock in a manner found in the pure business strategy, that will increase returns incrementally.

This strategy prioritises long-term holding of breeding animals only, thereby reducing the financial and labour costs associated with maintaining large herds of non-productive livestock. Smaller herds require less grazing land and can remain closer to home, in contrast to large herds that must travel longer distances and with greater frequency in search of adequate pasture and water. As an added benefit, this strategy may reduce overall grazing pressure as the frequency of animal sales increases. There was a strong indication during interviews that the majority of animals sold at formal markets were bought for the purpose of slaughtering, rather than joining with household herds.

Another benefit of this model is the clear division of labour among household members, aligning tasks with individual strengths. Women are best suited to managing breeding and milking animals due to their knowledge and experience with these animals. Men are generally more familiar with livestock markets and have smoother access to these spaces. Youth typically possess higher levels of education, technological skill, and transportation access as compared to their parents. This skillset is extremely beneficial for budgeting, record-keeping, livestock digital marketing, mobile and formal banking, communicating with / tapping into distant networks, moving animals to and from markets, etc. By combining the strengths of each family member in breeding care, market engagement, and financial and digital literacy, this strategy can improve household income while elevating the roles of women and younger generations. If implemented effectively, this integrated system could increase both household financial resilience and intra-household equity. Nevertheless, the core challenges of the other strategies still apply. This model requires market expertise, financial management skills, and the resources to maintain breeding herds. However, by distributing responsibilities across household members according to their competencies, these burdens may be more effectively managed and risks more evenly shared.

If implemented effectively, women would control livestock health and condition, particularly within the breeding stock. Their expert knowledge should be recognised as indispensable, where the household's economic wellbeing is directly tied to herd wellbeing, under the auspices of women. Helping to strengthen and reinforce women's expertise in care, treatment, and reproductive management positions them as the natural decision-makers in determining when to sell or how to breed animals. By elevating this role, women's contributions move from being seen as routine labour to being heralded as central to herd productivity and household prosperity. In this way, strengthening this niche would seek to not only improve herd outcomes but also to enhance women's standing and respect within the household and community. As such, this strategy presents a promising avenue for reconfiguring pastoral household economies into more efficient, inclusive, gender-balanced, and resilient systems.

8.5 Case Example

While the preceding sections have outlined the theoretical strengths and weaknesses of each livestock economic model, these dynamics become clearer when observed in practice. A concrete case study helps illustrate how strategies operate in real households, highlighting both the opportunities and the pitfalls that emerge when models are adopted or combined. The following case draws from shadowing a 25-year-old man in Nasaru over the course of one week. As the eldest in his family and financially responsible for his younger siblings following the death of their parents, he has been employing the business (hustler) strategy for several years. During the week observed, which he confirmed was typical, he made the following transactions:

Purchase 1 sheep Mon, Moi market @7,500 KES	Sold Thurs. Sultan market @ 9,000 KES	Profit 1,500 KES
Purchase 1 goat from neighbour @6,000 KES	Sold Thurs. Sultan market @7,000 KES	Profit 1,000 KES
Purchase 1 goat from neighbour @8,000 KES	Sold Thurs. Sultan market @11,000 KES	Profit 3,000 KES
Purchase 1 goat from neighbour @5,500 KES	Sold Thurs. Sultan market @ 6,500 KES	Profit 1,000 KES
Total Shoat Profit		6,500 KES
Overheads (transportation costs: 300 / head, 400 / person, 800 bike fuel)		-2,400 KES
Total Shoat Earnings for 1 week		4,100 KES

His activities for this week reflect a pure business strategy, yielding 4,100 KES in revenue for the one-week period. The trader is young, single, male, educated, market-experienced, and uses his own motorbike to source animals.

In contrast, during the same week, this individual participated in a group livestock sale using a boma strategy. The group had held cows for two years and were selling them to generate bursaries for school-aged children and reinvesting the remaining funds in re-purchasing smaller cows to grow as assets for the group. His transactions for the group were:

Purchase 1 cow @ market @24,000 KES in 2023	Sold in Emali market in 2025 @100,000 KES	Profit 76,000 KES
Purchase 1 cow @ market @24,000 KES in 2023	Sold in Emali market in 2025 @100,000 KES	Profit 76,000 KES
Total Cow Profit		152,000 KES
Overheads (transport); 2 year care costs are unknown and not included here		-2,000 KES
Total Cow Earnings for 2 years		150,000 KES

In Nasaru, there is strong preference for groups to upgrade their shoats to cows, as cows are *perceived* to yield higher profits. However, this example demonstrates that while the absolute profit from a cow sale is higher, the frequency and volume possible with goat sales can generate greater total returns in the same period. If the shoat-selling, pure business strategy were sustained for 104 weeks (2 years), total profit would be 426,400 KES, compared to 150,000 KES using the boma strategy with cows. Furthermore, this strategy would not require holding stock, assuming those risks, and covering costs of care (which were not factored into the cow earnings in the above example).

This is an over-idealised situation that an individual would be able to achieve earnings of more than 4,000 KES per week, every week, for two years; however, this individual estimated that he is successful with weekly selling and achieving his target pricing for shoats approximately 70% of the time over the course of a year. Therefore, his estimated earnings for this two-year period would be 298,480 KES, approximately 2x the profit of the cow-based boma strategy.

A second example highlights how combining strategies where there are misalignments in practice and perceptions can limit outcomes. A women's group chairlady in Nasaru shared:

“You could buy a cow at 48,000 KES and in 3 months, it could be worth 80,000 KES so that is a quick, large profit. The group bought 10 goats for 4,000 KES each and then sold them 3 months later for 7,500 each. Then with that profit, they bought a cow because cows ultimately have the bigger profit…We bought a male cow for 60,000 KES and kept it for a year before selling it for 90–100,000 KES. A cow must be there.” – Nasaru, woman, 29 years old

Breaking this scenario down:
3-Month Holding

Livestock	Bought (KES)	Sold (KES)	Profit (KES)	Mark-up
Cow (1)	48,000	80,000	32,000	66%
Goats (10)	40,000	75,000	35,000	88%

If we were to examine their strategy of reinvesting profits into cows for later re-sale 1 year later as opposed to reinvesting in goats 4 times a year (values based on keeping goats for a 3-month period), the difference in potential earnings becomes even more stark.

1-Year Holding

Livestock	Bought (KES)	Sold (KES)	Profit (KES)	Mark-up
Cow (1)	60,000	100,000	40,000	66%
Goats (10) x 4 periods	160,000	300,000	140,000	88%

While cows are widely believed to yield greater returns, these examples show that, within a business strategy framework, shoats offer higher financial returns with less capital risk and faster turnover. From a purely financial perspective, high-frequency goat trading significantly outperforms cow-based accumulation, revealing a disconnect between cultural valuation of livestock and actual profitability.

8.6 Learnings and Principles – Livestock Economic Models

To translate these findings into practical, scalable action, we distil what the four models and the case evidence consistently show into the following extracted learnings and principles:

1. Strategies must be matched to household objectives: Households use livestock either to grow assets over time (boma) or to generate regular cash (business). Support should help families choose the right model for their needs while understanding their constraints. This could include **linking groups saving for school fees with boma livestock upgrades or guiding individuals seeking weekly income toward high frequency shoat trading.**

2. Liquidity discipline is a decisive constraint: Selling animals without an immediate need requires savings discipline that is often absent. Tools such as savings groups with withdrawal restrictions, earmarked school-fee funds, or formal accounts with targeted rules would prevent funds from being consumed by daily needs and keep profits available for larger expenses.

3. Shoats likely offer the strongest returns under a business strategy model: The case evidence shows more frequent goat trading produces higher percentage mark-ups with less capital investment and quicker turnover than cows. Implementation should prioritise goat-focused business models, paired with low-cost transport solutions (e.g., motorbike cooperatives) to connect sellers to profitable markets and reduce overhead costs.

4. **Raise the profile of women's Indigenous knowledge and expertise in livestock health and breeding:** Women's daily management of breeding, milking, and sick animals is what sustains herd productivity throughout the year. Programs should double down on this expertise by positioning women as authorities in herd health decisions, training in safe treatment methods, and recognition that without their knowledge herds, and therefore household economies, would falter.

5. **Market access and information can determine margins**: Profits rely heavily on knowing when and where to sell, and on the ability to reach those markets with little cost. Practical supports include real-time price information through SMS/WhatsApp, simple record-keeping tools and methods, and pooled or subsidised transport, especially for women and groups with limited mobility.

These principles show that profitability and resilience in pastoral economies depend less on the abstract design of a model than on how and when it is applied in practice and with specific constraints mitigated. The following sections therefore will discuss critical questions of market timing and the role of risks and challenges in shaping localised and regional constraints in employing any of these economic models successfully.

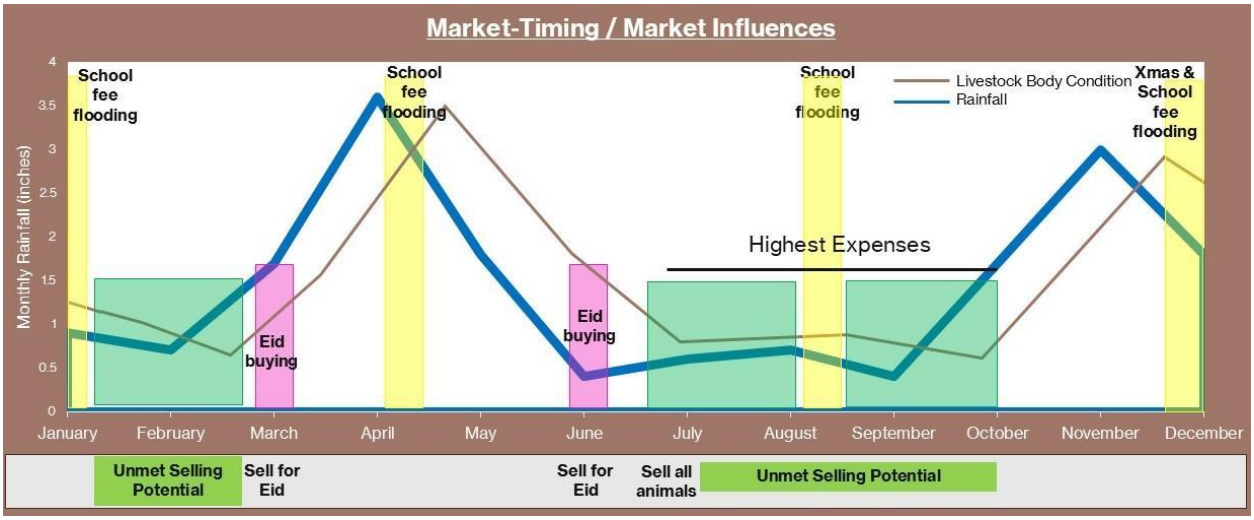
9. Market-Timing and Market Influences

When evaluating which livestock economic strategies or blended models are most suitable for a given area or population, it is essential to understand how household livelihoods intersect with market cycles and the primary factors that influence livestock pricing. The most prevalent influence on livestock market value market as cited by pastoralists in these areas is climate, particularly regarding its effects on livestock body condition.

9.1 Climate, Body Condition, and Market-Timing

In the ASAL regions of Kenya, rainfall follows a bimodal pattern with intense short rains in April and May and longer, less intense rains peaking in November to December. While the figure below outlines a "typical" rainfall year for Isiolo, which can be generalisable to Kajiado County as well, based on historical data (Cedar Lake Ventures, n.d.), rainfall is highly unpredictable. Rain failures occur with some frequency, with greater likelihood during the November–December season, according to a number of participant accounts. Early signs of potential rain can begin sometime in August, and participants noted that if a cow is in good condition by this time, likely it has a strong chance of surviving until the rains arrive. If it is already thin by this time, then survival becomes more challenging. There are two dry seasons, January to March and July to October, but the latter is considered more dangerous for livestock due to its longer duration and therefore increased scarcity of feed and water.

Figure 9.1: Annual cycles and primary influences affecting market timing in the ASAL pastoral areas of Kenya mapped against rainfall estimates



While there may be variation based on herd size (i.e., local grazing competition), access to water and pasture, and animal type, livestock body condition generally begins to improve about two weeks to one month after the rains start, and smaller stock tend to recover faster than larger animals. While highly variable, this concept of lag time between rainfall and livestock body condition recovery and how this affects market pricing must be factored into any market-based strategy.

