

**DE-RISKING, INCLUSION, AND VALUE ENHANCEMENT
OF PASTORAL ECONOMIES IN THE HORN OF AFRICA (DRIVE)**

ASSESSMENT OF SUITABILITY OF FINANCIAL PROTECTION SCHEMES IN THE HORN OF AFRICA

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Summary

Climate shocks are increasingly threatening livelihoods of pastoralists in the horn of Africa. Increasing access to financial services and improving the functioning of value chains can help in addressing climate shocks, reducing vulnerability, and strengthening the resilience of livelihoods. This study was conducted in Kenya, Somalia, and Ethiopia and sought to: (1) identify groups that are sufficiently structured around productive activities and could be supported under the project with insurance, financial services, and other services to fully participate in the livestock value chain; (2) understand the social and economic characteristics of the project's beneficiaries; (3) assess the suite of financial services for which there is demand and could form an affordable financial protection and resilience scheme; (4) assess the modes of delivery of financial services that meet the needs of the project's intended beneficiaries.

This report presents and discusses the study findings. Results of the descriptive analysis show that there exist many pastoralist groups in the three countries. The groups are diverse, play multiple functions, and all are involved in livestock production. In Somalia, the groups are new while in both Kenya and Ethiopia, the groups have existed for a considerable period of time. There seems to be active participation by group members in the activities of the groups as revealed by the frequency of meetings. By and large, group members are satisfied with the leadership and decision making within groups.

The study shows that across the three countries, pastoralists are increasingly vulnerable to climatic shocks, particularly drought. Households perceived that droughts are not only more frequent but also prolonged. Most shocks facing households are covariate in nature. This means that most people in the community are affected making it difficult to assist each other via informal networks when a shock happens. The study finds that financial services such as savings play a crucial role in coping with shocks. There is considerable access to savings by both men and women across the three countries. There are also differences in the sources of savings chosen by men and women. However, the amounts saved are generally low suggesting the need for interventions to incentivize savings. Access to credit is generally low. Pastoralists tend to borrow from informal savings schemes or groups and by relying on social networks. A considerable proportion of households in Kenya and Ethiopia have heard about index-based livestock insurance (IBLI). However, awareness of IBLI in Somalia is very low. Furthermore, a sizable share of pastoralists in all three countries seem not to know how IBLI works. This finding indicates the important need for promotional and knowledge creation strategies. Pastoralists, especially in Kenya and Ethiopia, are willing to pay for livestock insurance. However, in Ethiopia, willingness to pay for camel was slightly lower than the current premiums charged in the market. Households are willing to contribute to savings to have the money required for purchase of livestock insurance when the sales window opens. Furthermore, there is an opportunity to improve pastoralists participation in livestock markets and value chains. Households indicated willingness to commercialize their production.

The findings of this study are useful for informing the preparation and design of the De-Risking, Inclusion, and Value Enhancement of pastoral economies In the Horn of Africa project (DRIVE). Specifically, the findings confirm that through its two components, namely (a) de-risking and financing and (b) value chains and trade facilitation, the DRIVE project stands to benefit pastoralists directly and the economies of the countries in the Horn of Africa.

1. Introduction

Countries that form the Horn of Africa—HoA (Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda) are highly vulnerable to drought, with an estimated 22.5 million people currently severely food insecure. Their pastoral population is estimated at 22 million people, with an incidence of extreme poverty of 41 percent. Between 33 and 65 percent of people depend on livestock for their livelihoods. One contributor to extreme poverty is the recurrence of droughts, which are increasing in frequency. Drought shocks deplete livestock assets and lead to underinvestment, perpetuating a cycle of low investment-low productivity in pastoral economies. They play a significant role in exacerbating the impacts of conflict in the region. To lift pastoralists out of poverty it is proposed to de-risk them with drought insurance (also called “index-based livestock insurance- IBLI”) and connect them to markets through value chains and trade interventions. Currently, in the rural areas of the HoA, there is a limited transformation of livestock products or linkages to formal export markets; trade is mostly informal, which limits the value extracted by pastoral production groups from their livestock; entrepreneurship skills, and financial inclusion are scarce. In addition, overgrazing practices have led to a degradation of rangelands, which is exacerbated by drought and one challenge is to focus on the quality of the livestock as opposed to the quantity.

