

Resilience of Livestock Markets in Turkana West Sub-County of Kenya: Influence of Refugee Population and Export Trade on Livestock and Livestock-Product Consumption

Ekiru Francis Anno*

School of Doctoral Studies, Unicaf University, Lilongwe, Malawi

Corresponding Author: Ekiru Francis Anno

School of Doctoral Studies, Unicaf University, Lilongwe, Malawi

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Abstract: Livestock production and trade constitute an important component of livelihoods and local economic activity in Kenya's arid and semi-arid lands. In Turkana West Sub-County, which hosts refugees from approximately 24 countries, livestock markets operate within a complex and dynamic system shaped by pastoral production, cross-border mobility, refugee settlement, urbanisation, local consumption, and linkages to external markets. This article examines the organisation and performance of livestock markets in Turkana West, with particular attention to the influence of the growing refugee population and external livestock trade on livestock and livestock-product consumption. The study used qualitative and participatory approaches involving livestock producers, traders, livestock marketing associations, slaughterhouse representatives and other market actors. Remote open-ended interviews, focus group discussions, participatory rural appraisal, market observations and analysis of market records were used across key livestock markets, including Lokore, Kakuma, Letea, Kalobeyei, Lokichoggio and Nanam. Market records were used to examine livestock stocks, sales, slaughter and revenues. The findings show that livestock markets in Turkana West have evolved from predominantly informal and traditional trading arrangements towards a more structured network of primary and secondary markets. Kakuma functions as the principal secondary market and receives livestock from more than ten primary markets. The presence of refugees has expanded local demand, particularly through butcheries and livestock-product businesses, while host-community traders remain strongly involved in the supply of live animals. At the same time, substantial market inefficiencies remain. These include high levels of unsold livestock, inactive traders' working capital, weak market coordination, inadequate slaughter infrastructure, limited utilisation of livestock by-products, weak market information systems, inadequate access to finance and insurance, and constraints associated with disease, drought, insecurity and cross-border movement. The evidence suggests that market resilience depends not only on increasing livestock production but also on improving coordination between production catchments, primary markets, secondary markets, traders, consumers and external markets. Strengthening producer and trader organisations, improving market infrastructure, developing reliable market information, expanding value addition, facilitating formalised trade and strengthening host-community and refugee participation could improve the efficiency and sustainability of livestock markets in Turkana West.

Keywords: Livestock markets; Pastoralism; Refugees; Market systems; Livestock trade; Market resilience; Pastoral economy; Kakuma; Turkana West; Kenya.

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Introduction

Livestock production is central to livelihoods in Kenya's arid and semi-arid lands (ASALs), where livestock provide food, income, savings, employment and an important means of coping with climatic and economic shocks. However, the contribution of livestock to household welfare depends not only on livestock ownership and productivity but also on producers' ability to access functioning markets and convert livestock assets into reliable and sustainable income. Well-organised livestock markets are therefore important for linking dispersed pastoral production systems with consumers, traders, processors and other market actors.

Turkana West Sub-County presents a distinctive and strategically important livestock-market environment. The sub-County is an open access article under the [CC BY-NC](https://creativecommons.org/licenses/by-nc/4.0/) license

county supports extensive pastoral production and is strategically located near the international borders with Uganda, South Sudan and Ethiopia. It also hosts a large refugee population concentrated around Kakuma and Kalobeyei, alongside a substantial host-community population. The concentration of consumers, livestock producers, traders, service providers and institutions has created a significant local market for livestock and livestock products. The area therefore provides an important setting for examining how pastoral production systems interact with refugee settlements, urban markets and cross-border trade.

The interaction between host-community and refugee populations is particularly significant to the organisation of



livestock and livestock-product markets. Host-community actors are strongly engaged in livestock production and the sale of live animals, while refugees participate in downstream market activities, including butcheries and meat consumption. These interactions create an interdependent market system in which livestock produced by pastoral households enter local markets through production and trading networks and are subsequently transformed into meat and other livestock products for consumption. At the same time, Turkana West is connected to wider livestock markets beyond the sub-county. Animals move from dispersed production areas to primary markets and subsequently to the Kakuma secondary market, while traders and other market actors connect these markets with external terminal markets, including Nairobi. Cross-border movements and trade further extend the geographical reach and complexity of the livestock-market system.

Despite these opportunities, the livestock-market system in Turkana West faces a range of interrelated constraints. At the production level, recurrent drought, livestock diseases and pests, inadequate breeds, weak husbandry practices and low productivity limit the availability and quality of marketable livestock. At the market level, insecurity, weak market organisation, competition among traders, limited access to finance and insurance, inadequate infrastructure and weak coordination constrain the efficient movement and exchange of livestock. These challenges can result in periods when substantial livestock resources and traders' capital remain underutilised, even when animals are available for sale. Such constraints reduce the capacity of livestock markets to generate reliable incomes, support value addition and respond effectively to the needs of both host and refugee populations.

Against this background, this study examines the organisation and performance of livestock markets in Turkana West Sub-County. Particular attention is given to the structure of livestock production and market networks; the participation of refugee and host-community populations in livestock and livestock-product markets; the performance and constraints of the Kakuma secondary market; and opportunities for strengthening market coordination, value addition and resilience. By examining these dimensions as interconnected components of a livestock-market system, the study seeks to contribute to a better understanding of how pastoral livestock markets can be organised to improve market participation, strengthen linkages among market actors and enhance the economic value and resilience of livestock production in dryland environments.

Literature Review

Livestock Markets and Pastoral Livelihoods in Dryland Kenya

Livestock markets are central to pastoral economies because livestock serve simultaneously as productive assets, sources of food and income, stores of wealth, and instruments for managing climatic and economic shocks. In Kenya's arid and semi-arid lands (ASALs), however, market participation is shaped by ecological variability, livestock mobility, insecurity, infrastructure, market information, and the availability of buyers. Recent research emphasises that resilience in dryland livestock systems depends not only on maintaining herd productivity but also on producers' and traders' capacity to access appropriate market channels when conditions change ([Ndiritu, 2020](#); [Ndiritu & Gichuki, 2025](#)).