Unsurprisingly during scarcity periods, healthy animals fetch the highest prices, which is typically during August to October and February to March. Likewise, weaker animals sell for very little during this time due to poor condition and sellers being forced to liquidate under duress at the possibility of herd offtake. In contrast, when the market benefits from a larger supply of healthy animals during rainy periods (i.e., April – June and November – December), prices remain adequate but are tempered by relative oversupply. Household reliance on supplementary food also rises during dry seasons, increasing financial strain. Therefore, the optimal market period for selling is when healthy animals are in short supply in August to October and February to March. The difficulty lies in maintaining animal health during these periods, resulting in an unmet buyer demand. Strategies that improve production during these critical periods would greatly contribute to local household economies.

9.2 Other Factors Affecting Market Pricing and Non-Livestock Products

Market pricing is also shaped by acute, seasonal events. For example, school fee payment periods in April, August, and late December trigger widespread livestock sales by “boma” strategy families, thereby flooding the market and lowering prices at these times. Second, as the Turkana and Maasai are predominantly Christian, they will sell animals in December to fund Christmas celebrations, further lowering prices during this time. In contrast, livestock prices spike during Eid holidays, particularly in Muslim-majority areas like Isiolo that have high Borana and Somali populations, where national and even international buyers seek slaughter animals. However, this market opportunity is not widely understood across the ethnic groups, as one Turkana woman in Nakuprat remarked, *“We*

don't know anything about the timing of Eid." – Nakuprat, woman, 29 years old – suggesting that such market timing benefits remain localised within specific communities.

A Turkana woman from Nakuprat, who was well-versed in market trading, summarised these fluctuations succinctly by saying,
"In August and September, these are the best times to sell because you get a high price at the market, however, only if your animals are fat, which is tough because this is during the dry time. December and January are holiday times and the worst time to sell animals as the market is flooded due to Christmas and the school fees so you get a very low price for your animals. You buy animals when it is dry in July, August, or September because people are hungry at that time and will sell their animals at any price. You cannot keep them until it rains so you have to sell the animal, and it will be a cheap price with a small profit. You cannot keep them until the rains because problems will always come to you, so you need to sell them. They might die between July and September, so you have lost then at that point." – Nakuprat, woman, 48 years old

Other marketable goods regularly sold by women also follow seasonal price patterns. In Nasaru and Gotu, milk prices mirror livestock patterns with reduced pricing in the rainy seasons due to high supply and low demand (everyone's animals are producing at this time); however, women in Nasaru are still able to sell milk during this time as the dairies in Masimba and Emali purchase throughout the year. Likewise, higher prices are paid in the dry seasons due to milk production scarcity. Charcoal and Arabic gum in Nakuprat show the opposite trend: they are more plentiful during dry seasons, due to the abundance of dead trees and as a gum drought-stress response, which lowers prices, and more expensive in the rainy season when they are harder to produce. Finally, women in these areas also produce beadwork as a seasonal income source, particularly in relation to tourist flows. In Nasaru, beadwork is marketed to tourist traffic moving through Amboseli National Park, while in Nakuprat (particularly along north border roads through Ltungai), women sell directly to tourists visiting Shaba National Reserve and nearby conservancies. These opportunities peak during the Western summer holiday season (June–September), coinciding with the period when livestock prices are at their lowest due to poor livestock body condition. As such, beadwork provides an important supplemental income stream that offsets losses from unfavourable livestock sales during these months.

Additional factors can further impact livestock supply and pricing – namely issues associated with transportation and market exploitation that disproportionately affect women. Moving around in the rainy seasons when sourcing animals or travelling to markets becomes particularly challenging (sometimes impossible), especially in areas with black cotton soil like Nasaru. As such, the "business" strategy is most affected at these times, as it requires regular and frequent movements within community areas and between larger markets in order to create profits. Furthermore, women's limited access to male-dominated market spaces can result in women's knowledge gaps regarding fair pricing that buyers can exploit, leading to reduced earnings for women sellers. Fortunately, this is a 'solvable' issue where increased training, market knowledge generation, and exposure to livestock markets over time will fill these knowledge gaps and rebalance the scale to create more equitable buyer-seller interactions.

9.3 Local Perceptions and Market-Timing Misalignment

If communities aim to successfully employ market-timed boma or blended business-boma strategies, optimising market-timing is absolutely critical. While climate is the primary driver of livestock supply and price variation, intensifying interventions that improve resilience during dry season periods, such as improved access to adequate pasture, water, and veterinary disease control, could support these strategies. Pastoralists understand the climate–price relationship well; however, few take advantage of the combination of market-timing and banking. There is often a mismatch between perception and financial reality. For example, the widespread belief that cows are far more profitable than goats is not supported by any of the financial data that were recorded (see previous section for examples). Furthermore, there is a persistent optimism that animals will survive, breed, and multiply even through harsh conditions. As one Nasaru focus group explained:
"So many of our animals died during the drought of 2022 / 2023… Some people in the group wanted to [sell the cows], and others did not. Those who didn't want to sell have no regrets because the price would have been so low… Also, some of the cows survived and then multiplied so they would have missed out on those young ones if they had been sold, and those young ones are very fat now." – Nasaru, Women's Focus Group #1

It may be useful in such cases to present counterfactuals to show what outcomes might have been achieved with earlier sales and reinvestment. Had the group sold before drought conditions became entrenched, banked the earnings, and repurchased animals at the onset of the rains, they likely would have preserved more assets and avoided the high costs of migration and supplementary feeding (which this group purchased at that time). When such analyses are shared with participants, they are often surprised and show a strong curiosity and openness to learning more and talking through possible strategies. This growing openness presents an important opportunity for further engagement.

Finally, market prices during shoulder seasons, which are the transitional periods before and after rainy seasons, may offer underexplored opportunities. While participants did not highlight these periods, they may align acceptable livestock body condition with low market supply, offering potential pricing advantages. Although this study visited a number of markets, time did not allow for sustained observations across different seasons in the year. Future research with direct temporal market tracking would greatly strengthen the practical application of market-timed strategies.

9.4 Learnings and Principles – Market-timing and Market Influences

The preceding analysis shows that climatic patterns, market cycles, household needs, and cultural perceptions strongly shape how, when, and if pastoralists sell livestock. The following principles provide a framework for converting lessons into interventions that improve economic resilience and returns for women-led livestock management:

1. ***Climate-driven body condition sets the price ceiling***: Livestock fetch the highest returns in July–October and January–March, but only if body condition can be maintained through the dry season, making dry-season resilience inputs (pasture, water, vet care) critical at this time and a possible point of entry for Heifer International implementation.
2. Seasonal household needs can distort timing: School fee and Christmas expenses force "distress sales" that flood markets and depress prices, undercutting households that might otherwise wait for stronger returns.

3. Diversified income streams can smooth market lows: Women's beadwork, milk sales, and gum/charcoal production provide crucial buffers during periods when livestock prices fall due to poor animal condition or seasonal oversupply.
4. ***Knowledge gaps and mobility barriers disproportionately disadvantage women from engaging in livestock business***: Limited access to male-dominated markets leaves women more exposed to exploitation, but targeted training, exposure to markets, and real-time price information can directly rebalance the scale.
5. ***Counterfactuals*** encourage learning amongst curious, open-minded livestock keepers: Sharing "what-if" scenarios with groups was received positively and can help pastoralists to identify missed opportunities and develop their selling strategies into the future.

These lessons underline that timing is not simply a matter of price awareness, but of aligning livestock health, event calendars, climatic variability, and household financial discipline. The following section will examine how these dynamics and others intersect with the challenges of women-led livestock production, where gendered barriers continue to shape women's potential for deeper livestock engagement.

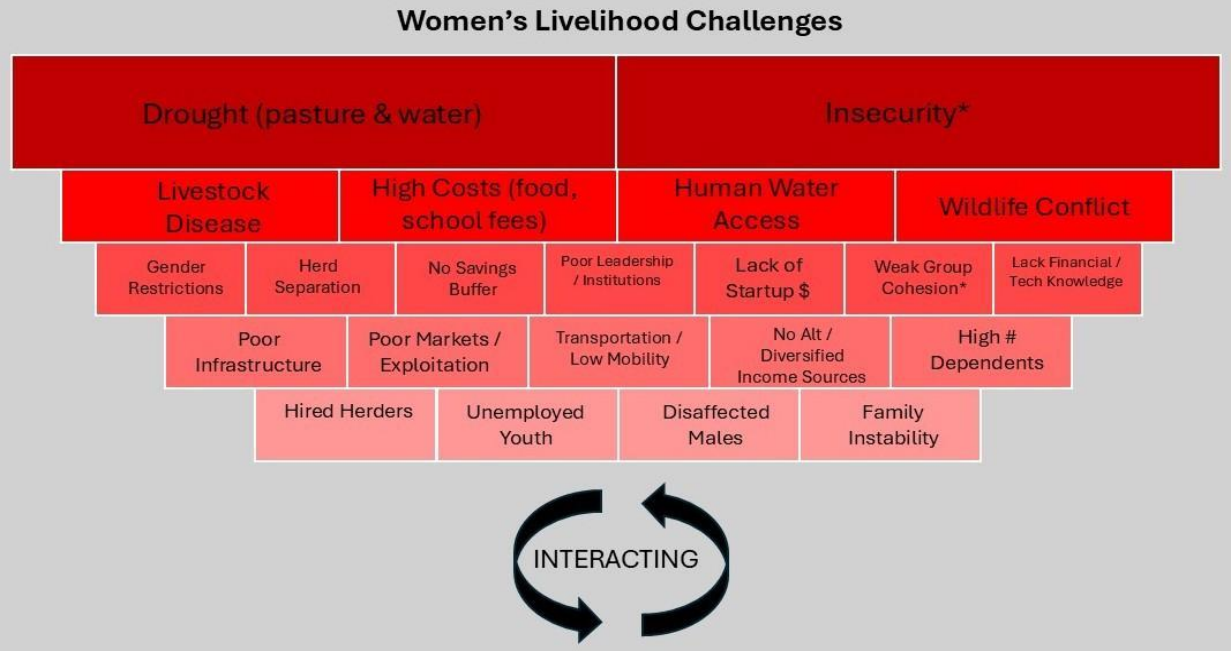
10. Challenges to Women-led Livestock Production

If interventions are to be designed to support women in gaining greater access to livestock production in both market and domestic spaces, it is essential to first understand the barriers and challenges they face that continue to limit their ability to grow in this sector. The themes and domains discussed here emerged directly from interview data, rather than from a predefined list, allowing the analysis to focus on the most commonly cited and impactful issues women were discussing.

10.1 Identifying and Defining Challenges to Women-Led Livestock Production

The figure below presents the most salient challenges affecting women's engagement in livestock markets and domestic production, structured in a tiered hierarchy from the most frequently cited at the top and to those that were mentioned less often during interviews.

Figure 10.1: Hierarchical chart of challenges deterring women from effectively engaging in livestock production – both in market and domestic spaces. The top of the hierarchy are those challenges most frequently cited by women, where the bottom of the pyramid is those lesser cited during interviews.



The accompanying table provides further clarity by defining each challenge and explaining how it functions as a barrier to women-led livestock production in market and domestic spheres.

Figure 10.2: Table defining the mechanisms of how challenges function in pastoral community areas.

Challenge	Mechanism
Drought	Frequent droughts and erratic rainfall that undermines pasture growth, water availability, and livestock survival. Primary cause of livestock off-take and forces herds into suboptimal environments. Causes livestock to migrate away from home areas, making women's access difficult.
Insecurity	Threat of livestock theft and raids by neighbouring communities, causing displacement or loss of herds. Pushes people into suboptimal pasture areas and away from homesteads in border areas. Personal insecurity concerns to/from/within markets, especially among women
Livestock Disease	Prevalence of diseases like 'shaking head' and diarrheal diseases that reduce herd size and productivity. Improper management leads to animal death or the need to sell sick animals at reduced prices. Veterinary treatments are costly for households.
High Costs (food, school fees, etc.)	High school fees, food costs, etc. forcing families to sell livestock or go into debt. Costs outpace income, creating a churn of poverty.
Human Water Access	Women's increased time burden of accessing water for their herds and for domestic use, impeding time for developing business or income-generating activities. Exacerbated during dry seasons
Wildlife Conflict	Loss of livestock, crops, and grazing land due to predators and elephants encroaching on grazing land, farming areas, and conservation exclusionary zones. Loss of human life from wildlife attacks. Stress from threat of wildlife encounters.