Under the Horn of Africa Initiative, the World Bank is currently implementing a De-Risking, Inclusion and Value Enhancement of Pastoral Economies Project (DRIVE). The project is regional and targets implementation in Djibouti, Ethiopia, Kenya, and Somalia. The aim is to protect pastoralists against drought shocks, using a package of financial services including index-based livestock insurance (IBLI), savings, and possibly credit, and to connect pastoralists to markets by upgrading the livestock value chains and facilitating the regional livestock trade. The development objective of DRIVE is to enhance de-risking, financial inclusion and value addition of pastoral economies in the HoA.

The project has two components. **Component 1** aims to target pastoralists groups and focuses on de-risking and finance. This component involves scaling up financial protection for pastoralists across the HoA with a cost-effective package of financial products and services, including insurance, savings, digital accounts, and financial literacy activities. The logic is that when groups see the benefit of insurance to stabilize their production levels in case of droughts, they will be more inclined to contribute toward the cost of the insurance. Awareness creation and financial literacy for beneficiaries will be a key component of the program. The component aims to provide premium support to ensure the affordability of insurance, but beneficiaries are expected to contribute to ensure sustainability and attract private sector investment. The insurance and financial services will be delivered by commercial / private sector financial institutions as is currently the case in existing drought insurance projects in Kenya (Kenya Livestock Insurance Program) and Ethiopia (Satellite Index Insurance for Pastoralists).

Component 2 focuses on livestock value chains and trade facilitation. This component intends to connect pastoralists better to markets, by upgrading the livestock value chains and facilitating trade. The targeted beneficiaries are pastoralists who already have some connections to markets but derive limited value from their livestock-rearing activities. The production groups who benefit from component 1 would be linked to investment opportunities generated under component 2. The component aims to also support private investment in the livestock value chains that can lead to higher incomes for pastoral producers. Three types of interventions will be implemented: (i) upgrading quality infrastructure; (ii) trade facilitation and trade infrastructure and (iii) seed capital to attract private investment in the value chains.

1.1 Study objectives

The broad objective of this study is to undertake beneficiary survey to assess the adequacy of financial protection schemes for pastoralists and collect information on the social and economic characteristics of those beneficiaries. The study seeks to identify the pastoralists production groups that could benefit from the DRIVE project, their needs and preferences in relation to financial services (Component 1), and how they could be linked to activities under the value chains component (Component 2). The specific objectives are to:

- (i) Identify which groups are sufficiently structured around productive activities and could be supported under the project with insurance, financial services, and other services to fully participate in the livestock value chain.
- (ii) Understand the social and economic characteristics of the project's beneficiaries.
- (iii) Assess the suite of financial services for which there is demand and could form an affordable financial protection and resilience scheme
- (iv) Assess the modes of delivery of financial services that meet the needs of the project's intended beneficiaries.

2. Methodology

2.1 Study area and sampling strategy

The sampling frame comprises pastoralists participating or with membership to groups/associations. The sampling strategy follow a multi-stage approach. Three countries, Kenya, Ethiopia, and Somalia were selected purposively because they are the project's target countries. Figure 1 presents a map of the study areas. Furthermore, Kenya and Ethiopia have experienced successful diffusion of IBLI. In Kenya, six counties including Isiolo, Garissa, Samburu, Marsabit, Turkana, and Wajir were selected. These counties were selected because (i) they are participating in KLIP, and (ii) they were targeted by ILRI's projects on livestock value chain development. A list of KLIP beneficiaries was obtained from the State Department of Livestock. In addition, virtual meetings were held with partners including NGOs working with pastoralists in the six counties. During the meetings, the objectives of the DRIVE project were discussed. The partners were then requested to provide lists of pastoralists groups they were working with. Finally, the team compiled a list of all the pastoral groups that were targeted by the Feed the Future Accelerated Value Chain Development (AVCD) program. These lists were then merged into one master list from which a random sample of 14 pastoral groups and 187 pastoralists was selected. Table 1 presents the counties and sub-counties covered in Kenya.