Pastoral livestock systems differ structurally from more commercialised ranching systems. [Ndiritu \(2020\)](#), examining the beef value chain in northern Kenya, shows that pastoralists rely heavily on mobility to respond to climatic variability, while more commercialised ranching systems can incorporate intensive fattening and market-oriented production. The study identifies opportunities for improving livestock quality and marketability through fattening and other value-chain activities. This distinction is particularly relevant to Turkana West, where livestock production and marketing are influenced by mobile production systems, variable resource availability, and the need to move animals between production catchments and markets.

Recent evidence also highlights the importance of market choice and information during climatic and economic stress. Using data from 1,053 pastoralist households in Kenya's ASALs during the severe 2021-2023 drought, [Ndiritu and Gichuki \(2025\)](#) found that households used multiple marketing channels and that drought and conflict influenced channel selection. Informal information networks, including neighbours, family members, and local traders, remained important sources of market intelligence, while conflict reduced participation in local markets. These findings indicate that livestock-market resilience requires more than physical market infrastructure; it also depends on timely information, functioning social and commercial networks, and the ability of producers and traders to switch between market channels.

Livestock Market Coordination, Demand and Off take

Livestock-market performance should be understood in terms of the interaction between supply, effective demand, transaction costs, and market coordination rather than simply the number of animals available. Evidence from the Kakuma Livestock Secondary Market illustrates this distinction. The Kalobeyei Integrated Socio-Economic Development Plan progress report documented substantial livestock trading in 2019, including 54,000 sheep and goats, 3,240 cattle, and 4,320 camels. At the same time, the assessment reported that livestock supply exceeded market demand, illustrating that sizeable livestock flows do not necessarily translate into sufficient transactions or commercially attractive prices ([UNHCR, 2019](#)).

The distinction between livestock availability and effective demand is particularly important for Turkana West. A market may receive substantial numbers of animals without generating sufficient demand to absorb supply. Unsold animals tie up traders' working capital and generate additional costs associated with feeding, watering, holding, and animal health. Producers may consequently seek alternative outlets or be forced to sell under pressure. Strengthening livestock-market performance therefore requires coordination among production catchments, primary markets, secondary markets, traders, processors, retailers, and terminal buyers.

Market information is an important component of this coordination. [Ndiritu and Gichuki \(2025\)](#) demonstrate that pastoralists continue to rely heavily on informal information systems even where formal information channels exist. Rather than attempting to replace these established networks, formal market-information systems could be linked to producer, trader, and community networks to ensure that information is timely, commercially useful, and locally relevant.

Refugees, Host Communities and Local Market Development

The presence of refugees can influence local market structures by increasing population density, consumer demand, labour availability, and entrepreneurial activity. The *Kakuma as a Marketplace* study documented more than 2,000 businesses in Kakuma and estimated substantial household consumption within the refugee-hosting economy. It also found evidence of economic interdependence between refugees and host-community residents, including transactions in which local residents supplied livestock and other commodities to refugees (International Finance Corporation [IFC], 2018). These findings suggest that refugee settlements can function as local economic systems in which refugees and host-community residents participate as consumers, workers, entrepreneurs, and trading partners.

[Betts et al. \(2019\)](#) similarly demonstrate that Kakuma's food market is shaped by interactions among refugee consumers, host-community businesses, food-assistance mechanisms, and local traders. Although their study focused on the wider food market rather than livestock specifically, its findings are relevant because meat and other livestock products are embedded within the broader food economy. Changes in purchasing arrangements can consequently influence market structures and business performance.

The refugee-host market relationship has continued to evolve. [UNHCR's 2023-2026](#) livelihoods and economic inclusion strategy emphasises market-driven skills, financial services, investment, entrepreneurship, and economic integration for refugees and host communities ([UNHCR, 2023](#)). More recent market analysis in Turkana also applies a market-systems perspective to identifying economic opportunities for refugees and vulnerable host communities ([Jesuit Refugee Service \[JRS\], 2025](#)). Collectively, this literature suggests that refugee settlements can generate demand and enterprise opportunities, but sustained economic inclusion depends on commercially viable markets, access to finance, enabling regulations, and linkages with local suppliers and buyers.

Opportunities for Livestock Farming in Drylands

Livestock farming remains one of the most important livelihood systems in Africa's drylands because livestock are relatively well adapted to environments characterised by low and highly variable rainfall, recurrent drought, and limited crop-production potential. In Kenya, ASALs occupy more than 80% of the country's land area and contain approximately 70% of the national livestock population. Livestock therefore provide meat, milk, and other products while also functioning as forms of household wealth, savings, insurance, and income. Their importance is particularly pronounced in pastoral and agro-pastoral systems, where mobility enables households to exploit spatially and temporally variable pasture and water resources ([FAO, 2024](#); [Lutta et al., 2023](#)).

Ecological Adaptation and Livestock Mobility

A major opportunity for dryland livestock production is its ecological suitability to variable environments. Unlike crop production, which can fail completely when rainfall is inadequate, mobile livestock production enables households to move animals towards areas where pasture and water remain available. Mobility has historically been an important adaptation mechanism because pastoralists can respond to spatial differences in rainfall and

vegetation availability. [Opitz-Stapleton \(2023\)](#) notes that pastoral mobility across African drylands has traditionally reduced exposure to drought and allowed livestock keepers to exploit changing ecological conditions. The comparative advantage of dryland livestock systems therefore lies partly in their capacity to convert dispersed and seasonally variable natural resources into economically valuable livestock products.

Feed, Pasture and Water Management

There are also opportunities to increase livestock productivity through improved feeding, pasture management, water harvesting, and forage conservation. Recent evidence from semi-arid Kenya demonstrates growing interest in pasture farming, including the establishment of native perennial grasses and improved management of forage resources. [Mganga et al. \(2024\)](#) found that farmers were adopting pasture-farming practices and identified low-cost irrigation, water harvesting, improved agricultural technologies, cooperative development, and better market access as opportunities for scaling these practices.

