



PRISE

Pathways to resilience
in semi-arid economies

Adaptation options in the beef value chain in Laikipia County, Kenya

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Introduction

- The economic contribution of the livestock sub-sector in Kenya is about 10% of the GDP.
- This is 30% of the agricultural GDP.
- It employs about 50% of the national agricultural workforce and about 90% of the ASAL workforce.
- About 95% of ASAL household income comes from this sub-sector.
- It also constitutes one of the five pillars identified by the highest level of Laikipia government for driving Laikipia's economic development forward.
- More than 80% of the beef consumed in Kenya is produced by pastoralists, either domestically or in neighbouring countries.

What we do

- This study assesses climate change impacts and adaptation options in the semi arid economy of Laikipia.
- Explores the economic opportunities for private sector to invest in climate change adaptation to enhance the resilience of Laikipia's livestock value chain.
- Identifies adaptation options for Laikipia (North) through upgrading the beef value chain (i.e. vertical transformation) and diversification into tourism (i.e. horizontal transformation).
- To do so, this research uses an innovative approach to value chain analysis – The three step Value Chain Analysis for Resilience in Drylands (VC-ARID).

VC-ARID: Three-step approach

Step 1: Map the value chain

Step 2: Assess climate risks

Step 3: Identify options for adaptation and private sector investment



KENYA NORTHERN RANGELANDS BEEF VALUE CHAIN

INPUTS

PRODUCTION

LOCAL TRADING

LOCAL PROCESSING

DOMESTIC MARKET



WATER



PASTURE



FEED



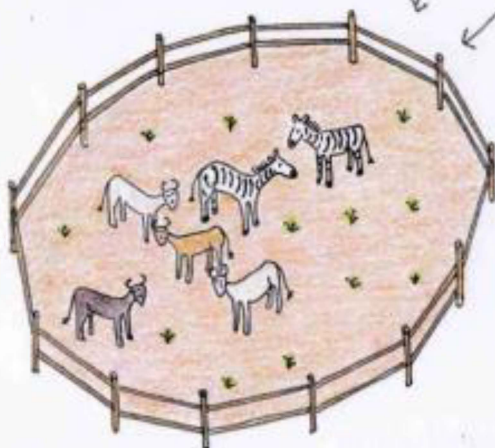
VETERINARY SERVICE



PASTORALISM



FATTENERS



PRIVATE RANCHING

LIVESTOCK TRADERS AND TRANSPORTERS



BY TRUCK ...

... AND BY FOOT

SLAUGHTER HOUSE



WHOLESALE MEAT MARKET



BUTCHERS



SUPERMARKETS



HIGH CLASS BUTCHERS



INSTITUTIONS



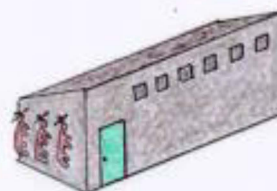
HOTELS



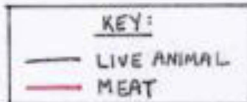
MEAT TRADERS



BROKER (MIDDLEMAN)