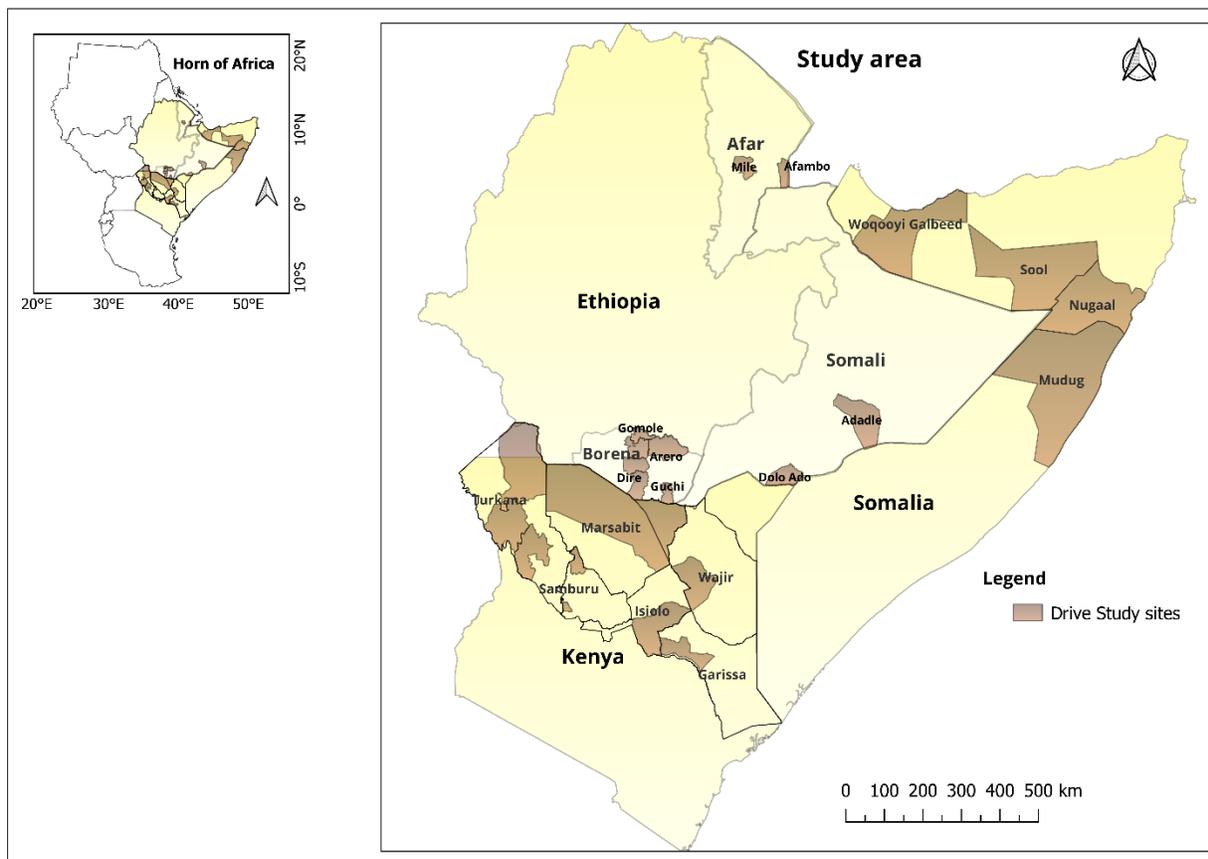


Figure 1. Map of the study areas

Table 1. Counties and sub-counties covered by the social assessment in Kenya

County	Sub-counties
Garissa	Garissa
	Balambala
Isiolo	Isiolo
	Merti
Marsabit	Moyale
	North Horr
Samburu	Loosuk
	Nyiro
Turkana	Loima
	Turkana North
	Turkana South
Wajir	Bute

In Somalia, the study was conducted in Puntland. Virtual meetings were held with partners including NGOs working with pastoralists in Somalia. During the meetings, the objectives of the DRIVE project were discussed. Lists of pastoralists groups that the partners were working with were then obtained and

merged into one master list from which a random sample of six pastoral groups and 90 households was selected. Table 2 presents the groups that were consulted.