Similarly, [Githu et al. \(2022\)](#) demonstrated that reseeded pasture fields around Lake Baringo could help pastoralists maintain herd sizes during drought. These findings indicate that investment in fodder production, pasture rehabilitation, water management, and forage conservation can contribute simultaneously to productivity and resilience.

Livestock Diversification

Livestock diversification provides another opportunity for managing climatic and market risks. Dryland households increasingly maintain combinations of cattle, goats, sheep, and camels rather than relying on a single species. Different livestock species have varying levels of tolerance to heat, water scarcity, and poor-quality forage. Consequently, species diversification can spread production risks.

Research covering drylands of northern sub-Saharan Africa found that increasing the relative importance of goats and camels while reducing dependence on cattle could maintain or increase milk production while reducing water and feed requirements under some future climate conditions ([Niamir et al., 2022](#)). Although these findings cannot be directly generalised to every Kenyan production system, they demonstrate the potential value of matching livestock species with changing environmental conditions.

Commercialisation and Value Addition

Greater commercialisation also presents opportunities for increasing the economic returns from dryland livestock. Emerging stratified production systems in Kenya illustrate how livestock can move between production environments according to their comparative advantages. [Dabasso et al. \(2021\)](#) found that lean cattle from pastoral areas could be purchased and subsequently fattened in areas with more favourable feed and production conditions. Such arrangements create linkages among pastoral producers, traders, feed suppliers, transporters, fattening enterprises, abattoirs, and consumers.

Value addition provides further opportunities. Meat, milk, hides, skins, and other livestock products can support enterprises beyond live-animal trading. In Turkana and other dryland counties, slaughter facilities, meat processing, milk marketing, hides and skins, livestock transport, and related services could expand the

range of economic actors participating in the livestock economy. [Anno et al. \(2023\)](#) show that market access and competition are important determinants of secondary livestock-market performance in drylands, suggesting that strengthening the commercial environment around livestock markets can contribute to greater market participation and enterprise development.

Finance, Risk Management and Digital Market Services

Financial services and risk-management mechanisms represent additional opportunities. Because pastoral wealth is highly concentrated in livestock, drought-related livestock losses can have severe consequences for household assets and incomes. Livestock insurance, savings, credit, index-based financial products, and other risk-management mechanisms can potentially protect productive assets while enabling pastoralists to remain commercially active during climatic shocks. The [World Bank \(2023\)](#) highlights financial inclusion as an important component of pastoral resilience, particularly through mechanisms that protect households from severe drought-related livestock losses and improve access to markets.

Digital technologies and improved market information can further strengthen dryland livestock economies. Mobile communication and digital platforms can reduce information asymmetries by enabling producers and traders to access information on prices, demand, weather, animal health, and market opportunities. However, such technologies are likely to be more effective when they complement existing social and commercial networks rather than attempting to replace them.

Challenges Facing Livestock Farming in Drylands

Despite these opportunities, livestock farming in drylands faces interconnected ecological, economic, institutional, infrastructural, and social constraints.

Climate Variability and Extreme Weather

Climate variability and increasing climate extremes are among the most important challenges. Recent droughts in Kenya have demonstrated the vulnerability of livestock-dependent households to prolonged rainfall failure. [Lutta et al. \(2023\)](#) report that increasing temperatures, declining or increasingly variable rainfall, droughts, and floods affect livestock productivity, pasture availability, and the resilience of pastoral value chains. The 2020-2022 drought further demonstrated how prolonged climatic shocks can cause livestock mortality, asset losses, reduced purchasing power, and distress sales.

Feed and Water Shortages

Feed and water shortages are major constraints to livestock productivity. Recurrent drought reduces pasture biomass and water availability, while poor-quality forage can constrain animal growth, reproduction, and milk production. [Mganga et al. \(2024\)](#) identify limited access to pasture inputs, high costs, inadequate knowledge, and market constraints as barriers to expanding pasture production. [FAO \(2024\)](#) similarly identifies feed shortages and post-harvest losses as important constraints to the competitiveness of Kenya's livestock sector. Poor nutrition can consequently create a reinforcing cycle in which low animal condition reduces market value while simultaneously increasing vulnerability to disease and drought.

Land Degradation and Resource Competition

Land degradation and competition over natural resources further constrain dryland livestock production. Population growth, settlement expansion, land-use change, agricultural expansion, and the privatisation or fragmentation of grazing areas can reduce access to traditional grazing resources. [Lutta et al. \(2023\)](#) identify land degradation and land-use change as significant threats to pastoral and agro-pastoral livelihoods. Reduced access to grazing corridors can also undermine mobility, one of the fundamental adaptive mechanisms of pastoral production.

Animal Health and Veterinary-Service Constraints

Animal diseases and limited veterinary services remain persistent challenges. Dryland livestock systems cover large geographical areas, making the delivery of animal-health services relatively costly. Limited access to veterinary drugs, vaccines, animal-health professionals, and diagnostic services can reduce productivity and increase mortality ([Germer et al., 2023](#)). Insecurity, poor roads, and long distances can further restrict the movement of service providers. At the same time, these service gaps can create opportunities for private veterinary businesses and community-based animal-health providers where commercially viable delivery models can be established.

Market Access, Infrastructure and Transaction Costs

Market access remains a major economic constraint. Producers may have livestock but lack reliable buyers, transport, market information, finance, or facilities for holding and conditioning animals. Limited competition among buyers can also reduce producers' bargaining power. In Turkana, [Anno et al. \(2023\)](#) found that livestock-market performance was affected by factors including limited capital, informal marketing systems, insecurity, competition-related constraints, weak regulatory arrangements, and climate change.

Poor transport infrastructure and high transaction costs compound these challenges. Long distances between production areas and major markets increase the cost of transporting livestock, feed, water, and other inputs, while poor roads can restrict market access during rainy seasons or periods of insecurity. These costs can ultimately affect producer prices, trader margins, and consumer prices. Infrastructure such as roads, holding grounds, water facilities, livestock markets, and slaughter facilities can therefore influence the performance of the wider livestock-market system.