Gender Restrictions	Gender norms that limit women's decision-making over livestock, income, participation in community activities, restrict inheritance and autonomy over land and property rights.
Herd Separation	Women inhabiting town areas with children to access institutions but separating from herding areas. Reduces availability of fresh milk to households and ability of women to actively engage with livestock.
No Savings Buffer	Inability of households to withstand or prepare for economic shocks. Further entrenches cycles of debt and poverty.
Poor Leadership / Institutions	Concerns about elite capture, mismanagement, or restricted grazing access due to conservancy policies and carbon projects. Lack of confidence investing in livestock as security forces, livestock officers, grazing management, and elites do not offer protections. No demonstration of strong, beneficial social safety nets. Corrupt systems.
Lack of Startup $	Absence of access to affordable loans or savings schemes for women to invest in livestock or businesses.
Weak Group Cohesion	Women's groups that struggle with mistrust, limited capital, poor organisation, and poor training hindering meaningful benefits. May include general community mistrust hindering communal projects and assistance.
Lack Financial / Technical Knowledge	Lack of training in sound investment strategies, managing businesses, budgeting, wasted development opportunities. Lack of access to banking and marketing technologies.
Poor Infrastructure	Basic services lacking in remote areas: roads, schools, markets, wholesalers, hospitals, healthcare, communication, banking, vet medicines, water infrastructure, civic dissemination & engagement, legal access, etc.
Poor Markets / Exploitation	Lack of market choices, high market manipulation, proliferation of middlemen, leveraging lack of seller knowledge and situation for exploitative ends
Transportation / Low Mobility	High costs, low access, long distance livestock transport lacking, women restricted to domestic spaces
No Alt. / Diversified Income Sources	Inability to engage in lucrative and stable income sources outside of the home or develop diversified household income / new businesses. Non-diversified livestock types. Lack of access to diverse clientele
High # Dependents	Women as primary care providers for children and elderly limiting time and mobility. Limited reproductive choice and autonomy in family planning.
Hired Herders	High costs and expense associated with hiring herders, misuse and mistreatment of livestock by non-family member herders
Unemployed Youth	Issues of idleness for educated youth in towns, insecurity, increases in anti-social behaviour, education financing not recouped, lack of livestock care or concern, particularly as parents age
Disaffected Males	Growth of unproductive and harmful societal behaviours – idleness, gender-based violence, drug and alcohol abuse, not contributing to families, loss of interest in family care, and draining family resources
Family Instability	Rise in single parent or single-contributor households, reducing financial stability, household income, and guiding children

These challenges are relevant across all three communities studied, with two clarifications. First, as previously discussed, Nasaru women's groups do not suffer from the same lack of group cohesion and mistrust observed in Gotu and Nakuprat. There was not appropriate scope to explore the reasons for this variation during this study; however, this variation may relate to the homogeneity of the Nasaru Maasai population or the presence of secure land rights in Nasaru, both of which likely contribute to the community's stronger social cohesion. For our purposes, it is sufficient to note that lack of group cohesion is not a limiting factor in Nasaru and that strong, self-organised women's groups represent a major strength that should be a springboard to interventions in Nasaru.

Second, although insecurity is present in all three areas, its type and source differ substantially. In Nakuprat and Gotu, inter-ethnic livestock raiding and armed conflict along the Samburu border are key security concerns. These incidents not only lead to herd losses from raiding but also create personal safety risks that limit market access, mobility, and contact between homesteads and herds. Conversely, insecurity in Nasaru stems more from interpersonal violence and wildlife conflict. Two women in Nasaru reported that their husbands were killed in two separate incidents following livestock sales at market, where they were targeted by thieves who knew they were carrying large sums of money. Other women in this community shared their fear of attending markets alone due to the risk of attack and robbery. In addition, Nasaru lies within a wildlife corridor between Amboseli and Chyulu Hills National Parks, with high concentrations of elephants and predators. Fatal encounters with wildlife are a known and frequent phenomenon, and this constant threat limits women's ability to move freely on foot, further restricting their engagement outside of the home. For the remaining 20 challenges, we can assume they operate similarly across all three communities with only idiosyncratic variation.

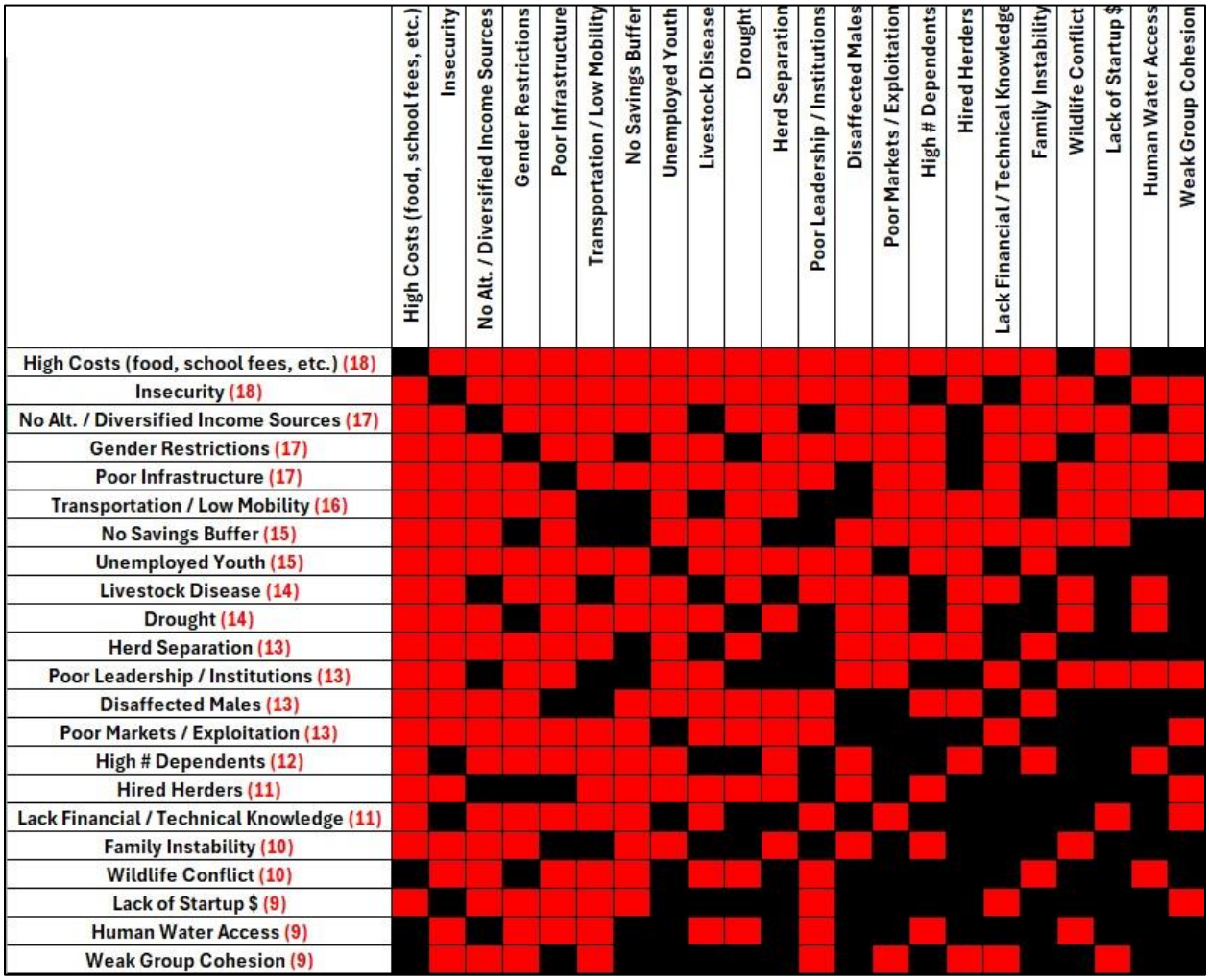
10.2 Understanding Challenge Linkages and Priority Setting

As the figure and table above demonstrate, challenges are numerous, far-reaching, and often structural. Some barriers, such as drought, insecurity, and poor infrastructure, are deeply entrenched and difficult to shift through localised interventions alone without global or state-level targeting. More immediate progress may be made by addressing accessible entry points that have strong linkages to these larger issues, such as improving mobility or expanding income diversification. The key is to ensure that these lower-hanging interventions are not isolated efforts but are designed to interact with and gradually weaken the influence of more intractable barriers, thereby moving the system incrementally toward greater equity and resilience for women.

While the figure above provides a hierarchy based on the *frequency* with which women discuss challenges and barriers, it does not account for the *number* of nor *strength* of the linkages between challenges. These are two very important aspects to know in identifying the most impactful challenges to address and also priority-setting when time and money are often limited. Tackling the latter (strength of linkages) is far beyond the scope of this analysis as it would require a more quantitatively rigorous assessment that could test causal relationships and the complexity of feedback cycles and intermediating factors within the system. We can, however, ascertain the number of linkages and begin to priority order challenges having linkages to a greater number of other challenges and those that have fewer. The methodology used here was a combination of identifying challenges in interviews and evaluating which challenges are most often cited together (e.g., a participant discussing regional insecurity leading to herd separation) and the researcher's

deep ethnographic and mechanistic knowledge of livestock production systems in ASAL areas. These data were combined to produce the following linked-challenges matrix:

Figure 10.3: Grid matrix listing challenges to women-led livestock production where red squares demonstrate linked challenges, and black squares so no overt linkage. The number in parentheses refers to the number of challenge linkages. The matrix does not indicate directionality.



The matrix simply shows that a linkage exists between two challenges, but it does not indicate the direction nor strength of those linkages. The matrix is assuming bidirectionality for all challenges, where in reality, this may not be the case. For instance, drought can drive up higher food costs, but the reverse could not be true (unidirectional), whereas high medication costs can affect one's ability to manage livestock disease or not, and greater livestock disease drives up household costs to manage it (bidirectional). For simplicity's sake, we will assess only whether a linkage exists or not, and the number of linkages for each challenge. Should time and interest permit, we could take this analysis further to discuss linkage directionality.

This preliminary understanding of challenges allows us to begin priority-setting where focus can be placed on those challenges that have multiple linkages and where they would be considered "low

hanging fruit," rather than directly tackling more entrenched structural barriers. This approach would be analogous to chiselling away at small pieces of a foundation that in aggregate can 'bring down the house,' or creating structural change through incremental wins. With this framework in mind and looking at the challenge linkages matrix, Heifer International can begin to identify those 'chisel' challenges or 'incremental win' challenges that align with the goals of the KLMP programme. Some apparent candidates (with # linkages) may be: school fee and veterinary medicine funding (18), low / no cost transportation options for women (16), strengthening women's long-term savings groups (15), engaging youth in profitable employment (15), and tackling women-led livestock disease management (14), to name a few.

10.3 Proofing Interventions Using Challenges Matrix

The mechanics of these challenges are highly context-dependent and nuanced. While the hierarchical chart and challenge matrix help to identify and prioritise challenges, the full depth and interplay of these barriers and how one challenge amplifies or modifies the effects of another in a systems-level feedback cannot be fully captured in this space, as it would require significant network modelling and quantifying causal relationships. In this case, understanding how these dynamics unfold in real terms resides more clearly from direct observational knowledge. For those designing or adapting interventions for these communities, it is strongly recommended to engage as a team to stress-test assumptions and the effects of barriers through proofing interventions. This will be discussed in greater detail in section 13, but it is a methodology for clarifying linkages between challenges and their potential impacts on intervention efficacy. It helps refine implementations and mitigate mediating challenges that might otherwise block women's engagement in livestock production.

10.4 Learnings and Principles – Challenges to Women-led Livestock Production

The analysis above demonstrates that the barriers to women's participation in livestock production are deeply interconnected, with a web of causal influences. This underscores a central development principle that no single intervention can deliver transformative change in isolation. Instead, progress depends on a combination of targeted actions that address immediate, high-linkage challenges while also chipping away at more entrenched structural barriers. The following learnings and principles distil these insights, highlighting where interventions can most effectively support women's engagement in livestock markets and domestic production:

1. Targeting highly connected challenges like school fee and veterinary medicine costs, women's transportation barriers, and savings group strengthening capitalises on 'low hanging fruit' that can, in aggregate, impact entrenched structural barriers.
2. Proofing interventions against real-world challenges helps to stress-test intervention strategies linkages to ensure strategies do not collapse under mediating barriers, and without which, unintended bottlenecks may arise.