Table 2. Pastoral groups that were consulted in Somalia

	Name of group	Village	Number present	
			Female	Male
1	EU restore VSLA	Hasbahale	4	17
2	EU restore VSLA	Maraya	17	4
3	SIDA VSLA	Daawad	11	12
4	SIDA VSLA	Dhiganle	13	10

In Ethiopia, the study was implemented in Oromia and Somali regions. Virtual meetings were held with partners including NGOs working with pastoralists in Ethiopia. During the meetings, the objectives of the DRIVE project were discussed, and the team requested lists of pastoral groups that the partners were working with. These lists were then merged into one master list from which a random sample of 25 pastoralists groups and 182 households was selected.

Across the three countries, there was great diversity in the selected groups in terms of the main functions. However, all selected groups were involved in livestock production. Furthermore, selection considered both formal, well-organized, and registered groups as well as informal and not-so-well organized groups.

2.2 Data collection

2.2.1 Quantitative surveys

The study utilized both quantitative and qualitative methods. Quantitative survey data were collected during November 2021 to February 2022. The survey modules included demographic characteristics of individual group members, characteristics of the groups, livestock inventory (including production and sale of livestock and livestock products, and livestock expenditure), income and income variation, experience with various types of shocks and adaptation measures chosen, awareness about climate change and perceived impacts of climate change now and in the future, demand for financial protection instruments including savings, credit, and insurance (we also look at other forms of insurance beyond livestock insurance), willingness to pay for livestock insurance (measured using a stated preference method), access to water points, access to information, knowledge and practice of water harvesting, migration, and animal husbandry practices. The survey was implemented using computer-assisted telephone survey (CATI).

The recruitment of well-qualified enumerators to conduct the interviews is crucial to ensuring collection of quality data. Selection of enumerators considered reputation, communication skills, and previous experience in survey data collection. Prior to actual data collection, the field team received training about the survey. The training involved (virtual) classroom training and one day of pre-testing with pastoralists. A mobilization exercise notified the local authorities and community leaders in the study areas about the study. This helped to minimize attrition and maximize cooperation from respondents.

2.2.2 Focus group discussions and key informant interviews

Qualitative methods were used to help gain a deeper understanding of (i) the occurrence and characteristics of extreme weather events, particularly droughts in the recent and past years and other risks faced by pastoralists (i.e., disease, fire, accidents, lightning, snake bites, attacks by wildlife) including how they are ranked by pastoralists in terms of prevalence, cost and by IDF (Intensity, Distribution and

Frequency), (ii) map the historical events that have affected the communities and coping mechanisms used, (iii) assess livestock diversification, income and income variability, and understand the regular expenses and allocation of the money in a family in the region, and how that changes in case of a shock, (iv) constraints and opportunities faced by pastoralism as an economic and livelihood activity, (v) management of grazing areas, (vi) management of water resources, (vii) understand ways in which pastoral groups can be integrated into the livestock value chain, and (viii) demand for financial protection schemes.

The participatory focus group discussions (FGDs) followed the quantitative surveys and were implemented in close coordination with partners in the study sites. The FGDs were in-person workshops to maximize participation. However, we strictly adhered to COVID-19 protocols to minimize exposing participants to COVID 19 risks and avoid spreading the virus. Prior to the workshops, invitations were sent to the participants and phone calls made to follow up and confirm that the invitation had been received.

Key informant interviews were implemented concurrently with the FGDs. We worked closely with partners to identify the relevant key informants. These were drawn more broadly from academic institutions in the study regions, county government officials, representatives of pastoral groups and associations, representatives of NGOs, and finance and micro-finance institutions.