Insecurity and Resource-Based Conflict

Insecurity and resource-based conflict constitute additional constraints. Competition over pasture and water, livestock theft, restrictions on livestock movement, and insecurity along trade routes can disrupt both production and marketing. [Opitz-Stapleton \(2023\)](#) emphasises that climate risks in African drylands can cross administrative and national borders because pastoral livestock and trading systems are spatially interconnected. Interventions therefore need to recognise that production, migration, and trade may extend beyond individual communities or administrative boundaries.

Institutional and Governance Constraints

Institutional and policy constraints can also limit commercialisation. Livestock development requires coordination among government agencies, producers, traders, veterinary-service

providers, financial institutions, processors, and other private-sector actors. Weak coordination can produce fragmented interventions that emphasise production without adequately addressing markets, services, finance, and investment. Research on climate-resilient value chains in Kenya identifies weak market systems, diseases and pests, land degradation, disputes, and weak governance as important constraints to adaptation capacity ([Lutta et al., 2023](#)). This reinforces the importance of approaching dryland livestock development as a market system rather than solely as a production intervention.

Livestock Markets, Climate Risk and Resilience

The opportunities and challenges described above demonstrate that livestock production and livestock marketing are closely interconnected. Climate variability is a structural feature of Kenya's drylands, and recent droughts have reinforced the importance of market mechanisms in pastoral resilience. [FAO \(2024\)](#) identifies Kenya's ASALs as containing most of the country's livestock and highlights drought, feed shortages, and market constraints as major challenges to livestock-sector competitiveness. Its investment framework emphasises market-based and climate-smart transformation across livestock value chains, including routes to market.

Climate shocks affect livestock markets through several pathways. Drought can reduce herd condition and increase distress sales; conflict can restrict movement and market access; poor roads and transport systems can increase transaction costs; and inadequate market information can increase uncertainty. [Ndiritu and Gichuki \(2025\)](#) show that these factors can influence the marketing channels selected by pastoralists during drought, while [Ndiritu \(2020\)](#) demonstrates the close relationship between climate adaptation and market development.

For Turkana West, resilience can therefore be understood as the capacity of the livestock-market system to continue facilitating transactions and generating economic value despite drought, insecurity, livestock disease, changing consumer demand, and cross-border movement. This requires flexible linkages among production areas, primary markets, secondary markets, and external buyers, supported by reliable information, finance, infrastructure, animal-health services, and market coordination.

Research Gap and Contribution of the Study

The existing literature provides important insights into pastoral livestock production, market participation, refugee economies, and climate-related resilience. However, fewer studies integrate these dimensions at the level of a specific livestock-market system in Turkana West. Existing evidence demonstrates that Kakuma has a substantial consumer and enterprise economy, that livestock supply can exceed local market demand, and that pastoralists use multiple marketing channels in response to shocks. Nevertheless, there is limited integrated analysis of how production

catchments, primary markets, the Kakuma secondary market, refugee and host-community enterprises, slaughter facilities, and external markets interact as components of a single livestock-market system.

This study addresses this gap by examining the organisation and performance of livestock markets across Turkana West, with particular attention to the relationships among livestock supply, effective demand, refugee participation, market coordination, slaughter and value addition, and external trade. The study therefore conceptualises livestock markets not simply as physical locations where animals are bought and sold, but as interconnected economic systems whose performance and resilience depend on the relationships among producers, traders, service providers, consumers, institutions, and other market actors.

Methodology

Research design

The study adopted a qualitative and participatory approach to examining livestock production and marketing in Turkana West Sub-County. The approach was designed to understand the functioning of livestock markets from the perspectives of producers, traders, market organisations and other stakeholders.

Study sites and participants

Field information was collected from key livestock-producing and marketing locations, including Lokore, Kakuma, Letea, Kalobeyei, Lokichoggio and Nanam. The study engaged livestock producers and traders through remote open-ended interviews and focus group discussions. Key informant interviews were also conducted with officials of the Livestock Marketing Association (LMA) and representatives of local slaughter facilities.

Data collection and analysis

The study combined several complementary methods, including open-ended interviews with producers and traders, focus group discussions, key informant interviews, participatory rural appraisal, market observation, review of livestock market records, and participatory visualization of market systems and trading routes. Market records were used to examine livestock stocks, sales, and slaughter volumes. Where inconsistencies occurred in recorded prices and quantities, median prices and total revenue calculations were applied to support the analysis.

The analysis focused on relationships among livestock production catchments, primary and secondary markets, traders, consumers, and external markets. Particular attention was given to the relationship between livestock availability and actual sales, as the evidence indicates substantial differences between the number of animals entering markets and those ultimately sold or slaughtered.