These learnings provide a foundation for shaping effective interventions, but they represent a more formal, analytical view of barrier mechanics. The following section will compliment this observer-led analysis to focus on local women's own perspectives and desires, highlighting the challenges they themselves identified as most pressing in their daily lives and livelihoods.

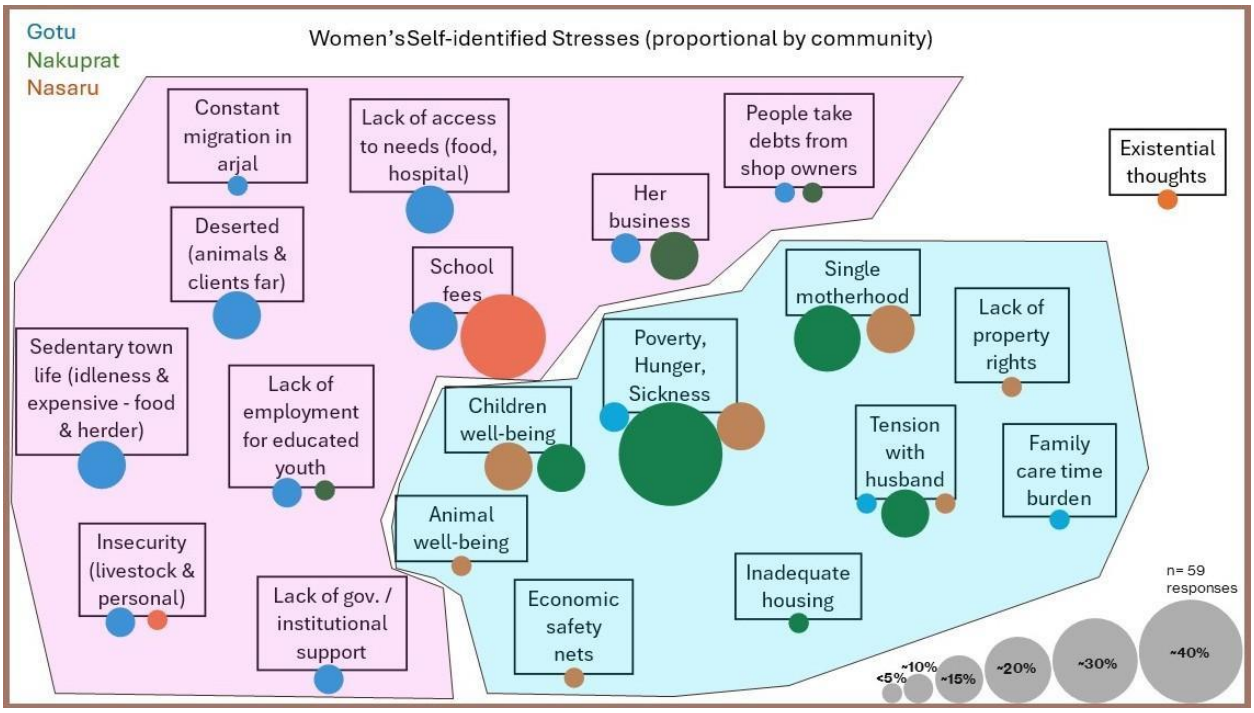
11. Women-identified Stressors and Goals

Integrating participants' identified stresses and livelihood goals into the design of interventions aimed at addressing complex, interconnected challenges is not only ethically sound as a tenet of participant-led research but also aligns with the theoretical framework of this study. It recognises the panarchic nature of resilience-building within complex socio-ecological systems, where adaptive responses must be grounded in lived realities at multiple scales (Gunderson and Holling, 2001). It helps to address the questions: *resilience for whom?* and *resilience to what end?* acknowledging that building resilience in one domain has the potential to erode resilience within another. As discussed in the previous section, we see the interconnectedness of the barriers that women face in efforts to strengthen women-centred livestock management. Our multi-pronged challenge is to seek intervention strategies that address multiple interlinked barriers that hinder women's progress in sustainable livestock systems whilst resulting in positive outcomes under a One Health umbrella, meaning 'good' for the environment, 'good' for livestock, and 'good' for people. This is no short order. To begin to scale interventions, it is prudent to assess a range of potentials that include those vocalised by women from these communities themselves. If increasing women's autonomy and agency is a stated goal of this work, then it must begin with elevating their self-identified challenges and allowing them to define what a successful future looks like on their own terms.

11.1 Women's Self-Identified Stressors

Methodologically, women were asked what aspects of their life cause them the most stress and anxiety to the point of making them lose sleep. Therefore, this line of questioning was not asking women to identify barriers in their lives that are stopping them from achieving a well-defined, specific goal. Instead, their responses reflect an internal state of mind that is most accessible to them. The figure below details the range and relative prevalence of participant responses by community:

Figure 11.1: Figure showing women's self-identified stresses, given as a proportion of total responses by community. Stresses are thematically clustered into those dealing with town or infrastructural issues (shaded pink) and those concerning more domestic concerns (shaded aqua).



Looking at this figure, we see that the high costs of school fees were identified in the interview data as a major challenge to women's livelihoods in Gotu and Nasaru, where school fees were as cited as one of the three leading causes of household wealth decimation when we discussed wealth building in section 5. Yet what is interesting in Nakuprat is that school fees did not emerge as a top stressor at all. Instead, women in Nakuprat expressed more immediate concerns: what their children would eat (Poverty, Hunger, Sickness), how to provide for them following the death of a spouse (Single Motherhood), and whether their children would ultimately be okay (Children Well-being). While these concerns may still have connections to the burden of school fees, the prioritisation of basic survival and well-being reflects broader data indicating deeper economic precarity and household vulnerability in Nakuprat, which may be arguably worse than Gotu and markedly worse than Nasaru. As one woman recalls what is most front of mind for her,
"I worry more about whether or not my children have had enough to eat because they can cry when they are hungry so if no one is crying, then I do not have any stress" – woman, Nakuprat, 34 years old

The weight of economic precarity in Nakuprat may help to explain the failure of interventions such as Nawiri's 3-person business scheme, where start-up capital was quickly divided among members to cover unmet household expenses rather than reinvested in the business enterprise. All of the original Nawiri businesses dissolved in this manner. The implication is clear: if basic needs such as food, water, security, and shelter are not first addressed, business initiatives will likely falter under the pressure of more urgent domestic demands.

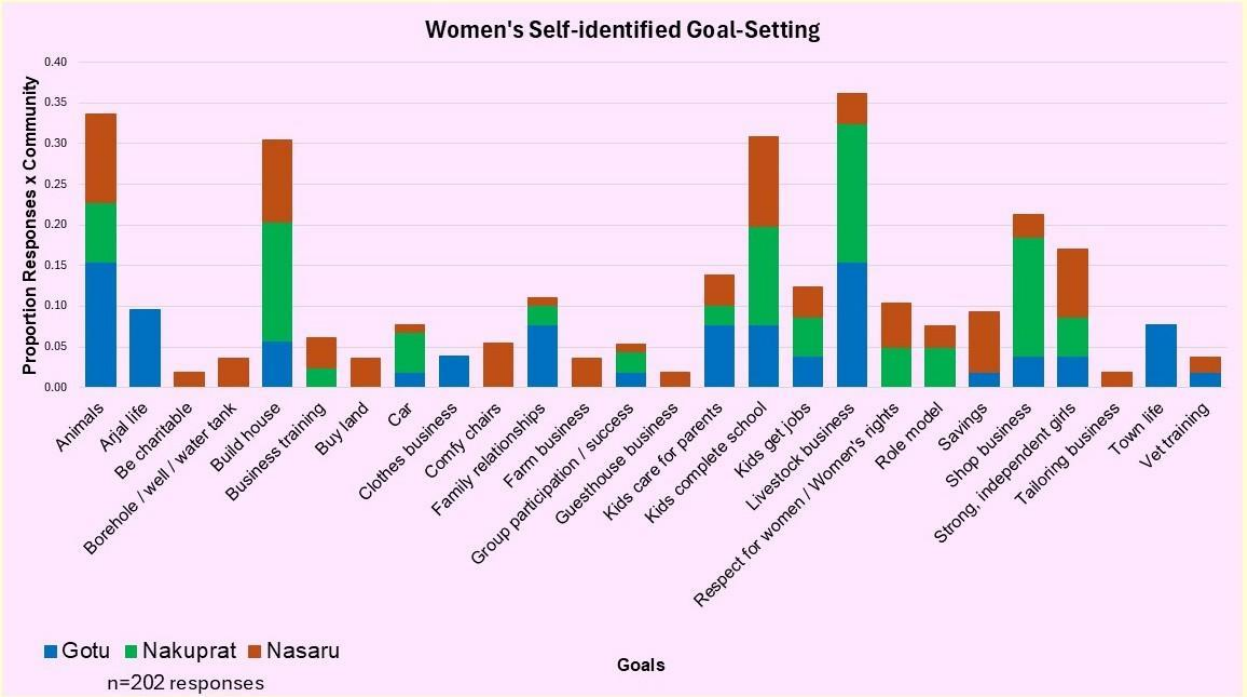
The data also reveal a natural separation between the major concerns of Gotu (shaded in pink) versus those of Nakuprat and Nasaru (shaded in aqua), which is a grouping not immediately obvious from earlier discussions. Women in Gotu were more likely to cite town-based challenges, such as limited access to services due to remoteness, a lack of clientele that is driven by insecurity, frequent

movement between town and *arjal* to manage livestock, and the rise of idle, unemployed youth within the town. These concerns suggest that sedentary life in a town affected by insecurity may not be conducive to business growth and that town-level issues must be addressed to alleviate individual stress. In contrast, women in Nakuprat and Nasaru voiced concerns that were more personal and rooted within domestic spaces, focusing on their children's and families' well-being. Given these priorities, intervention strategies in these two areas should be designed to align closely with a desire for more household-level outcomes.

11.2 Women's Self-Identified Goals

After discussing women's challenges, participants were asked a final line of questioning at the end of their interviews to visualise and describe their future lives: where they would be living, what they would be doing, how they would be living, what types of things they would own, how would they spend their time, who they would be associating with, what their surroundings would look like, how they wanted to be treated, and what would be happening in their communities. It is important to acknowledge a limitation in this exercise, as the preceding lines of questioning focused heavily on livestock, markets, and economics, likely introducing framing bias into women's goal responses. This bias should temper interpretations of women's strong interest in livestock-related goals, though the data still suggest a general inclination toward livestock management as a preferred livelihood strategy. The figure below summarises the self-identified goals for women of each community:

Figure 11.2: Graph of goals women identified for themselves, separated by community. Goals were both material in nature (e.g., owning animals, buying land, etc.) and also reflected aspects of behaviour and identity (e.g., being charitable, having strong family relationships, etc.)



The graph above reveals that the top three goals for women in Gotu are to:
1) accumulate animals

2) conduct livestock business
3) live a more traditionally *arjal* (pure pastoral) life with their animals

In Nakuprat, the top goals are to:
1) conduct livestock business
2) build a house
3) own a shop business in the village

For Nasaru, the priorities are to:
1) accumulate animals
2) ensure their children complete school
3) build a house

Given that animals function as analogues to currency in these communities, livestock accumulation can be seen as a proxy for general wealth-building.

Gotu's responses likely reflect an idealised return to pastoralism with living predominantly in *arjal*, building herds, and selling livestock regularly to support household needs. This may also indicate a frustration with town-based living, which some women feel sacrifices growth and potential in favour of children's education. Of the three sites, Gotu's self-defined goals most closely align with Heifer's directive to support women in livestock production in both market and domestic spheres. However, major barriers, such as drought, insecurity, and transportation costs will need to be addressed to make meaningful progress for this community. Nonetheless, Gotu represents an encouraging community that indicates close alignment between organisational and community goal-setting.