2.3 Data analysis

The study generated descriptive statistics in the form of mean and standard deviation of the variables contained in the survey modules. These summary statistics were important, especially in characterizing the groups and group members, understanding livestock production and marketing activities including the categories of livestock by group members, proportions and age at which livestock are sold, purpose of livestock, frequency and nature of livestock sales, causes and numbers of livestock deaths; assessing shocks and coping strategies; understanding access and use of watering points including issues of conflicts; assessing awareness and practice of water harvesting; assessing demand for savings, credit, and insurance; and assessing penetration of financial services. Data from the FGDs and key informant interviews were analysed along the relevant themes.

In addition to descriptive summary statistics, regression analysis was used to assess relationships between variables and the factors influencing behaviour. Specifically, regression analysis was used to assess the factors that correlate with the choice of coping strategies; assess factors influencing demand for financial services; assess the factors influencing willingness to pay for livestock insurance; assess the driving factors for migration; and assess the role of religion on choices of groups. Regression analysis took the form of binary logit and probit models where the dependent variable is binary; multivariate probit and multinomial logit where the dependent variable captures several options (e.g., coping strategies), and ordinary least squares regression where the dependent variable is continuous e.g., to assess factors correlated with willingness to pay for livestock insurance. We also used count data models to assess factors influencing diversification and where diversification measures the number of the diverse options.

2.4 Limitations

The study was implemented at a time when government policies to address the COVID 19 pandemic restricted movements and interactions among people. In addition, political instability in Ethiopia hindered the implementation of data collection in Afar, Ethiopia. Using CATI to collect data helped to ensure the study was implemented in the rest of the study areas but that also means that the length of the interviews had to be shorted considerably. The study made efforts to ensure representation of most pastoralist counties and regions in the study areas. The sampling strategy was also carefully designed to ensure participation of men, women, and youth. To that extent, the study is a good representation of the

pastoralists in the study areas. Nevertheless, the small sample size warrants a caveat to the type of analysis possible.

3. Findings: Kenya

3.1 Demographics

The demographic characteristics of a household determine the socio-economic status of the household and its members and provide information necessary for development planning, and resource allocation. This section presents socioeconomic characterization of the households surveyed. The characteristics include age, sex, marital status, and education level of the household head; household size; type of household; and main religion of the household.

Summary statistics associated with household demographic characteristics are presented in Table 3. We present means for continuous variables (age and household size) and proportions for binary variables (sex, education, marital status, household type, and religion). Most households (71%) are headed by men. The heads of households are 49 years old, on average. Respondents indicated they had lived in the area continuously for 24 years. This means that respondents understand the climatic shocks and changes that have occurred in the study site.

Table 3. Demographic characteristics of surveyed households in Kenya

Variable	Mean/ proportion	Standard deviation	Minimum	Maximum
Gender of the household head (1=male, 0=female)	0.71	0.45	0	1
Age of the household head (years)	48.60	13.44	25	95
Household size	6.83	2.63	1	20
Education of household head:				
No formal education	0.49	0.50	0	1
Some primary education	0.17	0.38	0	1
Completed primary education	0.09	0.29	0	1
Some secondary education	0.03	0.16	0	1
Completed secondary education	0.08	0.27	0	1
University or higher education	0.12	0.33	0	1
Adult education	0.01	0.07	0	1
Marital status of the household head:				
Single (never married)	0.02	0.15	0	1
Married	0.75	0.43	0	1
Consensual	0.01	0.10	0	1
Divorced/separated	0.05	0.22	0	1
Widowed	0.17	0.38	0	1
Household type:				
Fully settled	0.82	0.39	0	1
Partially settled	0.18	0.38	0	1
Nomadic	0.01	0.07	0	1
Main religion of the household:				
Muslim	0.63	0.49	0	1

Catholic	0.22	0.41	0	1
Anglican	0.05	0.22	0	1
Other Christian	0.11	0.31	0	1
Number of observations	184			

The average household size is seven. Age dependency ratio is defined as the proportion of population that is dependent (age 0-14 and 65+ years) on the working age population (age 15-64 years). It is a measure of the economic burden of the productive population (15 to 64 years). A higher age dependency ratio implies a greater burden. The average age dependency ratio was 1.09. According to the Kenya Population and Housing Census of 2019, the counties covered by this study are among those with the highest dependency ratios.