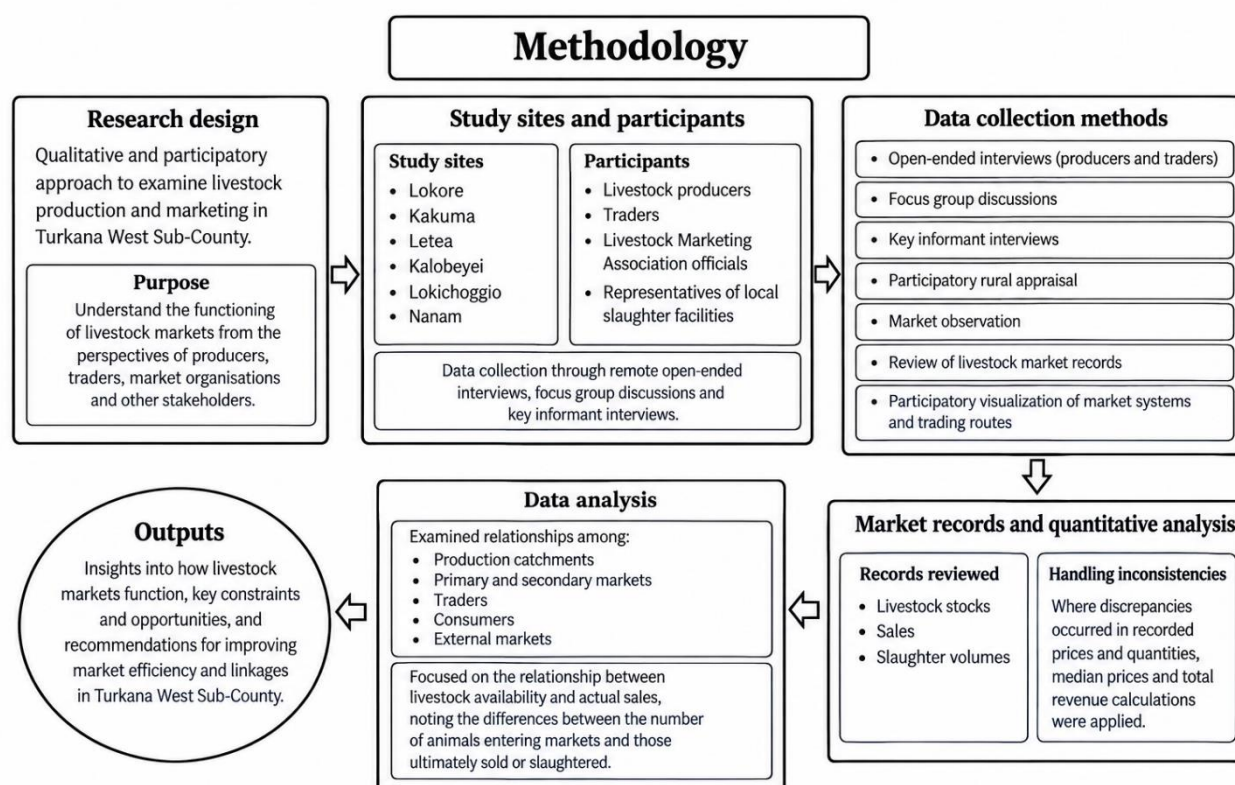


Figure 1: Study Methodology. Source: Researcher made.

Results

Study Area and Livestock-Market Context

The study describes Turkana West as one of the most important livestock-producing areas of Turkana County. The sub-county contains several production catchments and market centres and serves as a transit area for pastoralists moving livestock within Turkana and across international borders. Livestock production is closely associated with the availability of water, pasture and security. The distribution of livestock across Kakuma, Oropoi, Nanam and Lokichoggio demonstrates substantial spatial differences. Data from the County Department of Livestock Development indicate that the four areas have approximately 252,268 cattle, 630,378 sheep, 630,378 goats, 126,438 camels, 73,766 donkeys, and 42,733 poultry, respectively. However, these estimates exclude some cross-border livestock and highly mobile

pastoral households and should therefore be interpreted as indicative rather than comprehensive.

Oropoi has a particularly important cattle population because of its proximity to cattle-producing areas in Uganda's Karamoja region. Mutual grazing arrangements have facilitated access to resources across the border. Nanam has substantial sheep and goat populations, while cattle movements from the area are influenced by water availability. Lokichoggio is strategically positioned close to South Sudan, while Kakuma has developed as the principal urban and secondary livestock market.

The livestock economy therefore operates through a combination of pastoral production, mobility, local trade, cross-border interaction and urban consumption. This creates both opportunities and vulnerabilities. Pastoral mobility enables producers to respond to changing resource availability, but it can also make livestock difficult to capture in formal market statistics and complicate the organisation of predictable supply.

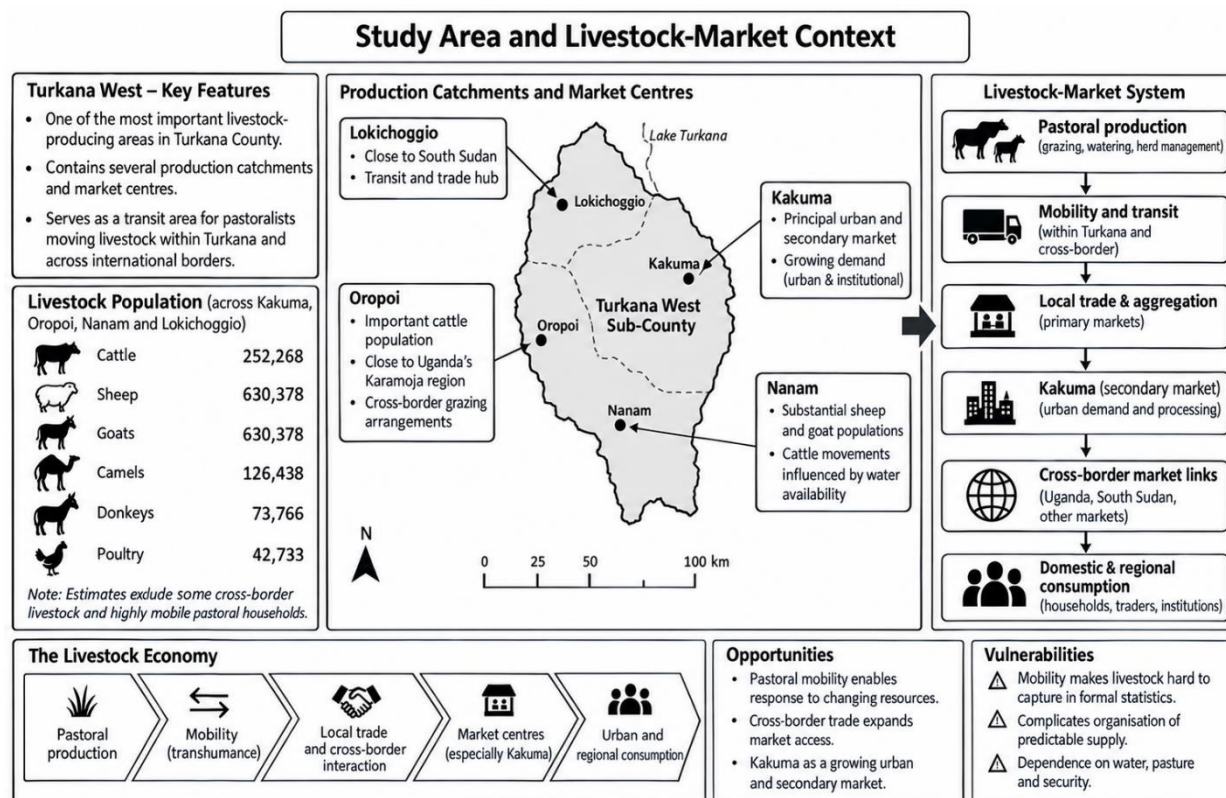


Figure 2: Study Area and Market context. Source: Researcher made.