Women in Nakuprat also expressed interest in livestock businesses, although again, this may be partly shaped by the interview context. They also hope to improve their living conditions through permanent housing and the development of small personal shops. The goal of owning a shop is notable, as many shops already exist in Nakuprat and are often not profitable. Shop owners reported frequent losses due to customers taking food on credit, and the shops tend to function more as personal food stores for families than as a business, with one woman noting,
"In the shop that I own, people keep coming and asking for things on credit. I want the women who are burning charcoal to pay their debts to my shop." – woman, Nakuprat, 34 years old

And another woman noting the precarity of shop profits during shocks, when she explains,
"I started a small shop selling from my house things like maize flour and sugar, but during the drought, the children ate everything in the shop in 2024 because I had nothing else to give them." – woman, Nakuprat, 49 years old

Even in a more economically stable area like Nasaru, these vulnerabilities to shop keeping remain, with one woman explaining,
"I have a shop around home where I sell unga, sugar, fuel, etc…The shop is actually feeding me, meaning we are using the supplies from the shop to actually feed the family, not to sell. The shop is not profitable because everyone asks for things on credit. You can't send people away without anything if they ask…[The] outstanding debts in my shop are huge. The benefit of having a shop is

that you have your own products to use for your family and maybe you get a small profit from others, but basically you are breaking even on that point." – woman, Nasaru, 29 years old

Owning a shop when profits are marginal at best may be reflective of the stress women face in meeting household needs, particularly food security for the Nakuprat community. Another possible interpretation is that the abundance of shops results in conformity (i.e., you mimic what you see your neighbour doing) and may limit alternative aspirations or generating new business ideas.

In Nasaru, the desire to accumulate animals is unsurprising, as this aligns directly with the goals of women's self-help groups that buy small stock to upgrade eventually to higher asset cow ownership. In this community, cows are an overt cultural symbol of wealth and financial security and therefore, this is a much-expected goal outcome for this population. Children completing school is also a clear priority, which aligns with school fees being the top-identified stressor for women in Nasaru (see previous section) and the formation of self-help groups aligned with school fee disbursements. Like Nakuprat, women in Nasaru want to build homes; however, the interpretation differs slightly in its intention. While women in Nakuprat spoke of building adequate shelter to house their children and give everyone space, the women in Nasaru described upgrading existing semi-permanent or permanent homes to a "good" house with amenities such as electricity, lighting, and running water. This reflects their more established, land-secure, and stable living conditions when compared to Nakuprat. It is notable that building a home was not a top goal for women in Gotu, which may reflect their less sedentary lifestyle compared to the other two sites.

11.3 Learnings and Principles – Women's Self-identified Stressors and Goals

The data on women's self-identified stressors and aspirations provide a valuable counterpoint to the externally-defined challenges of section 10, grounding intervention design in women's lived realities. Whereas the challenge matrix highlights systemic and structural barriers, women's own responses reveal the immediate pressures that occupy their mental space and the futures they want to build for themselves and their families. Together, these perspectives point to several clear take-home principles that can guide practical and responsive programming:

1. Address basic needs first in the most vulnerable areas. In Nakuprat, women's foremost anxieties centred on feeding their children and surviving as single mothers, underscoring that livelihood or business initiatives will falter if food, water, and shelter insecurities are not first stabilised.
2. Recognise the burden of school fees as both a stressor and a driver of women's goals. In Nasaru and Gotu, school fees emerged as both a leading source of household strain and was among the top priorities for women's aspirations, making school-fee-linked savings groups and financial tools a direct pathway to reduce stress and advance goals simultaneously.
3. Align interventions with community-specific orientations (town vs. domestic). Women in Gotu emphasised town-based challenges (e.g., youth idleness, market insecurity, service access), while women in Nakuprat and Nasaru focused more on household-level well-being, suggesting that interventions may be tailored to the scale of whether stress is perceived as a public / town-oriented issue or a private / domestic concern.
4. Be cautious with shop-keeping as a livelihood pathway. Across Nakuprat and Nasaru, shops were often described as unprofitable or reduced to household food stores due to debt and

credit-taking, indicating that shop businesses may not be a sustainable goal without stronger market discipline and customer repayment mechanisms.

5. Building on alignment where community and organisational goals converge could reinforce interventional efforts. Gotu's emphasis on livestock accumulation, a desire for 'traditional' pastoral livelihood adherence, and increasing livestock business for women mirrors Heifer's objectives, making it a strong entry point for intervention. However, drought, insecurity, and transport must be tackled to realise this potential.
6. Interventions should likely support women's pursuit of livestock accumulation as a culturally embedded wealth strategy. Across all three sites, accumulating animals was consistently voiced as a goal, confirming livestock ownership as both a cultural marker of security and a practical proxy for financial stability that remains central to ideas of pastoral prosperity.

These insights highlight the importance of designing interventions that stabilise household well-being while respecting women's own visions of prosperity. The next and final section brings together these principles, along with those drawn from the wider analysis, to move from reflection to actionable implementation strategies whilst keeping women's goals and aspirations at the fore.

12. Principles and Strategising Interventions

Moving now from data presentation to synthesis and the development of evidence-based intervention strategies requires balancing nuance with the need for scalable implementation. This is a challenging process as strategies must not be so generalised that they lose relevance and effectiveness for the target populations, nor should they be so tailored to specific findings that they are only applicable on a microscale and lack broader applicability.

12.1 Generalising Principles Learned from Case Study Sites

To support this process, we will first summarise the learnings and principles established throughout the report and use these as the foundation for designing evidence-based interventions. The following table aggregates these principles:

Figure 12.1: Table aggregating key learnings and principles based on the three case study areas. Principles have been given a reference number (ID) and the corresponding section (section) where principles have been discussed in the report.

ID	Principle	Section
P1	In all sites, especially Gotu and Nasaru, livestock and household survival hinge more on ***reliable water availability*** than on pasture, with women disproportionately managing water procurement, particularly for domestic spaces.	3
P2	***Insecurity*** (e.g., raiding in Gotu and Nakuprat) restricts grazing choices and livestock proximity to homesteads, while secure, privatised land tenure in Nasaru without contentious borders, enables livestock free grazing.	3
P3	Women must often ***navigate between domestic spaces*** (e.g., education for children) and pastoral duties, balancing household needs with livestock care, often relying on hired herders or kin networks as schooling replaces available child labour.	3

P4	Areas with stronger donor and infrastructure investment (e.g., Nakuprat) enjoy improved access to schools, health posts, boreholes, and nearby markets, while Nasaru's vast geography and weak infrastructure limit women's access to potable water, health facilities, and markets.	3
P5	Borana and Turkana households emphasise shoats within their herd composition, whereas Maasai in Nasaru prioritise cattle as symbols of wealth, status, and long-term security, with shoats serving mainly as liquid assets.	3
P6	Exogamous, polygynous marriage and livestock-based bride price relocate women into male-bonded kin networks that inherently and overtly weaken women's support systems and ability to form internally-cohesive groups. Nasaru women's self-help groups may act as a replicable model to promote more positive and effective group activity across all three locations.	4
P7	Women's work is domestically anchored and devalued even as they contribute to greater household income. Interventions must account for (or carefully circumvent) these slow-changing social hierarchies.	4
P8	Higher divorce-driven women-headed households in Gotu indicate comparatively greater female choice, while widowhood-driven heads of household in Nakuprat and Nasaru reflects tighter patriarchal control. Interventions that capitalise on the relative social freedoms of women in Gotu may result in more rapid uptake while those in Nakuprat and Nasaru may require longer timescales for cultural acceptance.	4
P9	Overall, men control livestock and land; however, Borana women in Gotu gain limited agency via Islamic inheritance, while Maasai women in Nasaru leverage legally recognised women's groups to protect collectively owned livestock. Despite these degrees of freedom, moving forward with women-led livestock production must acknowledge this deeply-entrenched reality and find openings where they exist and may be positively exploited.	4
P10	Women's income and economic advancement can prompt male withdrawal or violence, and therefore, programming must pace change, engage men, and embed robust safeguarding without crossing into overt paternalism.	4
P11	Building community resilience *first* protects individual and group investments. Funding improved water access, secure drought fodder reserves, basic animal health care and disease management, skills and knowledge training, improved access to markets, and dedicated school funding mechanisms before capital investments (in individuals, groups, or businesses) will greatly reduce overall precarity and increase the likelihood of sustainable outcomes for women.	5
P12	"Ring-fencing" group savings from loan activities (if any) protects group assets and encouraging savings for profit-making, low / no labour group asset investments sustainably and equitably grows group finances. Creating a dedicated, term-aligned school fees fund helps so that education costs do not cannibalise group capital.	5
P13	Business operations favour individual pursuits or small groups (2-4 members) where individual input equals individual returns. Larger groups (~20 members) are more beneficial for savings and rentable asset generation.	5
P14	Adopting written rules (with enforcement mechanisms), transparent cash handling, rotating oversight, and establishing external dispute paths (e.g., chief) promotes group cohesion, longevity, and efficacy.	5

P15	Eliminating / limiting overheads (e.g., materials costs, transportation) is a fundamental requirement for business viability and profitability in these narrow-margin ventures. Strengthening buyer to producer methods (i.e., buyers engage producers within community areas) increases women's livestock market participation and reduces producer transportation costs.	5
P16	Without immediate profitability and / or economic buffers, business ventures and investment capital may not survive shocks (e.g., hospital bill, acute food scarcity, etc.).	5
P17	Where security is fragile, investment in movable livestock assets increases risks from raiding. Therefore, women living in insecure areas may benefit from non-livestock asset investment (i.e., rentable assets) and / or from improving connectivity between women and their distant herds.	5
P18	The apparent success of the WhatsApp Livestock Marketing Group in Nakuprat warrants further exploration in replicating this model, or variations of this model, more ubiquitously and within other contexts, potentially formalising individual producers into regular suppliers.	5
P19	Goats offer universal entry points for expanding women's livestock participation due to their affordability, relative drought-tolerance, greater ability to keep nearer homesteads, and market accessibility to women with lower risk of price exploitation than cattle. Cattle markets require greater needs for safeguarding and / or intermediaries to prevent women's exploitation.	6
P20	Cows and camels drive wealth but remain tightly male-controlled, largely cost prohibitive, and require high labour and resource inputs, making them less attractive for increasing women's participation in this form of herd-keeping and marketing.	6
P21	Secure contexts (Nasaru) can sustain cattle and support wealth accumulation, whereas insecure areas (Gotu / Nakuprat) may benefit from prioritising shoats and investing in risk mitigation strategies. "Upgrading" to cattle may only be prudent where security and resources permit.	6
P22	Women's formal education can be supportive for their economic well-being but not decisive, with livestock success depending more on local ecology, security, and species strategies.	6
P23	Designing livestock initiatives around predictable expenses, especially school fees, and timing cycles (e.g., drought), helps to ensure that women can convert livestock or livestock products into cash when most needed.	7
P24	Prioritising income strategies with daily turnover, low transportation costs, and reliable buyers contributes to higher overall profitability.	7
P25	Household income tends to be more resilient when men's and women's activities complement each other (e.g., women producing, men transporting), but interventions must protect against male dominance within shared enterprises and acknowledge variation in women-only (Gotu / Nakuprat) versus 2-parent households (Nasaru).	7
P26	In more precarious contexts (Gotu / Nakuprat), there may be greater immediate need to focus on stabilising basic household income gaps; whereas in more secure contexts (like Nasaru), foundations may be in place to enable scaling strategies like upgrading from shoats to cattle or expanding / optimising milk sales.	7

