



MAKING MARKETS WORK

The role of livestock markets in building the resilience of pastoralists against drought in Marsabit, Kenya



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Food for the Hungry – Kenya, and Tearfund (2019)

A summary paper of a research report exploring the role of functioning livestock markets in building pastoralists' resilience in Marsabit County, which was submitted to Food for the Hungry – Kenya, and Tearfund by Dr Patrick Irungu from the University of Nairobi. The main report is available on request via fhkenya@fh.org.

Authors: Dr Patrick Irungu (University of Nairobi), Julia Kendal (Tearfund) and Jackson Wachira (Food for the Hungry – Kenya)

Acknowledgements

We are very thankful to those who have provided input: Alex Mwaura, Jeffrey Arensen, Samson Mungai (Food for the Hungry – Kenya); Sini Maria Heikkila, Gladys Wathanga, Jennipher Sakala, Paul Cook, Sarah Greenwood, Sarah Baldwin, Bertha Chunda, Chris McDonald and Madleina Daenhardt (Tearfund).

Copy-editor: Sarah La Trobe

Cover photo: Tanya Martineau/Food for the Hungry

Design: Wingfinger

Food for the Hungry – Kenya (FH Kenya) is a relief and development organisation whose goal is to end severe poverty among the most vulnerable communities in Kenya. We achieve this by connecting marginal communities and regions with opportunity, and strengthening the resilience of the most vulnerable.

Tearfund is a Christian relief and development agency working with partners and local churches to bring whole-life transformation to the poorest communities.

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Published by Tearfund, 100 Church Road, Teddington, TW11 8QE, United Kingdom

learn.tearfund.org

+44 (0) 20 3906 3906

publications@tearfund.org

facebook.com/tearfundlearn

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CONTENTS

EXECUTIVE SUMMARY	2
1 INTRODUCTION	5
2 RESEARCH METHODOLOGY	6
3 KEY FINDINGS	8
3.1 Respondents' socio-economic characteristics	8
3.2 Drought hazard	9
3.3 Drought coping strategies.....	10
3.4 Pastoralists' market utilisation during drought.....	10
3.5 Role of livestock markets on pastoralists' drought vulnerability and reduction	13
4 RECOMMENDATIONS	15
BIBLIOGRAPHY	17

ACRONYMS AND ABBREVIATIONS

ASALs	Arid and semi-arid lands
CGM	County Government of Marsabit
FH	Food for the Hungry
IPCC	Intergovernmental Panel on Climate Change
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics
NDMA	National Drought Management Authority
PCA	Principal Components Analysis
TLU	Tropical Livestock Unit
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Pastoralist communities in Kenya live in some of the harshest environments. Over the years their livelihoods have been seriously hit by recurring droughts, and such climate-related shocks are becoming more severe and more frequent.¹ In Marsabit County, drought is a perennial problem with a one- to three-year frequency. Drought periodically decimates the county's livestock holding, which is the backbone to its economy and the main livelihood source for the pastoral communities who make up about 88 per cent of the population. The 2016/2017 prolonged drought alone wiped out about 60 per cent of the county's livestock population.² These periodic droughts have contributed to chronic food insecurity, widespread malnutrition and endemic poverty in the county.

In an effort to reverse the dire situation, both state and non-state actors continue to implement livestock market system based interventions and investments aimed at building pastoralists' resilience against droughts and other hazards. Such recent investments in Marsabit County include on-going construction of a state-of-the-art abattoir in Segel, Marsabit; the Isiolo-Moyale highway that links Kenya and Ethiopia; continuous market utilisation promotion activities; and the construction of modern livestock market infrastructure in various locations such as Merille, Moyale, Turbi, Folore and other parts of the county.

'Sellers bring animals from the bush from far distances to sell to get money to buy food, which is also sold here. Many women are engaging in livestock trade through simple loaning arrangements. However, drought keeps affecting us and the market.'

Margaret Sapwano, trader

Improving access to markets has the potential to increase pastoralists' household incomes through livestock trade. Our research sought to measure the extent of resilience amongst pastoralists in Marsabit, and determine the role livestock market systems³ do – and could – play in improving pastoralists' resilience. This was done through:

- interviews with 388 pastoralists⁴ and 18 market operators;
- 12 focus group discussions with youths, men and women;
- ten key informant interviews with state and non-state personnel involved in drought interventions and livestock market development in the county;
- use of secondary data and modelling to assess the role of livestock markets in building resilience among pastoralists in Marsabit County.

The lives of pastoralists in Marsabit County were found to be precarious and exposed to multiple hazards; their livelihoods were severely disrupted by the 2016/2017 drought. To survive such conditions, households need to be both resilient (able to cope with and recover from shocks and stresses)⁵ and non-vulnerable (not susceptible to harm from such shocks).⁶ From our findings, not one out of 193 households was simultaneously resilient and non-vulnerable. Only two per cent of households were both moderately resilient and non-vulnerable. Of the moderately resilient households, 64 per cent were still in the precarious 'very vulnerable' category. A quarter of non-vulnerable households were not resilient to drought.