Evolution of livestock markets in Turkana West

Historically, livestock trade in Turkana West relied heavily on traditional knowledge, social relationships, barter and cash transactions. Turkana traders, Somali traders and cross-border traders participated in cattle trade, particularly around livestock-producing areas and local trading hubs. Over time, government and development partners supported efforts to organise livestock marketing. A major development was the establishment of a livestock marketing facility in Kakuma in 1997 with support from the Arid Lands Resource Management Project. Exposure of Turkana traders to the Kenya Meat Commission in Nairobi further demonstrated the potential benefits of organised livestock marketing and linkages with terminal markets.

Subsequent interventions by development partners included improvements to the Kakuma market infrastructure, trader training, market linkages, revolving finance, veterinary support and business planning. The establishment and strengthening of livestock market facilities in Letea, Kalobeyei, Lopur, Lokangae and Lokichoggio also contributed to decentralising livestock marketing. These

interventions gradually contributed to the emergence of a market network linking production catchments with primary markets and the Kakuma secondary market.

Production catchments and market networks

The study identified a clear link between livestock production zones and primary markets. Producers and itinerant traders move livestock to nearby primary markets, where traders aggregate animals for sale to secondary traders or transport to the Kakuma secondary market. Strategically located near several production catchments, Kakuma serves as an important aggregation and distribution hub connecting primary markets with secondary and terminal markets. The market structure therefore follows a sequential flow from production catchments through primary markets and Kakuma to terminal markets and consumers. While direct producer-to-secondary-market transactions are possible, excessive bypassing of primary markets may weaken the role of local market actors and reduce the organisation and efficiency of the wider market network.

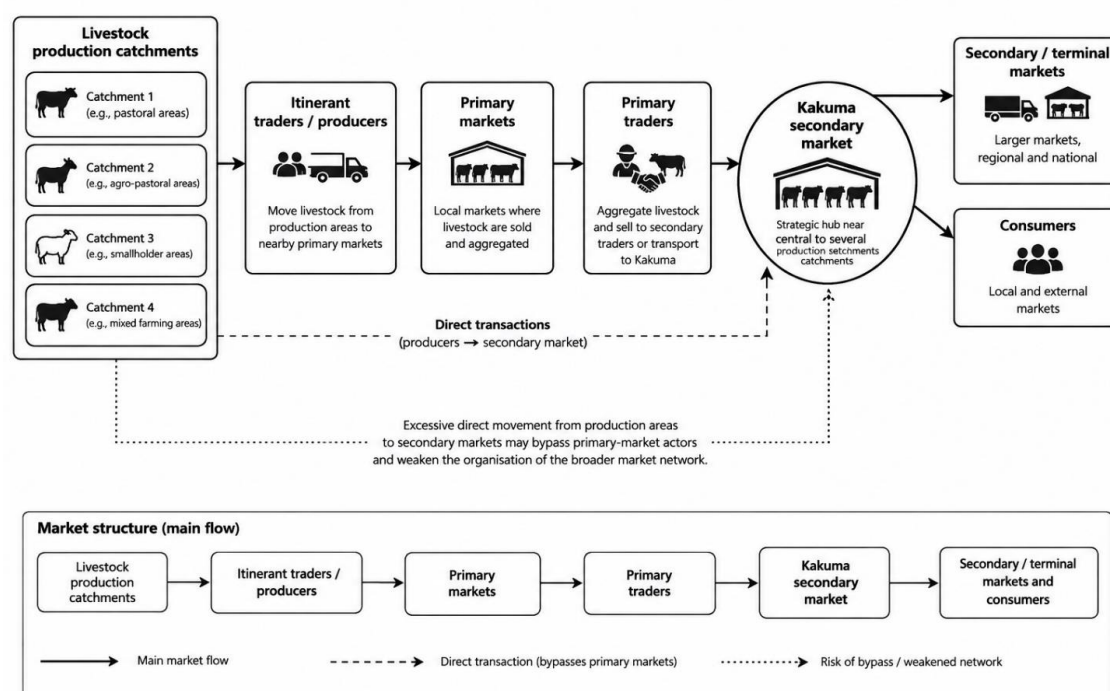


Figure 3: Production catchments and market networks. Source: Researcher made.

Refugee population and livestock-product consumption

The concentration of refugees in Kakuma and Kalobeyei has contributed to increased demand for livestock and livestock products. The relationship between refugee and host-community actors is particularly visible in the livestock trade. Host-community traders are strongly involved in the supply and sale of live animals, while refugees operate a substantial proportion of butcheries. In this arrangement, livestock supplied by host-community producers and traders becomes a source of meat for refugee and wider urban consumers.

The Kalobeyei market provides a similar example. The livestock marketing association includes host-community livestock traders and refugee butchers. Host-community traders sell live animals to refugees, who subsequently take them to slaughter facilities in Kakuma and Kalobeyei. This pattern demonstrates that refugee settlements can become integrated into local livestock markets not merely as recipients of humanitarian assistance but also as consumers, traders, butchers and entrepreneurs. The relationship creates opportunities for increased livestock offtake and consumption while providing income-generating opportunities to both refugee and host-community populations.