The education level of the household heads is low: 50% of the household heads have no formal education, only 9% have completed primary education, and only 3% have completed secondary education. Figure 1 shows that education levels are lower for female than male household heads: 74% of female heads of households have no formal education compared with 40% for male household heads and the proportion completing primary and secondary education is higher for male household heads. Education level has implications on financial literacy and the ability to grasp and apply knowledge about IBLI, beyond simple awareness exposure, and should be carefully considered by interventions aimed at promoting IBLI. Three-quarters of the household heads were married. A considerable proportion (17%) of the household heads were divorced. Most of the sample households are fully settled while about one-fifth are partially settled.

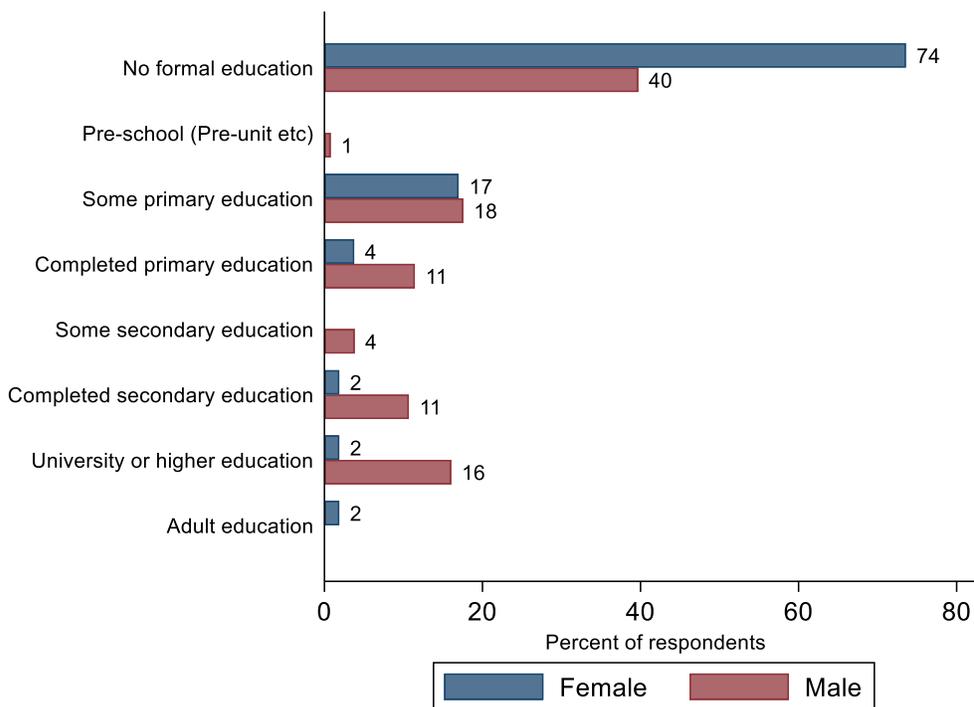


Figure 2. Education of the household head by gender

3.2 Group characteristics

The study assessed the characteristics of the different pastoralist groups by examining several aspects including the size and composition of the groups, the functions of the groups, frequency of meeting, and decision making, and leadership within the groups. Figure 3 shows that diversity in the functions of the groups. The main functions of the groups include livestock marketing, livestock production, and financial (savings, loan etc.). Importantly, all the selected groups were involved in livestock production-related activities. Table 4 presents results of the characteristics of the groups. The average size of the groups was 37 members: among these about one-third (13) comprised men while two-thirds were women (24). This finding shows women’s active participation in pastoralist groups. The average number of years the groups had existed was seven years, indicating good experience of group members in livestock-related activities. Looking at trends over time, results in Figure 4 show that the number of pastoralist groups increased sharply between 2012 and 2015 and also after 2017.