1 Ministry of Agriculture, Livestock and Fisheries (2017) see the 2021–2065 projection scenarios on page 13

2 Ibid.

3 Irwin and Campbell (2015, p 3) define 'market systems' as all 'firms' in interrelated value chains – input providers, producers, traders, processors, wholesalers and retailers; the supporting services (eg finance, transport, information services) for those actors; and the formal and informal enabling environment in which they operate.

4 Distributed as Saku (89), North Horr (121), Laisamis (90) and Moyale (88) sub-counties in December 2018

5 Irwin and Campbell (2015, p 3) quote USAID, which defines 'resilience' as '[the] ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth'.

6 Adger (2006, quoted in Béné et al. (2012, p 268)) defines 'vulnerability' as 'the state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt'.



📷 Women are a major market player in Merille market, which provides a livelihood source for many families. However frequent droughts often disrupt business. Photo: FH Kenya

Early warning information could play a key role in preparing for such shocks. However, only 17 per cent of 388 households received early warning information during the 2016/2017 drought; of these, only 4.1 per cent were able to act to prepare for the drought. Early warning mechanisms need to be improved, along with more effective early action.

Our model showed that household income was positively correlated with resilience to the effects of drought, including food insecurity. Markets and market systems can therefore play a significant role in assisting pastoralists during drought. However, the research found that currently markets offer limited survival options for pastoralists in the county to cope with repeated shocks. From this study, we offer six key reasons why pastoralists in Marsabit County are currently failing to benefit from livestock markets:

1. Low market use by pastoralists largely due to cultural barriers to livestock commercialisation.
2. Low market access due to long distances; especially for women, people living with disabilities and elderly traders.
3. Market closures due to frequent external shocks, such as drought, inter-ethnic clashes and disease outbreaks.
4. The absolute lack of market infrastructure in some areas and lack of synchronised weekly market days.
5. Pastoralists' preference for informal markets for reasons of proximity, security and tax avoidance.
6. Lack of organised community-based livestock marketing groups to enhance pastoralists' bargaining power.

Pastoralists are often marginalised and sidelined in policy processes and interventions. And yet there is an urgent need for wider humanitarian and development support to enhance their resilience against drought and reduce the high and rising poverty levels. Pastoralists themselves in Marsabit County employed different strategies to cope with drought. Some strategies highlight the level of household desperation in the face of drought: eating fewer meals daily, switching from protein to starches, migration in search of employment, and marrying off young daughters. Other strategies, like withdrawing children from school, seriously undermine long-term household well-being and progress, and might actually increase household vulnerability to drought and food insecurity. Coping strategies such as charcoal burning and cutting down trees to sell compromise long-term environmental health, leading to more drought vulnerability in the future. Livestock markets and market systems could provide alternatives to such coping mechanisms, if they can be better designed to include and benefit pastoral households.

Recommendations

The following recommendations for national and county governments, donors, and humanitarian and development partners should be implemented in close collaboration with pastoralists themselves, in particular women, people with disabilities, youth and marginalised groups.

In the short term

- **Reduce the vulnerability of pastoralists to recurrent droughts.**
 - Provide actionable drought/hazard early warning information.
 - Provide food, water and fodder for livestock when drought strikes.
- **Strengthen the role of markets in building drought resilience and supporting pastoralists' engagement.**
 - Develop restocking programmes to help pastoralists recover sufficiently and have large enough herds to sell via markets.
 - Encourage pastoralists to participate in commercialised livestock production once they have built their herds, for example by helping them to form livestock marketing groups and training them in business skills.
 - Introduce a synchronised market day programme so that each day of the week is a market day.
 - Provide security to guarantee the safety of pastoralists and market actors coming from inside and outside the county.

In the medium term

- **Develop a programme of water harvesting and range rehabilitation** to mitigate diminishing land and water resources.
- **Provide technologies to harvest and store water** during the rains for irrigation and fodder production during the dry season.
- **Equip pastoralists with range rehabilitation skills** such as range reseeding and soil conservation.

In the long term

- **Invest in education, schoolchildren feeding programmes and raising awareness of the benefits of education;** formal education is critical in building drought resilience and reducing vulnerability.
- **Support existing youth empowerment programmes** to improve household resilience.
- **Support pastoralists to add value to their livestock products,** eg through additional income from milk, meat and hides value chains.
- **Develop stronger coordination between county government, humanitarian and development actors** to enable livestock market systems to work for pastoralists.