Performance of the Kakuma secondary market

Kakuma is the principal secondary livestock market in Turkana West and receives livestock from more than ten primary markets. The Kakuma Livestock Marketing Association provides an organisational structure for market participants and has approximately 250 lead-herder members, of whom about 24% are women. However, only about 70 members, or 28%, were reported to be actively engaged in regular trading and monthly share remittances. The market handles cattle, camels and small ruminants. Trading occurs daily, with substantial quantities of livestock remaining in stock. The data indicate a persistent gap between livestock supplied to the market and livestock actually purchased or slaughtered.

For shoats, the market receives approximately 300 animals per day, of which about 200 are existing stock and 100 are newly arriving animals. Average sales are approximately 70 animals per day. The resulting difference between supply and sales represents a substantial amount of livestock remaining unsold. Using the median price of approximately KES 5,750, the study estimates that a large proportion of traders' working capital remains inactive in the form of unsold stock.

The same pattern is observed for camels and cattle. Approximately 48 camels may be available in the market at a given time, while only around six are purchased for slaughter each day. For cattle, the market stocks approximately 80 animals compared with average purchases and slaughter of around eight animals per day. These figures suggest that the central challenge is not simply livestock availability. Rather, the market has difficulty converting available livestock into sales and cash flow.

Implications of unsold livestock

High levels of unsold livestock have important implications for traders and producers. First, traders' working capital becomes immobilised in livestock stock. Capital that could otherwise be used to purchase additional animals or support other businesses remains tied up in unsold animals. Second, prolonged holding of livestock can increase feeding, watering, health and transaction costs. Third, low offtake reduces the rate at which producers can convert livestock assets into cash. This may encourage producers to seek alternative buyers or bypass established market channels.

The fourth implication involves weak market offtake reduces the potential revenue available to market institutions and local authorities through market-related charges. The findings therefore point to a need to examine demand, pricing, consumer behaviour, trader coordination and external market linkages rather than treating increased livestock supply as sufficient to improve market performance.

Slaughtering and Livestock-Product Value Addition

Abattoir operations

An abattoir was constructed at the Kakuma livestock market through collaboration among development and government institutions and began operations in 2018. However, the facility has not fully realised the potential of livestock-product value addition. The main products currently utilised are red meat and offal. Several other potential product streams remain underdeveloped, including hides, skins, horns, hooves, bones, blood and dung.

The physical condition of the slaughter facility also presents constraints. The source identifies inadequate space, limited slaughter and flaying infrastructure, insufficient waste-management facilities, inadequate offal-handling surfaces, limited veterinary and isolation infrastructure, lack of electricity, insufficient hanging rails and hooks, inadequate water infrastructure and insufficient protective equipment. These constraints have implications for hygiene, occupational safety, meat quality and the potential for value addition.

Underutilisation of blood and other by-products

The loss of blood illustrates the scale of unrealised value. The study estimates daily losses of approximately 91 litres from shoats, 75 litres from cattle and 150 litres from camels. This amounts to more than 113,000 litres annually. Similarly, the market for hides and skins has declined substantially. Sheep and goat skins previously generated a trading margin, but falling demand resulted in major price reductions and, according to the source, current skins are often discarded. Cow and camel hides also previously generated income but no longer have an active market

in the area. Some hides are reportedly left to deteriorate in the market compound. These findings indicate that market resilience could be strengthened not only by increasing live-animal sales but also by developing enterprises around livestock by-products.

Kalobeyei Livestock Market

Kalobeyei presents a distinct livestock-market model because of the close interaction between refugee and host-community enterprises. The livestock marketing association includes approximately 60 host-community livestock traders and about 20 active butchers, most of whom are refugees. The market operates daily, but its institutional and physical infrastructure remains limited. The principal constraints identified by traders include the absence of a properly established livestock market yard and the lack of a basic slaughter slab. These limitations increase the cost of transporting animals to slaughter facilities in Kakuma and Kalobeyei.

The market nevertheless provides a basis for developing a more integrated host-community and refugee livestock economy. Host-community producers and traders can supply animals, while refugee entrepreneurs can participate in livestock trading, slaughtering, meat marketing and other livestock-product businesses. Such integration requires appropriate registration, market infrastructure, business organisation, public-health standards and access to relevant services.

Constraints to Livestock-Market Development

The study identified several interrelated constraints.

Table 1: Livestock-Market Development Constraints

Constraint Area	Types of Constraints
1. Production constraints	Livestock productivity is constrained by: • Recurrent drought and related climatic hazards • Inadequate livestock breeds • Weak breeding practices • Inadequate husbandry • Livestock diseases and pests • Inadequate access to production inputs • Water constraints • Insecurity and livestock losses These factors reduce the quantity and quality of animals entering markets.
2. Market constraints	Market-level constraints include: • Weak market organisation • Intense competition among traders • Inadequate market information • Weak coordination between market levels • Low trader participation in market organisations • Poor price discovery • Limited access to credit • Inadequate insurance

	• Weak formalisation of itinerant traders • Insufficient market infrastructure • Limited access to external offtake markets
3. Institutional and regulatory constraints	• Inadequate institutional support remains a constraint to livestock-market development. • Gaps in the legal and regulatory framework affected some aspects of the livestock subsector at the time of the source assessment. • Effective livestock-market development requires coordination among: ○ County government departments ○ National government institutions ○ Livestock marketing associations ○ Producer organisations ○ Livestock traders ○ Slaughter facilities ○ Development partners ○ Private-sector actors

Discussion

The evidence from Turkana West shows that livestock-market development depends not only on production but also on effective demand and the capacity to absorb and move livestock. Despite substantial livestock resources and established trading routes, animals remain unsold and traders' capital is tied up in stock. Market performance therefore depends on effective aggregation, financing, transport, processing and access to buyers with sufficient purchasing power.

Kakuma functions as an important secondary market, aggregating livestock from primary markets and connecting them to external and terminal markets. Weak offtake can create congestion across the system. Strengthening the market therefore requires better linkages among producers, traders, transporters, processors and external buyers, alongside infrastructure that responds to demonstrated commercial demand. The livestock economy extends beyond live-animal sales. Kakuma's large consumer base creates opportunities in butcheries, meat retailing, transport, feed and fodder, processing and other services. By-products such as hides and skins, bones, horns, hooves and dung also offer diversification opportunities where collection, processing and marketing systems are viable.