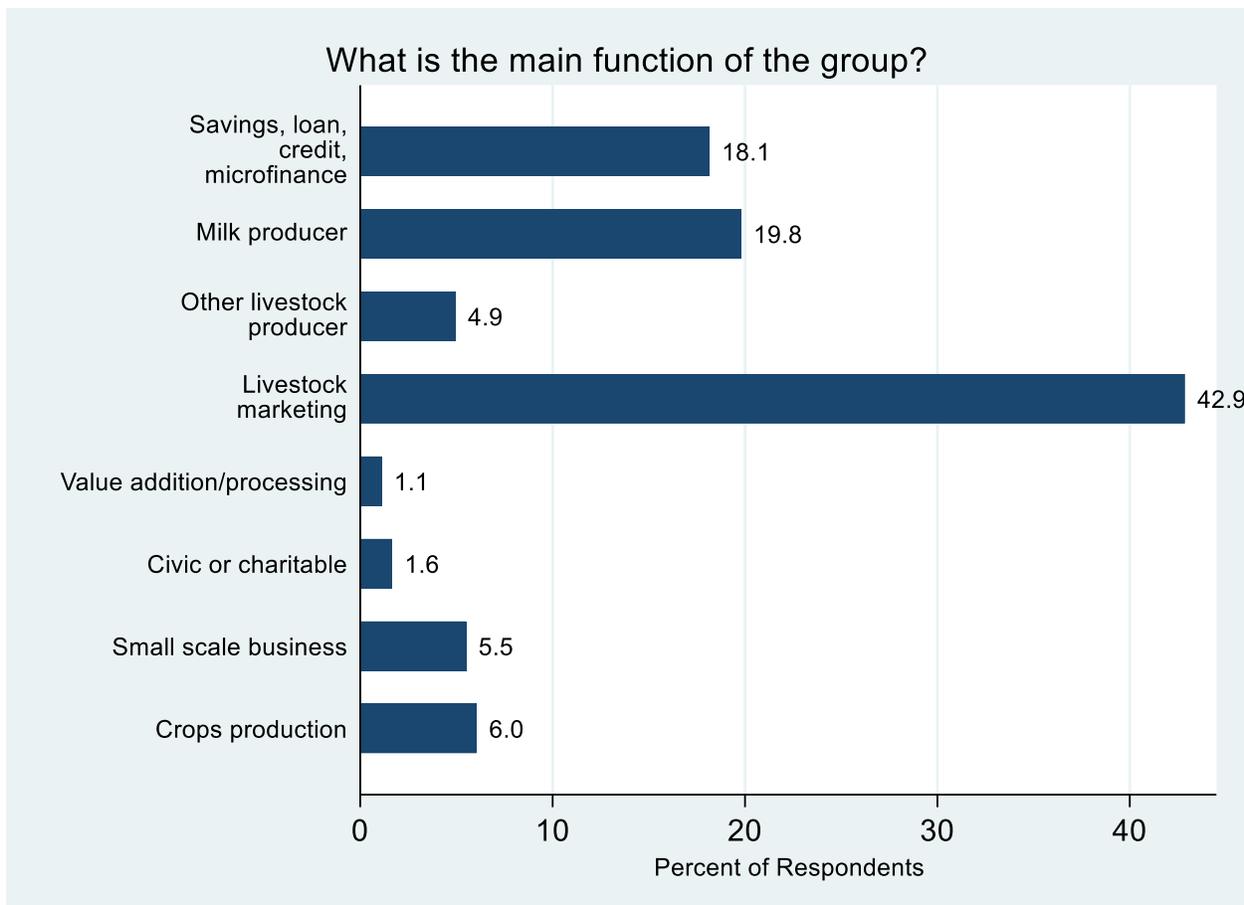


Figure 3. Main function of pastoralist groups in Kenya

The survey asked respondents to indicate whether they had a document showing proof of groups’ registration. Results show that most (90%) have a proof of registration. A sizeable share of respondents (30%) reported that their groups had an office where meetings are held. The average distance from the homestead to the office was 2.5km. Groups mostly meet monthly (60%). Respondents were asked about the number of times their households had attended group meetings in the past one year before the survey. The average number of times households attended meetings was 9.5.