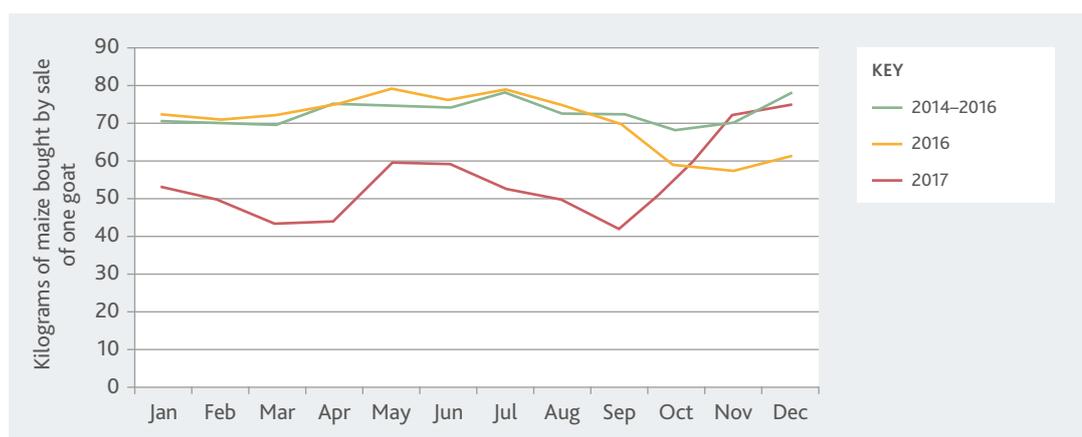
1 INTRODUCTION

Drought is a common phenomenon in Kenya's arid and semi-arid lands (ASALs), as is the case in the rest of the Horn of Africa. Drought cycles in Kenya have shortened from 20 years apart between 1964 and 1984 to roughly annually.⁷ The 2016/17 drought was one of the most severe in recent history.

Marsabit County is one of Kenya's 23 ASAL counties where 88 per cent of the population keep a variety of livestock species in a traditional nomadic/transhumance production system. The county suffers from periodic droughts and floods (when the rain eventually comes), which entrench poverty and food insecurity. These droughts and floods do not only decimate livestock assets but are often accompanied by outbreaks of crop pests and livestock diseases. These hazards erode pastoralists' resilience and deepen poverty. In 2015/16, 63.7 per cent of Marsabit's population lived below the poverty line of 1 USD per day – almost double the national average of 36.1 per cent.⁸ Child malnutrition is also perennially high especially in the North Horr and Laisamis sub-counties.

During 2016 and 2017, Marsabit County received less than a tenth of the rainfall needed for adequate plant growth.⁹ This had a significant impact on food security in the county, reflected in the low goat:maize price ratios between 2016 and 2017.

Figure 1 Trends of goat:maize terms of trade in Marsabit County (2014–2017)



Source: Data from NDMA monthly reports (2016–2017)

This study evaluated the role that livestock markets and market systems currently play in resilience building among pastoralists in Marsabit County. The specific objectives for the research were:

- Assess the effect of recent droughts on pastoralists' assets in Marsabit County.
- Document pastoralists' drought coping strategies in Marsabit County.
- Assess the role of livestock markets and market systems on pastoralist household drought resilience building and drought vulnerability reduction in Marsabit County.
- Provide the evidence base for policy and programme development to reduce pastoralists' vulnerability to drought and food insecurity.

7 Esipisu (25 March 2019) www.nation.co.ke/oped/opinion/Cereals-are-no--food--for-starving-Turkana/440808-5041616-10dy0ly/index.html

8 Kenya Integrated Household Budget Survey (KIHBS) www.knbs.or.ke/download/basic-report-well-kenya-based-201516-kenya-integrated-household-budget-survey-kihbs/

9 According to the National Drought Management Authority, Marsabit received 52.5mm and 23.8mm in 2016 and 2017 respectively; 650mm is needed for adequate plant growth.

2 RESEARCH METHODOLOGY

This study defines resilience as 'the capacity over time of a person, household or other aggregate unit to avoid poverty in the face of various stressors and in the wake of myriad shocks. If and only if that capacity is and remains high over time, then the unit is resilient.'¹⁰

This recognises that shocks and stressors undermine the capacities and capabilities of individuals, households or communities to dominate their circumstances – instead of being dominated by them.¹¹ The outworking of those capabilities depends upon 'entitlement': 'the set of alternative commodity bundles that a person can command in a society using the totality of rights and opportunities that he or she faces.'¹² Therefore, the individual's ability to recover from a stress or shock – ie be resilient – is enabled or inhibited by the nature of 'entitlements' available to them.

With regard to social and market systems, three resilience capacities are defined as:

1. **Absorptive capacity:** the ability to mitigate or resist the impact of shocks and maintain stability without negative impact on the basic needs of the household or the function of the market system. Absorptive capacity requires effective coping strategies.
2. **Adaptive capacity:** the ability of households or the market system to learn and adjust to shocks and stresses through incremental changes, to maintain flexibility, and to take advantage of new opportunities that arise from change.
3. **Transformative capacity:** the ability to fundamentally change the structure of the system when the previous system is no longer sustainable as a result of severe shocks.

Responses to initial disruptions of the system by sudden shocks are aimed to strengthen the absorptive capacity of the system, and therefore stabilise it. As the absorptive capacity strengthens in the medium term, the system learns and adjusts to shocks and stresses through incremental changes, thereby improving its adaptive capacity. In the long term the system transforms, ie it changes fundamentally and becomes persistent in a new stable state when ecological, economic or social structures make the previous system untenable.

We used the above 'resilience capacities' framework to measure resilience. 'Resilience costs' are costs (not just financial, but also social, psychological and ecological) that a household (or a community or ecosystem) has to 'pay' to pass through a particular shock.¹³ There are three categories of costs:

1. **Anticipation costs:** investments made to prepare for an adverse event (shock or stress).
2. **Impact costs:** costs of destruction following the impact of the shock.
3. **Recovery costs:** including costs of replacing what has been destroyed, the various costs associated with adaptation or transformation, and the cash/food/assets transfers that are implemented through post-impact emergency/assistance interventions.