Previous interventions show that infrastructure, training, finance and veterinary services are important but insufficient on their own. Sustainable performance requires continuous coordination, commercially viable relationships and functioning transactions among market actors. Market development should therefore focus on strengthening the relationships, incentives and services that enable continuous trade rather than isolated interventions. Resilience requires stronger production-to-market linkages, market information, trader organisations, infrastructure and external-market connections. Reliable information on prices, demand, volumes, livestock quality, transport costs and payment arrangements can reduce uncertainty. Trader organisations can support buyer identification, collective negotiation, financial

linkages and technical services, while infrastructure investments should be backed by viable business models.

Greater attention is also needed to external and terminal markets where local demand cannot absorb available livestock. Predictable buyer relationships can improve offtake and reduce traders' working-capital risks. Itinerant traders should also be integrated into market coordination because they connect remote production areas with formal markets. Finally, market development must remain linked to livestock productivity through breed improvement, disease control, animal husbandry, rangeland management, water and appropriate inputs. Overall, livestock-market resilience in Turkana West requires a coordinated market-system approach that links production, markets, information, infrastructure, external buyers, services and by-product enterprises to generate continuous and profitable transactions, reduce unsold stock and expand sustainable commercial opportunities.

Conclusions

Livestock markets in Turkana West Sub-County have evolved from predominantly traditional trading arrangements into a network involving production catchments, itinerant traders, primary markets, secondary markets, slaughter facilities, retailers and external markets. Kakuma occupies a central position within this network, while the refugee population in Kakuma and Kalobeyi has expanded local demand and created new opportunities for livestock-product enterprises. The study demonstrates, however, that the existence of livestock supply and consumer demand does not automatically produce an efficient market. Substantial quantities of livestock remain unsold, traders' working capital is immobilised in stock, trader participation in market organisations is limited, slaughter infrastructure is inadequate and several livestock by-products are wasted.

The resilience of livestock markets in Turkana West therefore depends on improving the connections between production, aggregation, trade and consumption. Market development should focus on strengthening commercially

meaningful relationships among producers, traders, consumers, slaughter facilities, private businesses, market associations and external buyers. Particular attention should be given to improving market information, strengthening trader organisations, upgrading market and slaughter infrastructure, formalising and integrating itinerant traders, developing livestock by-product enterprises, improving livestock productivity and strengthening linkages with external markets.

The interaction between refugee and host-community enterprises provides an additional opportunity. Refugees are not only consumers but also participants in livestock-product businesses, while host-community producers and traders provide much of the livestock entering the market. Strengthening these complementary roles could contribute to more inclusive livestock-market development. Ultimately, sustainable livestock-market development in Turkana West requires a shift from viewing markets primarily as physical places where animals are exchanged towards understanding them as coordinated economic systems. Such systems must connect production, information, finance, infrastructure, trade, processing and consumption in ways that allow livestock assets to generate reliable economic value for producers, traders and other market participants.

Recommendations

Based on the findings, the following actions are proposed for livestock market development actors to undertake:

1. Map and regularly update livestock production catchments, market centres and trading routes, including relevant cross-border connections.
2. Strengthen the Kakuma secondary market as a coordinating market, particularly through stronger links with primary markets and external offtakers.
3. Undertake a detailed supply-and-demand assessment to determine why substantial quantities of livestock remain unsold despite apparent consumer demand.
4. Review livestock pricing and grading arrangements to improve price discovery and align livestock supply with consumer demand.
5. Increase active participation in livestock marketing associations by making membership commercially useful to traders and producers.
6. Improve market infrastructure, particularly slaughter, water, electricity, veterinary inspection, waste management and livestock holding facilities.
7. Develop viable markets for livestock by-products, beginning with a commercial assessment of hides, skins, blood, bones, horns, hooves and dung.
8. Strengthen refugee and host-community business linkages in livestock trading, butchery, poultry, feed supply and livestock-product marketing.
9. Improve access to finance and insurance appropriate to pastoral livestock businesses and the seasonal nature of livestock trade.
10. Strengthen livestock production and animal health services in production catchments to improve the quality and marketability of livestock.

11. Register and integrate itinerant traders into the formal livestock marketing system while recognising their role in connecting producers with primary markets.
12. Establish stronger market information systems covering prices, demand, livestock grades, volumes and external market opportunities.
13. Develop predictable external offtake arrangements with secondary and terminal markets so that local markets can respond to periods of high livestock supply.
14. Strengthen coordination among government, market associations, private businesses, development partners and community organisations to ensure that interventions address market-system constraints rather than isolated infrastructure or training needs.

Limitations and Areas for Further Research

Limitations

- The study is based primarily on qualitative interviews, participatory assessments, and market records.
- Some livestock population and market-performance figures are estimates and may not fully capture: Highly mobile pastoral households, and Cross-border livestock movements.
- The completeness and consistency of market records vary across locations, which may affect: The reliability of some estimates, and Comparability of findings across markets.

Areas for Further Research

- Establish longitudinal livestock-market datasets covering: Livestock arrivals, Sales and slaughter, Prices, Trader margins, Transaction costs, Consumer demand, and Cross-border livestock flows.
- Examine the economic contribution of refugee-owned livestock businesses.
- Investigate gender participation and roles in livestock markets.
- Assess the profitability of livestock by-product enterprises.
- Examine the relationship between market infrastructure and livestock offtake.
- Conduct a detailed economic analysis of the Kakuma livestock market to determine whether low offtake is primarily associated with: Pricing, Purchasing power, Consumer demand, Trader coordination, Transportation, Market information, and other market constraints.

Disclaimer

- The views stated in this article are those of the author and do not necessarily represent those of any of the entities mentioned.

Interest Conflicts

- The author declares no conflict of interest whatsoever in this publication.

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