ABATTOIR AND PROCESSING



© FIONA BRADSHAW

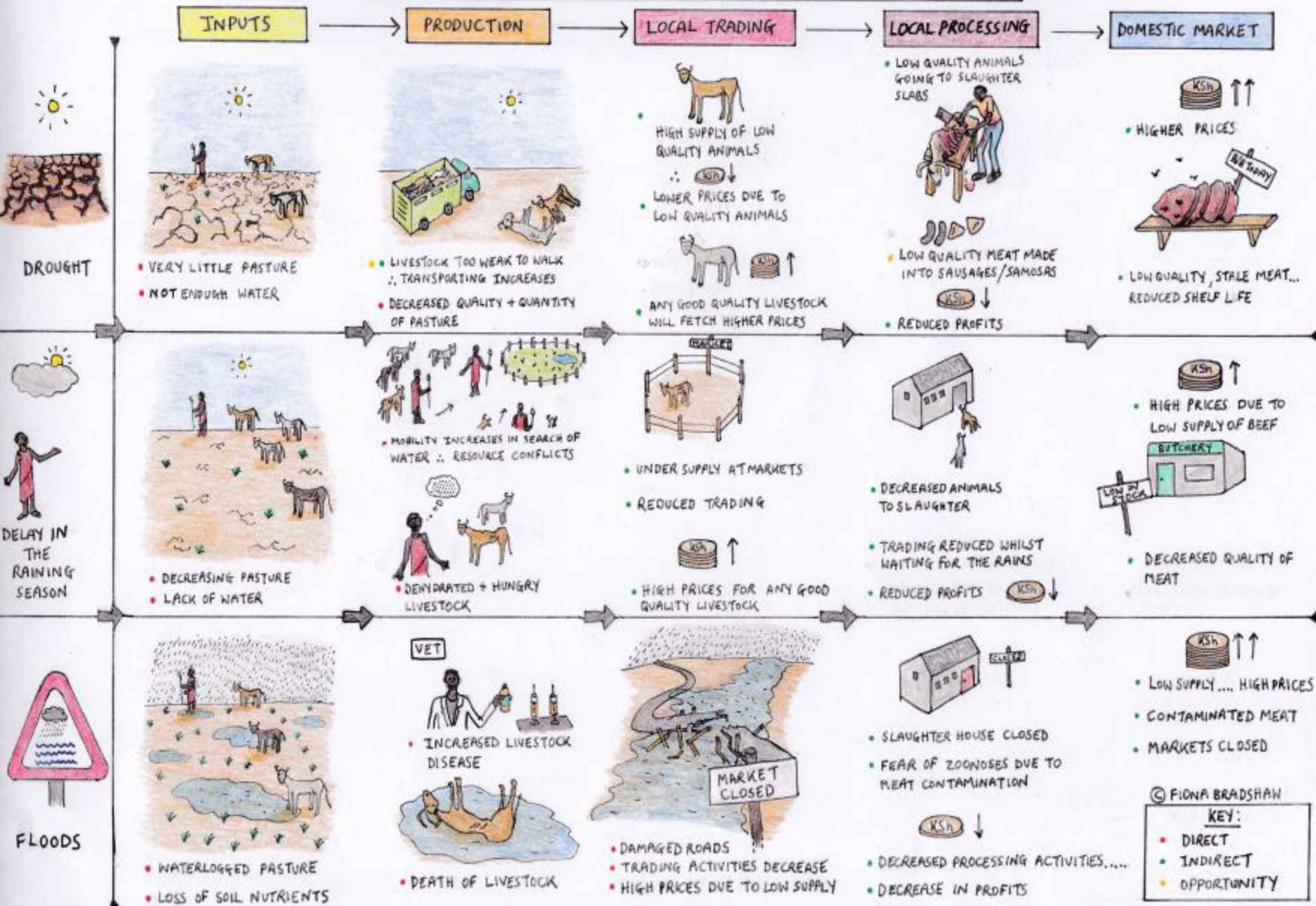
Key research findings: Step 1

1. In Laikipia North there are two parallel chains in operation:
 - one is more formal and incorporates fattening livestock on privately owned ranches.
 - The other is more informal and involves more traditional extensive pastoralism.
2. Local livestock markets are dominated by brokers:
 - Under approximate the weight of animals and set low prices that are unfair to producers.
3. Wildlife conservancies benefits:
 - dry season grazing, employment and school fees bursaries from tourism income.
4. All pastoralists in Laikipia North have lost livestock due to severe droughts that have become increasingly frequent.

Key research findings: Step 2

1. Producers have perceived changes in climate (temperature and rainfall patterns) and the frequency and severity of extreme events (drought) over the past 15 years. Drought was the most important climate risk identified in Laikipia North.
2. Increased mobility (frequency and distance), fodder storage / production, water management and herd management (including banking livestock assets) were reported by herders as strategies to adapt to these changes.
3. The first and most sustainable option is increased mobility. Fodder storage / production is a clear substitute where mobility is limited. Good water management is critical for both of these strategies.
4. From the empirical result, increase in the number of dry spells and drought, access to early warning information, access to private ranch grazing, main market distance from homestead, access to credit and highest level of education in the household are the key determinants of the choices of adaptation strategies to cope with climate change.

KENYA NORTHERN RANGELANDS CLIMATIC RISKS ON BEEF VALUE CHAIN



Key research findings: Step 2

Stakeholders such as butchers, meat suppliers and livestock traders, reported the following individual responses to climate change:

- ✓ holistic management of pastures;
- ✓ environmental conservation;
- ✓ public awareness campaigns on climate change;
- ✓ strong early warning systems;
- ✓ reduced herd size;
- ✓ livelihood diversification;
- ✓ stocking adaptable breeds; and
- ✓ commercializing pastoralism through feedlot fattening.

Key research findings: Step 2

Actors interviewed along the beef value chain were of the opinion that their businesses would grow if the following opportunities are enhanced:

- Investment in processing e.g. processing plant in Laikipia County. modernization of slaughter house (i.e. cooling system, proper drainage system, environmental management), feedlot availability at slaughter.
- Improved market access.



Adaptation options: Step 3

1. Investment in marketing infrastructure such as weighing machines, together with investment in climate-proof infrastructure such as water retention structures like dams and gravelled roads by county governments.
2. Investments improving the quality of beef along the value chain: including fattening at producer level; improved marketing at processor level (e.g. labelling); research and development of alternative feed sources and breeds.
3. Diversification of pastoralist livelihoods through tourism, as a sector that complements and support the livestock sector.



Adaptation options: Step 3

4. Holistic planning of pasture management in the group ranches and private ranches to support production.
5. NDMA to explore effective methods of delivering climate risk information in good time e.g. establish a pastoral focused early warning information system with sophisticated methods of delivery system within the group ranches.
6. The county government to raise awareness through campaigns, especially on the potential climate change adaptation measures and opportunities for investment.



Can feedlot programs be sustainable?

Case study: Nanyuki Ranching feedlot program in Laikipia County

- Breeding Borana and Semental breeds for fattening.
- Feed costs is Ksh 34 per Kg. Therefore if they buy an animal for fattening at 200kg (takes 6kg of feeds daily) it will need feeds worth $6 \times 34 = \text{Ksh}204$ per day.
- If this animal gains 1kg per day then they need to sell the animal at a cost of more than Kshs 204 (USD 2.04) per kg live weight to break even.
- If the farm bought this animal from pastoralist at Kshs 25,000 (USD 250) then after 90 days of fattening they need to sell it at $(204 \times 90 + 25000 = 18360 + 25000 = 43360)$.
- Assuming the animal has gained 90kg within the fattening period then the only way the farm can make a margin of 20% is if they sell the animal at Kshs 52200 (USD 522) which translate to ksh180 (USD 1.8) per kg live weight.
- Therefore the current market rate of Kshs 150 (USD 1.5) per kg of live weight cannot make business sense for private investor to venture into feedlot entrepreneurship.





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