P27	Strategies must be matched to household objectives: Households use livestock either to grow assets over time (boma) or to generate regular cash (business). Support should help families choose the right model for their needs while understanding their constraints. This could include linking groups saving for school fees with boma livestock upgrades or guiding individuals seeking weekly income toward high frequency shoat trading.	8
P28	Liquidity discipline is a decisive constraint: Selling animals without an immediate need requires savings discipline that is often absent. Tools such as savings groups with withdrawal restrictions, earmarked school-fee funds, or formal accounts with targeted rules would prevent funds from being consumed by daily needs and keep profits available for larger expenses.	8
P29	Shoats likely offer the strongest returns under a business strategy model: The case evidence shows more frequent goat trading produces higher percentage mark-ups with less capital investment and quicker turnover than cows. Implementation should prioritise goat-focused business models, paired with low-cost transport solutions (e.g., motorbike cooperatives) to connect sellers to profitable markets and reduce overhead costs.	8
P30	Raise the profile of women's Indigenous knowledge and expertise in livestock health and breeding: Women's daily management of breeding, milking, and sick animals is what sustains herd productivity throughout the year. Programs should double down on this expertise by positioning women as authorities in herd health decisions, training in safe treatment methods, and recognition that without their knowledge herds, and therefore household economies, would falter.	8
P31	Market access and information can determine margins: Profits rely heavily on knowing when and where to sell, and on the ability to reach those markets with little cost. Practical supports include real-time price information through SMS/WhatsApp, simple record-keeping tools and methods, and pooled or subsidised transport, especially for women and groups with limited mobility.	8
P32	Climate-driven body condition sets the price ceiling: Livestock fetch the highest returns in July–October and January–March, but only if body condition can be maintained through the dry season, making dry-season resilience inputs (pasture, water, vet care) critical at this time and a possible point of entry for Heifer International implementation.	9
P33	Seasonal household needs can distort timing: School fee and Christmas expenses force "distress sales" that flood markets and depress prices, undercutting households that might otherwise wait for stronger returns.	9
P34	Diversified income streams can smooth market lows: Women's beadwork, milk sales, and gum/charcoal production provide crucial buffers during periods when livestock prices fall due to poor animal condition or seasonal oversupply.	9
P35	Knowledge gaps and mobility barriers disproportionately disadvantage women from engaging in livestock business: Limited access to male-dominated markets leaves women more exposed to exploitation, but targeted training, exposure to markets, and real-time price information can directly rebalance the scale.	9
P36	Counterfactuals encourage learning amongst curious, open-minded livestock keepers: Sharing "what-if" scenarios with groups was received positively and can	9

	help pastoralists to identify missed opportunities and develop their selling strategies into the future.	
P37	Targeting highly connected challenges like school fee and veterinary medicine costs, women's transportation barriers, and savings group strengthening capitalises on 'low hanging fruit' that can, in aggregate, impact entrenched structural barriers.	10
P38	Proofing interventions against real-world challenges helps to stress-test intervention strategies linkages to ensure strategies do not collapse under mediating barriers, and without which, unintended bottlenecks may arise.	10
P39	Address basic needs first in the most vulnerable areas. In Nakuprat, women's foremost anxieties centred on feeding their children and surviving as single mothers, underscoring that livelihood or business initiatives will falter if food, water, and shelter insecurities are not first stabilised.	11
P40	Recognise the burden of school fees as both a stressor and a driver of women's goals. In Nasaru and Gotu, school fees emerged as both a leading source of household strain and was among the top priorities for women's aspirations, making school-fee-linked savings groups and financial tools a direct pathway to reduce stress and advance goals simultaneously.	11
P41	Align interventions with community-specific orientations (town vs. domestic). Women in Gotu emphasised town-based challenges (e.g., youth idleness, market insecurity, service access), while women in Nakuprat and Nasaru focused more on household-level well-being, suggesting that interventions may be tailored to the scale of whether stress is perceived as a public / town-oriented issue or a private / domestic concern.	11
P42	Be cautious with shop-keeping as a livelihood pathway. Across Nakuprat and Nasaru, shops were often described as unprofitable or reduced to household food stores due to debt and credit-taking, indicating that shop businesses may not be a sustainable goal without stronger market discipline and customer repayment mechanisms.	11
P43	Building on alignment where community and organisational goals converge could reinforce interventional efforts. Gotu's emphasis on livestock accumulation, a desire for 'traditional' pastoral livelihood adherence, and increasing livestock business for women mirrors Heifer's objectives, making it a strong entry point for intervention. However, drought, insecurity, and transport must be tackled to realise this potential.	11
P44	Interventions should likely support women's pursuit of livestock accumulation as a culturally embedded wealth strategy. Across all three sites, accumulating animals was consistently voiced as a goal, confirming livestock ownership as both a cultural marker of security and a practical proxy for financial stability that remains central to ideas of pastoral prosperity.	11

To simplify the process of putting these principles into practice, these 44 lessons drawn from the data can be distilled into a set of core principles that capture the most resonant and recurrent themes. Essentially, we can conclude:

1. If women-led livestock production is to thrive, either in domestic or market spaces, basic household needs must first be met. (P1, P4, P11, P26, P39)
2. Insecurity disrupts and limits women's potential in livestock production systems. Areas prone to insecurity should use extreme caution and incorporate robust mitigation strategies to protect livestock assets and / or invest in non-livestock assets. (P2, P17, P21)

3. Women are strongly constrained to domestic spaces. Interventions should not require high levels of mobility, although an exception may exist for women in Gotu. (P3, P7)
4. Shoat investment (rather than cow or camel investment) lends itself to profitability through high frequency buying and selling, women's improved access to shoat markets, low initial capital investment, grazing proximity to homesteads, and reduced potentials for market exploitation. (P5, P19, P20, P29)
5. Savings self-help groups, modelled in the Nasaru women's group design, are a robust vehicle for women-led livestock savings, women-owned (and protected) livestock assets, growing profit-generating assets, and dedicated school fee fund savings. (P6, P9, P12)
6. With the exception of the relatively high proportion of divorced women in Gotu, gendered social restrictions around livestock production remain prevalent across all three communities. Safeguarding women within intervention strategies must be a priority, with change introduced gradually and, where appropriate, involving men in complementary roles in the process. (P8, P10, P25)

7. Livestock business operations favour individual or small group (2-4 people) pursuits, where individual inputs equal individual gains, and large groups (~20 people) favour self-help initiatives focused on long-term savings. Business design should emphasise rapid turnover, quick profitability, frequent sales, low / no cost products and overheads (especially transportation). Conversely, self-help groups should focus on long term asset growth leading to self-sustaining 'rentable' asset ownership and dedicated school fee savings. (P13, P15, P16, P24, P37, P40, P44)

8. To support the development of strong, sustainable self-help groups, Heifer International could address several key gaps that affect their long-term success. These include helping groups to: adopt written and transparent rules with clear enforcement mechanisms; establish transparent financial management practices; define leadership structures; create designated school fee funds through commercial banking products; build familiarity with livestock markets; strengthen savings discipline and bookkeeping; and ensure that group-defined goals, challenges, and scale align with their chosen assets. Loan granting and other debt-based activities, such as widespread shop-keeping, should be discouraged. (P14, P22, P23, P27, P28, P41, P42)

9. If women-led livestock cooperatives are a focus for Heifer International, the successes of the Whatsapp Livestock Marketing Group in Nakuprat could serve as a possible model for expansion and warrants further investigation. (P18)

10. Women's self-help groups that use livestock as a form of savings, as well as individuals or small groups (2–4 people) engaged in livestock businesses, could benefit greatly from a range of Heifer International support activities. Assistance could include: setting livestock-keeping goals that align with each group's particular constraints and opportunities; developing market-timing knowledge to optimise when and where to sell livestock; providing training and exposure to livestock markets; promoting the use of digital tools for livestock marketing; strengthening skills in financial planning for household and group expenses; reinforcing savings discipline and bookkeeping (monitoring profits and losses); facilitating low- or no-cost transportation; providing real-time livestock market updating; and supporting

strategies to manage resource-scarce periods through supplementary feed, water access, veterinary care, and complementary income sources (e.g., beadwork, Arabic gum production, sustainable charcoal burning, etc.). (P23, P27, P28, P31, P32, P33, P34, P35, P43)

11. Evidence-based interventions and behavioural change are essential for both Heifer International and for local communities. Communities are generally curious and open to change when presented with clear, evidence-backed comparisons or counterfactuals, such as demonstrating the economic advantages of selling shoats versus cattle. Prior to implementation, Heifer International's intervention strategies should therefore undergo a thorough "proofing process" to ensure alignment with community goals, account for local constraints, anticipate potential barriers, and strengthen long-term success. (P36, P38)

These distilled principles form the foundation for practical, evidence-based action. We will turn now to the task of translating these core principles into concrete intervention strategies that are actionable within these three community areas and are aimed at strengthening women's participation, resilience, and success within livestock production systems.

12.2 Designing Principes-Based Strategies

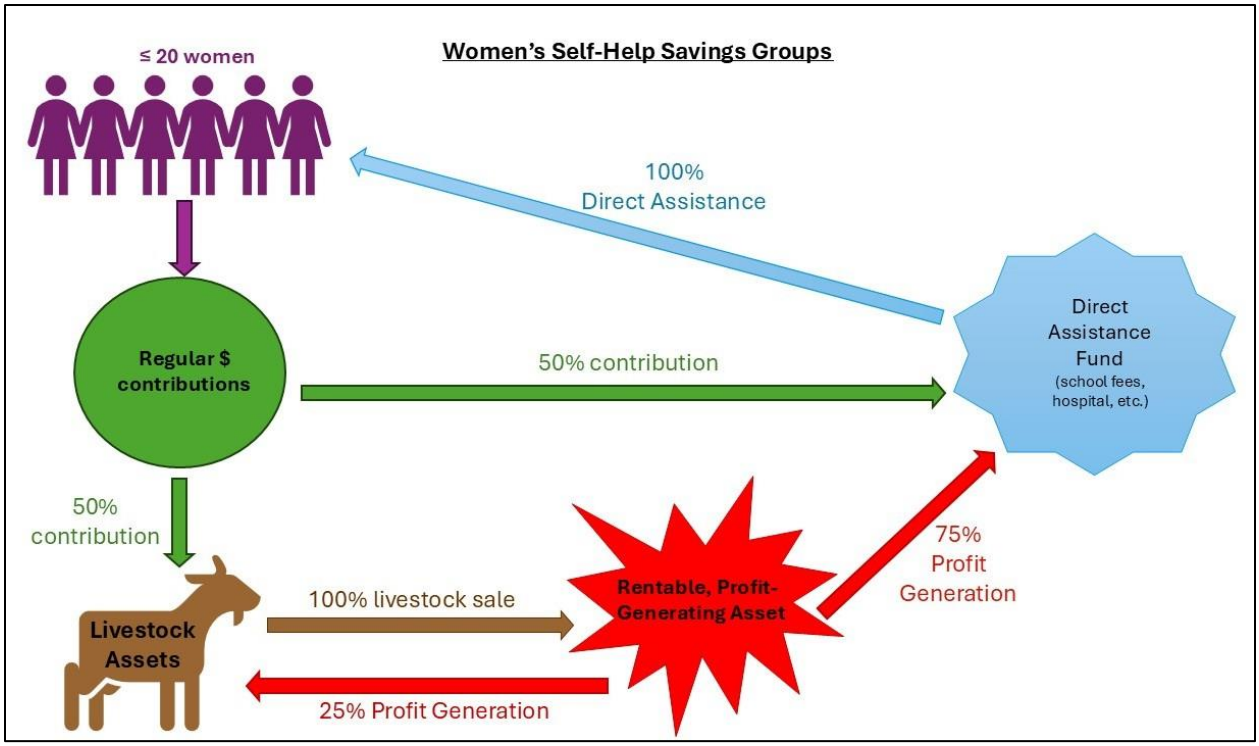
Based on these foundational principles, and in considering the observed and lived experiences of the three case study communities, there are several well-founded recommendations as entry points for Heifer International's contributions. These strategies can be organised into interventions that focus on: 1) women's self-help savings groups, 2) individual or small group (2-4 people) livestock business ventures, and 3) women's livestock cooperatives.

12.2.1 Strategy 1: Women's Self-Help Savings Groups

Replicate and Scale the Model

The concept behind this strategy is to formalise, replicate, scale, and support the Nasaru women's self-help savings group model to other locations. Nasaru women's self-help groups should be commended for their ability to work collaboratively, include all members of society, and serve as a vital source of assistance and social safety nets where such support is otherwise lacking. They receive universally positive feedback from all group members. In fact, the only criticism recorded from members was that they could not afford to contribute to more groups than they already were. The figure below demonstrates the design of this model in its entirety:

Figure 12.2: Diagram of women's self-help savings groups, designed to grow group assets through investment in livestock and rentable, profit-generating assets



Clearly, this model takes much inspiration from the Nasaru women's self-help groups where a group of 20 or fewer women meet regularly (1 x week / every other week) to make consistent contributions (50 KES – 1000 KES each). Those contributions are divided between investing in group-owned livestock assets or being placed in the group's direct assistance fund. This is the basic model of the Nasaru women's group. Where this scalable model differs is that it does not view livestock accumulation as the ultimate goal. As shown earlier, holding livestock beyond its peak value only increases risk and further costs associated with livestock keeping. Instead of upgrading shoats to cows, as in Nasaru, animals should be sold when optimised for market value (e.g., good body condition, favourable market-timing, etc.) to generate capital for investment in group-owned, profit-generating assets. Profits from these assets are then reinvested into group-owned livestock and, importantly, deposited into the group's direct assistance fund so that, over time as assets and profits grow, an increasing number of women can be supported through this fund.