Therefore:

$$\text{Resilience costs} = \text{Anticipation costs} + \text{Impact costs} + \text{Recovery costs}$$

It has been argued that a household, community or ecosystem with lower resilience costs is expected to be more resilient to a given shock, holding other factors constant.¹⁴ However, in view of the fragility of the social, political, economic and environmental conditions in Marsabit County, we interpreted higher 'resilience costs' as representing higher household resilience. This is because a household that spent more to prepare, cope or

10 Barrett and Constan (2014, p 14626)

11 Max and Engels (1846) quoted in Sen (1983, p 754)

12 Sen (1983, p 754)

13 Béné (2013, p 11)

14 Béné (2013)

recover from the 2016/2017 drought must either have had the wherewithal to do so or the capabilities that enabled it to access social transfers from both state and non-state actors relative to one that spent either less or nothing.

We collected data for the various components of 'resilience costs' using a semi-structured questionnaire. To assess the determinants of household resilience to drought we modelled a simultaneous two-way relationship between resilience and household vulnerability,¹⁵ ie that resilience is a function of vulnerability while vulnerability also is a function of resilience. We used the index-based method to measure vulnerability. The vulnerability index of the i th household was expressed as:¹⁶

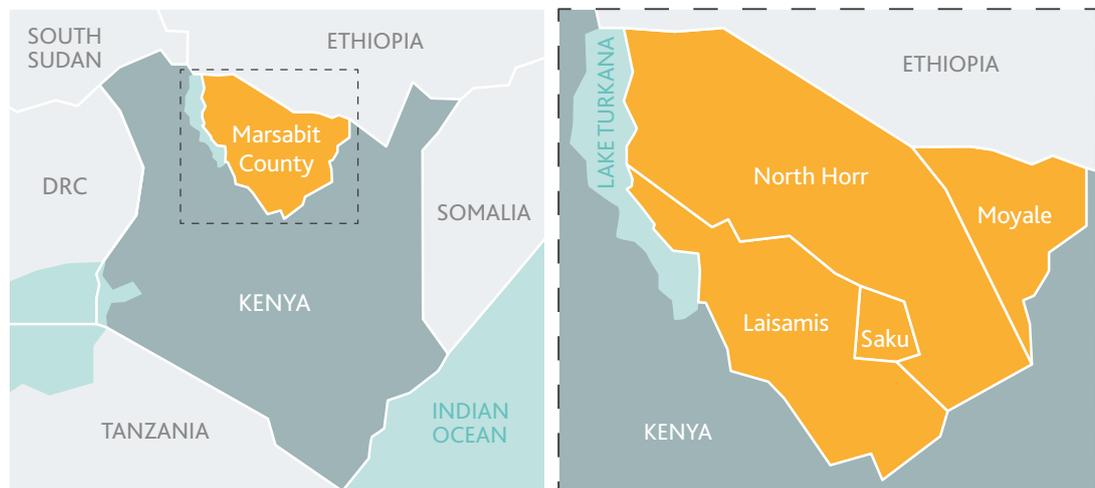
$$Vindex_i = AC_i - (S_i + E_i)$$

Where $Vindex_i$ is the vulnerability index of the i th household, AC_i is the adaptive capacity of the i th household, S_i is the i th household's sensitivity to risk, and E_i is the i th household's exposure to risk. $Vindex_i$ was calculated from the indicators of each the three components of vulnerability: adaptive capacity; sensitivity; and exposure; within the social, economic and biophysical dimensions. Principal Components Analysis (PCA) was used to generate factor score coefficients for use in the computation of $Vindex_i$.

The household's decision to participate in markets was used as a proxy for the effect of livestock markets and market systems on pastoralists' drought vulnerability and resilience. A simultaneous equation system was used to capture the joint dependency between resilience and vulnerability.

The study was undertaken in four market catchment areas in Marsabit County: Saku, North Horr, Laisamis and Moyale sub-counties. A total of 388 households were surveyed using a semi-structured questionnaire distributed as follows: North Horr (121), Laisamis (90), Saku (89), and Moyale (88). In addition, 12 focus group discussions and ten key informant interviews were undertaken as well as three case studies of stories of change, and direct field observation. A thorough desk review of literature on livestock market and marketing systems in Marsabit County provided additional information that aided the interpretation of the results.

Figure 2 Position of Marsabit County and the four market catchment areas



15 Adger (2006, quoted in Béné et al., 2012, p 268) defines vulnerability as 'the state of susceptibility to harm from exposure to stresses associated with environmental and social change and from the absence of capacity to adapt'

16 IPCC (2012, p 92)

3 KEY FINDINGS

3.1 Respondents' socio-economic characteristics

The majority of the interviewees were male (62.6 per cent). Most of them were young and monogamous with an average age of 48.9 years. In addition, the majority (84.3 per cent) of the heads of household had low formal education; only 15.7 per cent of the respondents had been through basic primary school education. The number of respondents living with disability was 3.7 per cent. The average family size of six persons was larger than the national average of 4.8.

The main livelihood source for the majority (78.3 per cent) of respondents was livestock keeping. This was followed by wage/salaried labour and business or trading at 10.7 per cent. A minority (six per cent) practised crop farming; it is the sale of livestock and livestock products that accounts for the largest proportion (48.9 per cent) of household income. Households in Saku Sub-County had the highest average annual household income, followed by Moyale and North Horr in that order. Laisamis Sub-County had the least annual income. Of the 312 households with valid data, 85 per cent (264 households) lived below the poverty line of 1.9 USD per day. North Horr Sub-County had the highest number (89 households), followed by Moyale (66) and Laisamis (62). Saku had the lowest number (47).