While this design is simple, it does require some external support and a few adjustments to the group models that already exist in the three community areas to improve their chances of success, as will be discussed below.

Discourage / Phase-out Debt-based Activities in Favour of Long-term Asset Growth

First, there are a few clear reasons why Nakuprat and Gotu could not successfully replicate Nasaru's self-help model. All indications suggest a founder effect, in which different development organisations employed different strategies across the three locations, rather than the groups emerging organically from local conditions. Gotu and Nakuprat were shaped by traditional, individualised savings and loan models, whereas Nasaru favours community-based self-help principles focused on group charity and collective risk spreading. In precarious environments such

as those in ASAL areas, risk spreading, risk management, and reciprocity are core adaptive principles.

For Gotu and Nakuprat, the interest from loans was the primary mechanism for income generation into the group. As discussed in the core principles above, personal loans can increase individual vulnerabilities, and in some cases, group vulnerabilities when loans result in defaults. It is recommended that women's self-help groups do not engage in group-issued loans, as the core purpose of the group is stable, sustained savings without members taking on additional debts. To make up for the loss of interest profits to the group and abandoning the annual practice of "breaking" the group, it is advisable to split the individual contributions in some proportion towards: 1) group-owned livestock asset investments that will appreciate in value over time and 2) the direct assistance fund to which member women can apply for emergency assistance when needed. Miraculously, while the Nasaru women's groups did not appear to formally track each member's contributions in order to tie access to the direct assistance fund to those contributions, this approach could raise concerns about "free-riding" in communities like Gotu and Nakuprat. To prevent such issues in perhaps less utilitarian communities, it would be advisable to link each woman's access to the direct assistance fund to the proportion she has contributed to the group's total funds.

Registering, Defining, and Formalising Group Activities

Along these lines, issues of lack of group cohesion, lack of engagement, lack of interest, lack of trust, high mobility (for Gotu) are all challenges to group success in Nakuprat and Gotu; however, there are easily designed mechanisms for managing these issues. For instance, Nasaru has a fining system (nominal amount) for anyone who does not regularly attend weekly group meetings. This fine is paid into the group contribution fund, and it is a minorly punitive (and lucrative) method for ensuring greater group attendance and investment.

Furthermore, one of the underlying causes of Nawiri group failure in Nakuprat was that group membership was decided on randomly and external to the community. Many women complained that there was a lack of interest and difficulty in the group coalescing on their activities. Establishing a well-defined group model with a clear structure and purpose, an initial buy-in requirement, and self-selected membership would help prevent these potential challenges.

Finally, formally registering the self-help groups helps to legitimise their activities, open bank accounts in the group name, and gives a more clearly defined pathway for solving disputes, particularly in protecting group-owned livestock. Each of the registered groups may then form their own charter, leadership rules, articles of operation, defined roles within the group body, dispute resolution process, fund distribution plan, contribution rules, attendance rules, etc., all of which further internal group transparency and member buy-in.

Advising Women on Income-Generating Assets

While the structure and function of the Nasaru women's self-help groups is commendable and worthy of replication, their focus on the accumulation of livestock as a group goal involves increasing asset risk. A key concern should be investing in income-generating assets that are lower risk, lower time burden assets, and are also less prone to climate and raiding insecurity. It would be a worthwhile endeavour to take time with women's groups to generate ideas and discuss potential benefits and drawbacks to each asset and to have a concrete understanding of the end-users of

such assets and likely profitability. Savings investment in non-productive assets would be catastrophic to the group function and a reputational damage to group asset investment generally. Possible examples that were discussed during data collection were: donkey carts (for water or milk transport), motorbikes for leasing, sewing machines for tailoring, stone crushing machines for ballast, farm plots for leasing, tractor equipment for leasing, event tent leasing, event chair leasing, guesthouse construction, rental house construction, shop buildings for lease, and salon spaces for lease.

Develop School Fee Funding Mechanisms

Providing school fees for all children was identified as one of the three major causes of household asset decimation for all three communities, while also ranking among the top three self-identified goals for women in Nasaru. Focusing on school fees therefore addresses both a driver of household poverty and a clear community-driven priority. During data collection, two women-led business groups (ballast production in Nakuprat and tomato harvesting in Nasaru) incorporated a mechanism for contributing to a school fee fund alongside generating small individual profits. Expanding or adapting this type of school fee fund linked to self-help group direct assistance funds would likely be well-received by the target communities. Heifer International may be well-positioned to support this through leveraging commercial banking products for education savings, exploring government matching funds, or piloting models to grow school bursary reserves.

Heifer International Activities in Expanding Women's Self-Help Group Initiatives

Using the Nasaru women's self-help group as the foundation for expanding this group model into other communities, Heifer International could assist self-help groups in a number of ways:

1. Supporting community women to form natural groups based on shared interests, common circumstances, and collective goals.

2. Assisting groups with formal registration, creating a group charter and operational rules, refining and confirming their goals, promoting transparent practices, and ensuring *all* members clearly understand the group's purpose and procedures.

3. Helping to develop school fee fund mechanisms by improving access to commercial banking products, charitable contributions, government bursaries, or savings-matching programs directed at education-specific savings.

4. Facilitate groups in developing ideas for profit-generating asset investments based on a group's particular interests, skills, access, challenges, and opportunities. Ensure financial feasibility of this asset investment to generate sustained profits.

5. Provide training on livestock market-timing, optimising selling for livestock profitability, real-time livestock market price tracking, familiarisation with market buying and selling, accurate livestock pricing, and advanced veterinary training (see next section for further details).

6. Possible capital investment or contribution-matching to purchase livestock assets or profit-generating assets.

12.2.2 Strategy 2: Individual or Small Group (2-4 people) Business Ventures

Support Individual, Household-based, or Small Group Livestock Businesses
While women's groups offer a strong structure for accumulating shared assets and making collective investments, they are not well-suited for developing standalone livestock businesses. This is primarily due to uneven labour contributions, varying levels of commitment among members, and the dilution of profits across the group, which often undermines both motivation and overall effectiveness. Instead, small group formation (2–4 members) or household-based livestock business development should be encouraged, where each contributing member: 1) has a defined role and 2) addresses a specific need. Given the slim profit margins of shoat selling, each member must contribute meaningfully and perform essential functions. Key roles within such a business include buyer, seller, herder, transporter, and treasurer (i.e., banker or bookkeeper), though combining roles is often the most efficient. The young man shadowed in Nasaru successfully filled all of these roles himself, which contributed to the profitability of his venture. This model is particularly effective within a household, where profits are shared, and all members are equally invested in the success of the enterprise. In contrast, small businesses formed outside the household face greater individual challenges and needs and therefore require clearly defined goals, roles, and transparent expectations agreed upon by all members before starting the venture. Furthermore, developing small livestock businesses within households also increases potential for strengthening within-family dynamics and increasing community inclusion to youth and men (e.g., young men with motorbikes). At the same time, this inclusion must be balanced with protecting women's roles in business livestock production to ensure they are not sidelined and eclipsed in the process. If this path is pursued, it would be important to establish strong branding and clearly defined roles that position women, for example, as "leaders in livestock care" or "veterinary healers." This would include focused support for women's access to veterinary training, veterinary medicines, fodder and feed resources, livestock nutrition assessment, and quality water access. A major challenge to this approach is that it runs counter to traditional male-dominated livestock decision-making and entrenched views of women as unpaid livestock labour. These efforts must therefore be accompanied by strong messaging and rebranding that frames the initiative as part of a modern household business model that departs from traditional norms.

Heifer International's primary roles in developing this model would be to advise small groups or households who demonstrate keen interest and are formed with these well-defined roles in mind (i.e., "Everyone does their part"), to ensure strong messaging and branding particularly regarding the role of women in these small / individual businesses, and to act as a business manager for goal setting, asset management, business design, defining responsibilities, and addressing challenges. This would require substantial time and attention investment and an eye to developing profits quickly and managing risks during dry season periods.

Explore Complimentary 'Scarcity Season' Women-led Businesses
Although livestock are kept year-round in these pastoral areas, they are not a commodity that is lucrative nor productive throughout the year, and markets reflect that simple reality. As demonstrated in the Nawiri 3-person livestock businesses, many of these endeavours fell apart during the dry season when livestock were far from homesteads, livestock supplies were low, and animal body conditions were poor. One of the adaptive measures, as mentioned above, is to fortify these scarcity periods with improved access to low-cost fodder / feed, veterinary medicines, and water supply;

however, supplementary to this intensification could be the development of seasonal businesses that are complementary to livestock businesses.

To this end, it would be a beneficial endeavour to explore the possibilities of pairing income strategies based on their seasonality and making complementary pairings. For instance, livestock rearing and livestock businesses are far more profitable and possible in the rainy seasons than in the dry seasons. Arabic gum production is far easier and far more available in the dry seasons than the rainy seasons. Tourism trade and beading sales to tourist outlets increase dramatically in the western summer months of June – September, at precisely the same time that livestock condition and pricing bottoms out. Dead woods become more readily available in the dry season and could be used for non-destructive charcoal burning. Seasonally diversifying incomes in this way provides continuity of profits when livestock markets tend to suffer and may not be sustainable.

Support Market-timed Resource Intensification and / or "Fair Price" Markets

The relationship between drought conditions, drought timing, and market pricing is very well established. As discussed above, to improve the continuity of livestock businesses throughout the year, dry / scarcity season intensification, although costly and resource-intensive, is an option. This would involve drastic improvements in the four primary aspects affecting herd health during dry season periods: Access to pasture / quality fodder, access to adequate water sources, improved security from inter-ethnic livestock raiding, and improved livestock disease management.

One line of questioning explored whether there were any traditional grazing areas no longer accessed during the dry season and examined the reasons behind this, with the aim of identifying untapped pasture resources that could potentially be reopened. None were identified by participants in any of the case study areas. Where traditional lands are now closed to pastoralists, the reasons are either due to development (such as conservancy exclusionary zones or industrial projects) or reduced use due to insecurity. One method used to preserve pasturelands has been the designation of exclusion plots within interior territorial areas that are intended for use once communal pastures are depleted. However, based on respondent feedback, the likelihood of success in investing in such plots is slim. The plots are generally too small, the labour required for land clearing is high, and newly planted grass seeds are often destroyed by wildlife such as squirrels, monkeys, and elephants. Fencing is inadequate and typically requires the removal of all trees in the area as building material; electrified fencing at this scale is cost-prohibitive, and local fencing is often broken by elephants, which then consume the grass. In addition, defection from other herders using the plots for their livestock without permission is common. All four reseeding plots visited failed for these same reasons.

Another line of questioning asked about supplementary feed and fodder during dry season and drought conditions, which also were overall negative. A number of women in each location confirmed that their animals had been killed through contaminated grasses that were purchased from larger markets in Emali and Meru. In fact, very few if any women interviewed were favourable towards purchasing grasses, not just for the cost, but also for the potential of contamination. When asked about purchasing pellets, women were only moderately more in favour of this practice because pellets were very expensive, had to be rationed, and livestock could not survive on pellets alone, which meant that they still had to access pastureland. The pellets were considered a "top-up" to keep animals alive but not to improve their body condition during these times. Women also

discussed the practice of buying cabbages for their livestock and feeding them vegetables scraps, which were much cheaper and easier to acquire. However, again, this practice was just to keep animals alive and would not have positively affected their pricing should they be sold at market.

One way to move the needle may be to shift the burden of livestock improvements during drought and dry seasons away from producers and instead explore opportunities for adjustments within the market itself. Could a middle market be developed that specialises in the offtake of animals during dry periods, potentially offering a standardised fair market price, with room for profit through slaughtering or fattening? If animals, regardless of condition, were purchased during this time, particularly if transport from pasture areas were provided at no cost to the owners, all indications suggest that owners would be willing to let go of unproductive livestock. Until quality feed and fodder are reliably available and household savings are stable enough to support such purchases, it is also worth exploring alternative market models focused specifically on dry season buying.