☐ A woman fetches water from a well using jerry cans and donkeys near the town of Dukana in Marsabit, northern Kenya. During times of drought, women often walk an entire day to fetch water for the family, using donkeys to carry the jerry cans over vast distances. In 2017, a crippling drought hit much of northern Kenya, including Marsabit County. Livestock mortality due to starvation and disease has been high, and malnutrition widespread among children and pregnant women. Tearfund and Food for the Hungry have been conducting a mobile health and nutrition program, as well as emergency water trucking to meet these needs in Marsabit, northern Kenya. Photo: Will Swanson/Tearfund

Households in Saku, North Horr, Laisamis and Moyale sub-counties kept an average of 3.8, 4.4, 4.1 and 4.3 Tropical Livestock Units (TLUs)¹⁷ respectively. However, only an average of 3.1, 3.6, 3.4 and 3.9 TLUs were owned by each household in the corresponding sub-counties, indicating a thriving livestock-sharing practice in the county. This traditional practice enables pastoralists to reduce the risk of livestock loss to either drought or disease and has important implications for pastoral household resilience. The average amount of TLUs per capita were 2.4, 3.4, 3.2 and 1.9 for Saku, North Horr, Laisamis and Moyale sub-counties respectively, all of which fall below the minimum 4.5 required to provide adequate nutrition to an individual subsisting on pastoral herds in arid lands of Kenya.¹⁸

3.2 Drought hazard

Drought, and the accompanying low food availability and high food prices, was the leading hazard experienced by the respondents during the year preceding the survey. As shown in the table below, prolonged drought resulted in huge livestock loss with each household losing between 58 and 123 animals. The Ministry of Agriculture approximates this as 60 per cent of the county's livestock holding.

Figure 3 Average number of livestock deaths per reporting household due to 2016/2017 drought in Marsabit County

Type of livestock	Saku	North Horr	Laisamis	Moyale
Mature bulls	4.3	1.3	8.8	3
Young bulls	3.4	6.5	13	3.1
Dry cows	2.9	3	5.3	2.4
Lactating cows	4	4.8	4.1	5.7
In-calf cows	2	2	4	7.7
Heifers	2	5.5	3	4.3
Weaner females	1	3	-	4
Weaner males	2	-	-	4.7
Calves	5.7	2	2.3	6.9
Sheep	9.8	22.2	15.4	5
Goats	19.1	53.8	16.1	8.5
Camels	2	3.7	3.4	2
Donkeys	9	3.2	1.4	1
Total number of livestock lost	67.2	122.7	76.8	58.3

17 1 TLU is approximately 250 kgs of live-weight of livestock. 1 cow= 0.7 TLU; 1 bull=1TLU; 1 sheep=0.2 TLU; 1 goat=0.2 TLU; 1 donkey=0.8 TLU; 1 camel=1.25 TLU (Njuki et al., 2011)

18 Fratkin and Roth (1990, p 393)

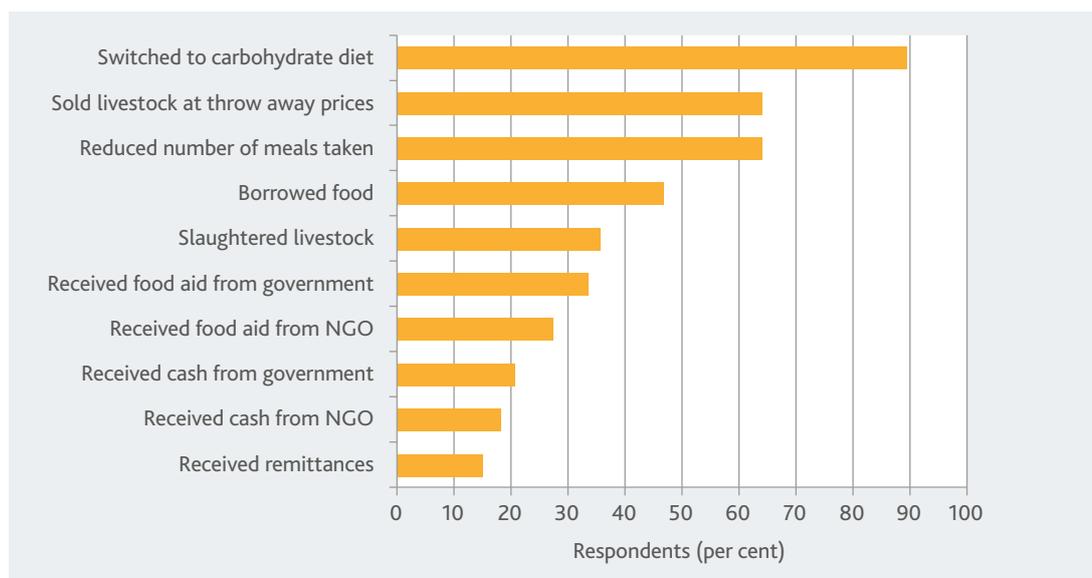
The drought was followed by livestock diseases such as pneumonia, Rift Valley fever (RVF), foot and mouth disease (FMD) and diarrhoea. Violent inter-communal conflicts were also reported in Saku, Moyale and North Horr sub-counties.