Heifer International Activities in Individual or Small (2-4 people) Livestock Businesses
Building on these learnings and principles, and considering the lessons from previous small group livestock ventures in Nakuprat supported by Nawiri, Heifer International is well-positioned to provide the following types of support to individuals or small groups seeking to engage in livestock enterprises:

1. Facilitate the development of business plans with interested individuals and small groups, considering community-specific constraints, opportunities, and the natural inclinations of each participant. Individual ventures may be best suited to the “Business (Hustler)” model, where self-sufficiency and livestock access are strong, while the “Blended Business-Boma” model may be more appropriate for household-based family enterprises.

2. Where business groups are mixed-gender (even for household businesses), ensure that women are not eclipsed by male business partners by pushing the branding and training of women as essential ‘livestock healers.’ Strengthen women’s understanding of modern veterinary care and livestock husbandry through targeted trainings and facilitate easy access to affordable veterinary medicines. Likewise, elevate and incorporate women’s Indigenous knowledge regarding livestock care into daily practice. Risk assessments and risk management procedures should be put in place to safeguard women in the handling of veterinary medications.

3. Train groups on market-timing principles, savings discipline, financial bookkeeping and budgeting, profit and loss accounting, digital livestock marketing technologies, and livestock pricing. Offer real-time tracking of livestock market pricing and advice on the timing of buying and selling stock.

4. Help to manage scarcity-season potential livestock profit losses through either: 1) developing complementary seasonal non-livestock businesses, 2) intensifying pastoral support through improved access to feed, pasture, water, and veterinary care, or 3) developing alternative ‘fair pricing’ livestock markets to off-take poor quality animals during scarcity-season months.

5. Possible capital investment in low / no cost livestock market transportation to keep overheads low and selling frequency high, remembering that early profitability greatly affects long-term sustainability of the livestock business model.

12.2.3 Strategy 3: Explore Women's Livestock Cooperatives

Explore Potential for Women's Livestock Cooperatives
One of the secondary goals of this case study was to assess the potential for women-led livestock (shoat) cooperatives within the three target locations. While cooperatives may have some potential, based on the evidence presented here, they would not be a primary recommendation for these particular areas. There remain many barriers and questions that would need to be addressed before investing significant time and effort into developing them. Cooperatives in these remote environments face all of the inherent risks of livestock keeping (e.g., drought, insecurity, water access, market variability, gendered restrictions, etc.) whilst also compounding additional group-level challenges that threaten their sustainability (e.g., group coordination, uneven labour costs, profit equity and dilution, and consistency in sourcing marketable animals at scale). However, two encouraging aspects of the cooperative model are: 1) the potential to eliminate transportation costs, as buyers may purchase livestock directly from the community, and 2) the possibility of bulk selling and collective negotiation power. For these two reasons, women-led livestock cooperatives remain worthy of further exploration to assess the scope of their potential, given the appropriate environment.

To begin imagining what such an approach might look like in practice, consider a simplified example: each woman in a given community sources one to three animals per week to aggregate and either sell collectively to an identified buyer or in bulk at a well-attended weekly market. In exploring this model as a possibility, there is a substantial list of questions that would need to be addressed before moving forward, such as:

1. How are livestock sourcing costs covered?
2. How is supply managed throughout the year (particularly during dry season shortages)?
3. Where does the initial investment come from for individuals purchasing livestock?
4. Why would women reinvest initial investments post-livestock sale rather than utilising for immediate household needs?
5. Who is responsible for sourcing the buyer?
6. How are profits divided amongst livestock providers?
7. How is quality variation in animal supplies managed?
8. Who / how is community-level coordination achieved?
9. How are animals sourced when they are distant from women?
10. What is the agility of the cooperative to adapt to fluctuating sales of 20 animals vs. 200 animals vs. 2000 animals, depending on market and buyer?
11. How are animals transported to market? How is this coordinated? Who pays for transportation? How are overhead costs transparent to cooperative members?
12. Who is responsible for the administration of the group?
13. How are profits divided with uneven cooperative engagement? Are there paid leadership positions in the cooperative?

14. What are the overt group advantages of selling through a cooperative versus a direct profit for individual sales?

All of these questions, and many others, must be addressed for cooperatives to function effectively. Cooperatives should still be explored as an alternative strategy, or as a complement to self-help groups and individual or small-scale livestock businesses; however, this report recommends prioritising models that are already embedded within existing systems, require fewer adjustments, pose fewer management challenges, and maintain structures or operations that are simple, streamlined, agile, efficient, transparent, and low in coordination demands (i.e., strategies 1 and 2). Arguably, the biggest hurdle for cooperatives is that they often violate the core principle of effective group coordination that "everyone does her part." When this principle was broken, as seen in the Nawiri livestock business ventures, those initiatives collapsed almost immediately. Cooperatives, by design, often struggle to uphold this principle, leaving them vulnerable to weak coordination, member defection, and low individual engagement.

That said, one of Nakuprat's notable successes has been the development and profitability of the women-led WhatsApp Livestock Marketing Group. While not a cooperative in the strictest sense, with only five members, the group sources livestock from the surrounding community, aggregates them, and sells in bulk. If, after further exploration, "pure" cooperatives prove unwieldy or ineffective in these contexts, there may be strong potential to replicate or adapt the WhatsApp livestock model in other locations.

Identify and Connect Buyers for Livestock Bulk and Cooperative Selling

Should Heifer International have an interest in pursuing a women's cooperative model further, a major concern that many women raised was their lack of connection to buyers, particularly in aggregation and bulk selling. They felt that they had limited knowledge on how to access "big buyers" or bulk purchasers, and they faced the withholding of this information by a few individuals in the community or at markets who were unwilling to "share their secret." This gatekeeping effectively prevents individual or cooperative sellers from scaling their sales. Connecting seller-producers with buyers, especially for bulk orders, would create a ready-made market, ensure early profitability, and provide motivation for women to reinvest in livestock businesses. Without a connection to a ready market, cooperatives may be doomed to fail. For example, in Nasaru, there is a well-established and widespread honey cooperative with productive hives already in place. However, honey production has not become profitable for any of the groups involved because no buyers were identified by the funder before the program was initiated. Women are left with products that cannot be sold locally and need support in distribution and access to end-users. Likewise for livestock cooperatives, identifying and securing buyers in advance is absolutely essential to their long-term sustainability.

Heifer International Activities in Exploring Women-led Livestock Cooperatives

1. Explore scope and potential for women-led cooperatives in remote pastoral communities if cooperatives remain a targeted Heifer International initiative. Be sure to identify and satisfactorily answer remaining barrier concerns, particularly regarding group coordination and equitable profit sharing.

2. Investigate replicability and scalability of Nakuprat's Whatsapp Livestock Marketing Group in other similar locations. Delve into the mechanics of this group to assess profitability for cooperatives having more than 5 members.

3. Identify and align 'big buyers' with cooperatives, particularly during initial bulk sales in order to provide early profitability and local trust in the cooperative model.

13. Future Planning

As this report has demonstrated, meaningful change in women-led livestock production requires interventions that are context-specific, structurally aware, and rooted in community-defined goals. The findings underscore that strengthening women's participation in both market and domestic livestock spheres depends not only on technical inputs, but on navigating complex interlinkages between gender norms, ecological variability, economic precarity, and infrastructural constraints, to name a few.

Applying these strategies in practice requires careful translation from theory to implementation. Before rollout, it is a highly valuable exercise to thoroughly "proof" or stress-test each intervention to ensure it aligns with local realities, community priorities, and existing constraints. This process helps identify potential barriers in advance and allows for adaptive measures to be built in, thereby strengthening the likelihood that interventions will be both effective and sustainable within their specific contexts.

13.1 Proofing Implementation Activities Within Case Study Communities

To this end, the table below provides an example of a proofing exercise, working from implementation activity through to practical logistics for implementation. Furthermore, it provides a 'scorecard' for feasibility and efficacy that aids in the organisation's priority setting for the coming months and years of the KLMP initiative.

Figure 13.1: Example for systematic proofing of KLMP implementation activities to assess feasibility, efficacy, objectives, and likely outcomes of intervention.

CRITERIA	ASSESSMENT
Implementation Activity:	Using Nasaru women's self-help group model, assist women's groups to identify and invest in group-owned, profit-generating assets.
Target Community:	Gotu town
Intended Problem Addressed and Trickle-down Benefits:	Limited profit-generating activities for women in Gotu. Limited ability to save (individually or in groups) due to lack of income.
Community Fit:	Women here already have an understanding of groups but operating in a VSLA model, rather than self-help model. Blueprint for implementation is there, as is the need.

Scale of Implementation (e.g., large group, individual / small group, cooperative):	Large group (≤20 members)
Key Principles Supported:	P7, P8, P9, P12, P13, P15, P17, P37, P42
Key Principles Violated:	P6, P10, P11, P16, P26, P28, P39
Heifer KLMP Gender Goals Supported:	• Fostering women's group cohesion • Advancing women's personal autonomy • Economically empowering women • Designing self-sustaining income generation • Meaningfully engaging women in livestock production
Community Goals Supported:	• Providing a form of income generation • Group participation & group sustainability • Savings promotion • Women's independence
Identified Barriers:	• Low group cohesion / trust • Potentials for male rage against women's economic empowerment • If basic needs are not first met, savings efforts can fall apart • There is a strong need for immediate profitability • Savings discipline is largely lacking
Mitigating Strategies for Identified Barriers:	• Women should self-select which groups they want to join based on affinity and trust • Establish a strong group charter and transparency in group function, bookkeeping, and assets • Reinforce social sentiments that helping women helps all of the family, and everyone is doing their part • Ensure that there is a ready mechanism for instant profitability and / or funds readily available in the direct assistance fund • Discuss the benefits of long-term savings to invest in profit generating assets. Work on changing timescales from immediate needs to long-term stability.
External Support Resources Needed:	• Present self-help savings group model with profit-generating assets to community. Ask for those who are interested to form their own group. • Transition VSLA groups into self-help savings groups (if interested) • Help with group administration: registering group name, establishing group charter, mechanics, leadership, and asset goals • Sensitise men to these new groups and the benefits the group will provide to the household. Let them know if

	successful, there may be opportunities to establish similar men's or youths' groups. • Possible capital investment in livestock assets (for early profitability) and direct assistance fund (to care for basic needs) • Financial literacy, savings, banking, and bookkeeping training for all group members
Definition of "Success" in Outcomes	• Year 1: Majority of Gotu women engaged in self-help groups (>50% women of Gotu), bylaws written for group functions, groups formally registered, and members making consistent contributions • Year 2: Self-help groups are autonomously buying and selling livestock assets and saving / have invested in profit-generating assets • Year 3+: All groups own profit-generating assets and are self-sustaining by growing livestock assets and regularly contributing to the direct assistance fund through these profits
Methods / Metrics for Evaluating "Success"	• # of women engaged in self-help savings groups • # self-help savings groups formally registered • # livestock assets owned by group • # of livestock sales conducted in a year • Amount of money contributed to profit-generating assets • Value of profit-generating assets • Amount of profit generated through profit-generating assets • Amount of money contributed to direct assistance fund via profit-generating assets • % members assisted through direct assistance fund • Total value of group assets (e.g., cash savings, livestock assets, profit-generating assets, and direct assistance fund)
Likelihood of Community Uptake (1 = low, 5 = high)	4
Timescales of Heifer Support (< 1 year / 1 – 3 years / indefinite	1 - 3 years
Support Personnel Needed	Train local self-help group trainer or HI communicator to offer onsite assistance. Remotely monitor groups' progress
Ease of Implementation (1 = easy, 5 = impossible)	2
Overall Strategy Priority (1 = top priority, 5 = low priority)	1

The proofing process provides a practical tool for assessing the feasibility, efficacy, and priority of implementation activities across the three case study areas, while also serving as a guide for

adapting these learnings to other pastoral regions where KLMP operates. By systematically applying this process, Heifer International can evaluate where the lessons drawn from the case studies hold true, where they may require adjustment, and where additional information is needed to account for unique local dynamics before scaling interventions. The insights and guiding principles outlined here will now inform the design of operational frameworks that can be tested, refined, and adapted for use in other Heifer-supported pastoral communities across Kenya and beyond. As the programme moves from research to implementation, this report offers not a rigid blueprint, but a practical foundation for developing locally grounded and context-responsive interventions that seek to meaningfully raise women's engagement in livestock production whilst ensuring sustainable economic viability.

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