Only 17 per cent of the 388 households received early warning information about the various hazards before they occurred. Even then, only four of the 17 households that received early warning information used the information to prepare for the 2016/2017 drought. This could be due to lack of suitable alternative options to engage in or simply the fact that the early warning information was not sufficiently actionable to warrant a response.

3.3 Drought coping strategies

The pastoralists used a variety of strategies to cope with the 2016/2017 drought. These strategies included withdrawal of children from school, reduction of number of meals eaten daily, migration to other areas, seeking social transfers from state and non-state actors, charcoal burning and cutting down trees to sell, stressed sale of livestock at 'throw away' prices, and marrying off young daughters. About six percent of the 388 households dropped off completely from pastoralism. The top ten coping strategies adopted by pastoralists are shown in Figure 4.

Figure 4 Top ten strategies adopted by pastoralists in Marsabit County



In order to recover from the 2016/2017 drought, 44.3 per cent of the households received food and cash transfers from state and non-state actors. Most of the food and cash aid was supplied by the government, compared to non-governmental organisations and religious organisations. Individual households also engaged in various income-generating activities to recover from the 2016/2017 drought, including opening a business, charcoal burning, and cutting trees to sell as firewood.

3.4 Pastoralists' market utilisation during drought

3.4.1 Livestock sales

Significantly more small ruminants (sheep and goats) than large animals were sold during the 2009–2011 and 2016/2017 droughts in the four sub-counties, indicating the critical role small ruminants play in building the

liquidity of pastoralists but also their susceptibility to impacts of drought. Calves and female weaners were seldom sold, potentially being kept to serve as replacement animals after the drought.

The 2016/17 drought had a severe impact on livestock prices, with the average prices of cattle, sheep and goats decreasing by 25.3, 13.7 per cent and 12.1 per cent respectively between 2016 and 2017.¹⁹ This finding is supported by the trend in livestock prices shown in Figure 5, where the average prices were lower in 2017 than in 2016 except from October 2017.

Figure 5 Trend of market prices for an average-sized cow, sheep and goat in Marsabit County during the 2016/2017 drought



Source: Data from NDMA reports (2016/2017)

3.4.2 Market utilisation during the 2016/2017 drought

The respondents utilised the main markets closest to their locality. In both Saku and North Horr sub-counties, Jirime market was most utilised while residents of Laisamis and Moyale mostly used Merille and Moyale markets respectively. The bush market (*fora*) was relied on by those in North Horr Sub-County. Explaining

19 Secondary data from the National Drought Management Authority (NDMA)

the market-seeking behaviour of pastoralists in northern Kenya and southern Ethiopia, some researchers²⁰ have observed that pastoralists often seek to sell their animals in larger market centres, however far away, so they can use the opportunity to purchase food and other necessities not readily available at smaller market centres. This observation was somewhat corroborated in this study, as it was noted that most respondents utilised larger markets, underlining the importance and need for strengthening the main markets in each of the sub-counties.

The main livestock marketing strategy used by pastoral households during the 2016/2017 drought was accepting lower livestock market prices (accounting for 23.1 per cent of all responses). There are several possible reasons why pastoralists accept a lower price for their livestock during drought:²¹

- During drought, pastoral livestock lose body condition and therefore fetch low prices.
- There is increased livestock supply as each household sells of its livestock to purchase food, due to depressed milk production as a result of drought.
- During drought, the terms of trade between animal and food prices are skewed against the pastoralist. High food prices at the time when animals have lost body condition necessitates the pastoralist to sell his/her animals as quickly as possible.

3.4.3 Restocking after drought

Only 8.5 per cent of households bought livestock immediately after the 2016/2017 drought as a route to recovery. Of those that did, sheep and goats were favoured over other species, probably due to their fast reproduction rate and the fact that they can be readily sold. Large ruminants such as cattle and camels have longer gestation periods and cannot be sold as easily as small ruminants. These findings correspond with those of previous studies; for example, one which observed that 'immediately after a drought when herds are recovering, [pastoralist] households often acquire goats which reproduce faster than other species, and then later sell them to purchase cattle'.²²

Some households (6.7 per cent) received livestock transfers from friends and relatives, with a notably high proportion (34 out of 38 responses) for respondents in North Horr Sub-County, indicating a higher level of social capital compared to the other sub-counties. Calves and sheep were the animals most frequently given out, accounting for 42.1 per cent and 39.5 per cent respectively of the total responses recorded during the survey.

3.4.4 Other recovery initiatives

A number of households – 18.6 per cent – did engage in drought recovery activities immediately after the 2016/2017 drought. The three most frequently reported drought recovery activities were: opening a business (which accounted for 26.4 per cent of 87 responses), charcoal burning (19.5 per cent), and cutting trees to sell as firewood (11.5 per cent). Coping strategies such as charcoal burning and cutting down trees compromise long-term environmental health, leading to more drought vulnerability in the future.

3.4.5 Role of different market actors during the 2016/2017 drought

Market actors such as livestock traders, brokers and shopkeepers have a significant role to play in assisting pastoralists during drought. For example, livestock traders purchase pastoral livestock, which enables pastoralists to generate income to purchase food and pay for other household necessities. Shopkeepers, on the other hand, acquire both food and non-food items not available in the local production system to sell to pastoralists. In this study, 49 per cent of the 269 respondents who answered the question ranked livestock traders number one among the market actors who assisted pastoralists most during the 2016/2017 drought. Shopkeepers at the market, agro-vet operators, and fodder/hay sellers followed in that order with 13.4 per cent, 10.8 per cent and 5.6 per cent of the respondents respectively. About a quarter (23.8 per cent) of the

20 Little et al. (2014)

21 Ibid.

22 See Little et al. (2014, p 391)

respondents in Saku Sub-County said that the county government was the most important source of help during the 2016/2017 drought.

3.4.6 Perceptions of markets as a source of resilience

Most respondents said that their local market was not the main source of their resilience to drought, using it only as an outlet to dispose of dying livestock in 2016/2017. The majority of respondents in Saku, North Horr and Laisamis sub-counties indicated that their markets were not the only source of food, livestock drugs or fodder/hay in their local area. In addition, most respondents in all the four sub-counties do not perceive the livestock markets as an avenue where they can get drought early warning information, employment opportunities or water. Most of the respondents did not perceive their markets as enablers of livestock marketing group/association formation, and a majority (56 per cent) noted the low participation of women and people living with disabilities in market activities.

3.5 Role of livestock markets on pastoralists' drought vulnerability and resilience

Markets and market systems can and often do provide an avenue for building pastoralists' resilience against drought and other external shocks. The research shows they can provide goods and services not produced in the local economy; act as an outlet for the disposal of assets and/or produce from the local economy; and create job opportunities. However, for the market system²³ to effectively play these roles, it must itself be resilient to shocks and stressors.²⁴



☐ An elderly couple near the village of Wara in Marsabit County, northern Kenya. Vulnerable households, including the elderly and disabled who are unable to walk the far distances normally required to fetch water, have been assisted by Tearfund and Food for the Hungry as a part of an emergency water trucking project targeting households in drought stricken northern Kenya. Photo: Will Swanson/Tearfund

23 Campbell (2014, quoted in Irwin and Campbell, 2015, p 3) defines a 'market system' as a 'dynamic space – incorporating resources, roles, relationships, rules and results – in which public and private actors collaborate, coordinate and compete for the production, distribution and consumption of goods and services. The market system includes all the firms in interrelated value chains – input providers, producers, traders, processors, wholesalers and retailers; the supporting services (eg finance, transport, information services) for those actors; and the formal and informal enabling environment in which they operate.'

24 Irwin and Campbell (2015)

Our model found no evidence of markets and market systems being either a source of household resilience or a tool for reducing drought vulnerability amongst pastoralists in Marsabit County. Not one out of 193 households was simultaneously resilient and non-vulnerable. Only two per cent of households were both moderately resilient and non-vulnerable. Of the moderately resilient households, 64 per cent were still in the precarious 'very vulnerable' category. A quarter of non-vulnerable households were not resilient to drought.

This lack of effect of market-related factors on pastoralists' resilience building and vulnerability reduction was attributed to six main causes:

1. Low utilisation of existing livestock market infrastructure by pastoralists in Marsabit County.

This could be attributed to pastoralists' cultural orientation, which promotes wealth accumulation through herd building rather than commercial livestock production. As such, pastoralists' livestock market supply is thin especially during wet seasons when there is adequate water and pasture, but higher during periods of severe drought, leading to lower prices.

2. Long distances to markets which reduces pastoralists' market access, especially for women, people living with disability and the elderly. The study found that the average distance to the nearest market was 10.6km, 31.1km, 14.2km and 3.7km in Saku, North Horr, Laisamis and Moyale sub-counties respectively.

3. High incidence of external shocks – such as ethnic clashes, droughts and disease outbreaks – that cause frequent market closures. For example, markets in Saku, North Horr, Laisamis and Moyale sub-counties closed down for an average of 26.6, 42.3, 46.9 and 38.8 days respectively between 2015 and 2018, with a huge range in between. In particular, the outbreak of ethnic clashes was reported to be a reason determining when livestock traders from outside Marsabit visited. The main hot-spots for violent inter-ethnic conflicts were Saku, followed by Moyale and North Horr in that order.

4. The absolute lack of market infrastructure in some areas and lack of market co-ordination.

For example, in Damballa Fachana, respondents indicated that there was no market structure because the market operated on a road side. The long distances to markets reported in all sub-counties indicates a lack of market access, which reduces pastoralists' market participation and associated resilience-building opportunities. Additionally, livestock markets in Marsabit County are very localised and intermittent with no coordinated and consistent market days throughout the county. Coordination of market days would enable market actors to move from market to market each day selling their wares (including food and veterinary supplies) consistently, for the benefit of pastoralists who depend on markets for livestock offtake and the purchase of food and other items in return.

5. Pastoralists' preference for informal markets, perhaps for reasons of proximity, security and tax avoidance. For example, *fora* markets in North Horr and Moyale sub-counties were reported to be more active than formal markets such as the one at Turbi town centre. This suggests the need to re-think the strategy of market locating, in order to ensure both ownership by the target beneficiaries and enhanced utilisation.

6. Lack of organised community-based livestock marketing groups. The study found that only three respondents (one in North Horr and two in Moyale) reported being members of marketing groups, which indicates a major gap in efforts to operationalise livestock marketing in Marsabit County, and pastoralists' inability to enhance their bargaining power.

4 RECOMMENDATIONS

This research emphasises how precarious and exposed the life of pastoralists in Marsabit County is in the face of hazards such as the 2016/2017 drought. There is an urgent need for wider humanitarian and development support to enhance their resilience. Severe drought is becoming more common, and so the following recommendations are intended to help national and county governments, development partners and donors to build pastoralists' resilience in some of the most vulnerable communities in Kenya. These recommendations should be implemented in close collaboration with pastoralists themselves, in particular women, people with disabilities, youth and marginalised groups.

In the short term

- **Reduce the vulnerability of pastoralists to recurrent droughts.**
 - **Provide actionable drought/hazard early warning information** to help prepare for an impending drought. The County Government of Marsabit (CGM), in collaboration with its partners, already aspires to invest in early warning systems for the provision of accurate, timely and reliable climate/weather information to inform decisions of actors in the crop, livestock and fisheries value chains.²⁵ This should be actualised.
 - **Provide food, water and fodder** for pastoralists' livestock when drought strikes.
- **Strengthen the role of markets in building drought resilience and supporting pastoralists' engagement.**
 - **Develop restocking programmes** to help pastoralists recover sufficiently and have large herds to sell via markets.
 - **Encourage pastoralists to participate in commercialised livestock production** once they have built their herds, for example by helping them to form livestock marketing groups and training them in business skills and financial literacy so that they can effectively utilise the existing livestock market infrastructure.
 - **Introduce a synchronised market day programme** so that each day of the week is a market day. If the CGM did this it would go a long way to creating market-based employment for Marsabit residents, especially the youth.
 - **Provide security.** Both national and county governments should guarantee the safety of pastoralists as well as market actors coming from inside and outside the county.

In the medium term

- **Develop a programme of water harvesting and range rehabilitation** to mitigate the diminishing land and water resources in Marsabit County due to population growth, land degradation and urbanisation.²⁶
- **Provide pastoralists with appropriate technologies (such as earth dams/ponds, water pans, and concrete and plastic tanks) to harvest and store water** during the rains for use during the dry season. The harvested water could be used for irrigated crop and fodder production to build pastoralists' resilience to drought.
- **Equip pastoralists with range rehabilitation skills** including range reseeding with appropriate grass and tree species during the rainy season; soil conservation; and introduction of site-specific grazing systems in order to allow for the recovery of degraded lands.
- **Control the proliferation of invasive species**, particularly *Prosopis juliflora*. Some of these issues have been articulated in the CGM's planning documents.²⁷

25 www.greenafricafoundation.org/publications/Marsabit%20Agriculture%20-%20Livestock%20CCMainstreaming%20Guide%201_.pdf

26 The county has only 15 per cent of vegetation cover while indigenous forests and woodlands are being destroyed at a rate of five per cent per annum (see *ibid.*)

27 See footnote 25, for example

In the long term

- **Invest in education, schoolchildren feeding programmes and raising awareness of the benefits of education.** This research found that formal education is critical in building drought resilience and reducing vulnerability. Formal education reduces the cultural barriers that hamper the commercialisation of livestock production, and increases tolerance between warring communities. It also equips pastoralists with the skills needed to obtain employment opportunities out of pastoralism, easing the pressure on the marginal environment.
- **Support existing youth empowerment programmes.** Youth group formation, artisanal training and capacity building in business and marketing could improve household resilience. Young people tended to be less resilient and more vulnerable. Switching from a younger to an older household head increased the probability of a household being in the higher resilient/non-vulnerable category by 85 per cent. Formal education support could equip pastoral youth with requisite skills to either become better entrepreneurs or to seek employment opportunities out of pastoralism. However, such education should be informed by the needs of the youth and their way of life.
- **Support pastoralists to add value to their livestock products.** Working with development partners and the private sector, the CGM could support the development of milk, meat, and hides and skins value chains in the county – for example, a camel milk collective marketing system driven by women and youth. Existing abattoirs could be used for both fresh and dry meat processing and packaging. The private sector could be encouraged to establish a tannery for hide and skin processing in the county. Such value-adding activities could create employment for the burgeoning youth population in the county and provide the much-needed income – and enhanced drought-resilience – to pastoral households.
- **Develop stronger coordination between county government, humanitarian and development actors to enable livestock market systems to work for pastoralists.** Humanitarian and development partners could play a role in strengthening the capacity of the CGM to deliver its development objectives.



Traders loading livestock during a market day in Merille Market, Marsabit. The market is a major economic hub in the region, but frequent droughts often disrupt business. Photo: FH Kenya

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'This market has really helped us. We use it as a tool to educate our children and acquire our basic needs. However, during drought, we have a lot of problems because livestock prices fall a lot, and it becomes completely impossible to sell.'

**SIMON LEPELE,
LIVESTOCK KEEPER**



learn.tearfund.org

100 Church Road, Teddington TW11 8QE, United Kingdom
T UK +44 (0) 20 3906 3906 E publications@tearfund.org

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32191-(0919)