Table 4. Characteristics of the pastoralist groups in Kenya

Variable	Mean/ proportion	Standard deviation	Minimum	Maximum	N
Size of the group	37.0	29.0	0	110	184
Number of men group members	13.0	18.0	0	100	184
Number of women group members	24.0	26.0	0	100	184
Number of years of group's existence	6.9	4.9	1	29	184
Group has a proof of formal registration	0.9	0.3	0	1	184
Group has an office	0.3	0.5	0	1	184
Average distance from homestead to office (km)	2.5	2.2	1	12	55
The group meets at least weekly (1= yes, 0=no)	0.1	0.3	0	1	184
The group meets at least once every two weeks (1= yes, 0=no)	0.1	0.3	0	1	184
The group meets at least monthly (1= yes, 0=no)	0.6	0.5	0	1	184
The group meets at least quarterly	0.2	0.4	0	1	184
The group rarely meets (1= yes, 0=no)	0.04	0.2	0	1	184
Number of times the household attended meetings in past one year	9.5	9.1	0	48	184
A household member holds a leadership position in the group	0.31	0.46	0	1	184

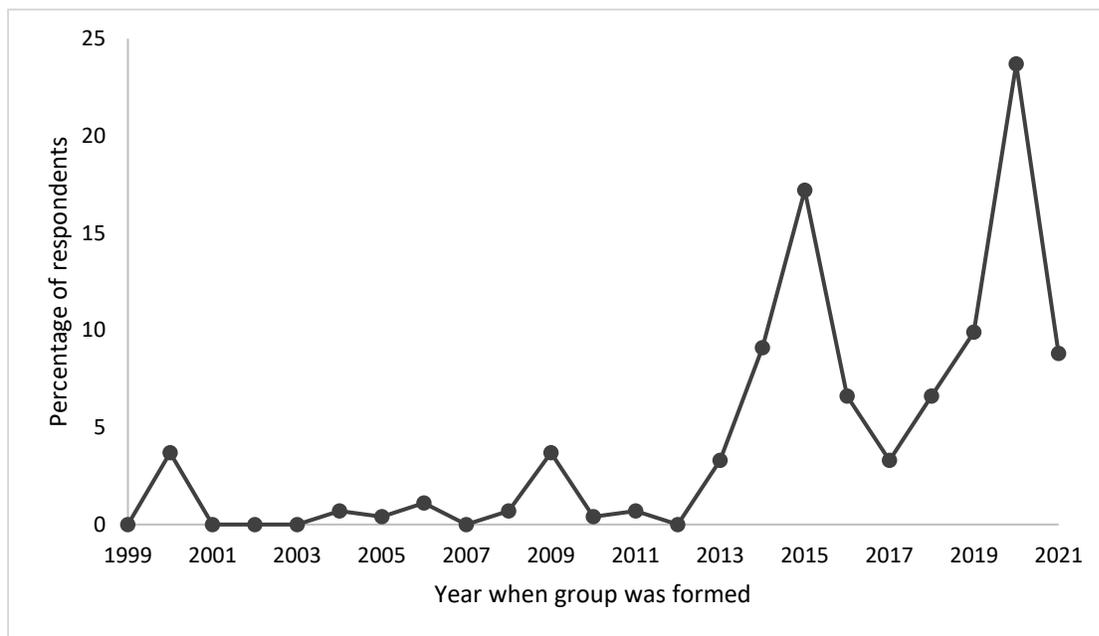


Figure 4. Trend in the formation of pastoralist groups in Kenya

The survey further probed for the leadership and decision-making approach of the groups. In 31% of the households, a household member had held a leadership position in the group. Figure 5 shows that most of the respondents (84%) were satisfied with the leadership of the group. Decisions were either made by group leaders in consultation with other members (64%) or through consensus (36%). Most respondents (96%) reported they felt comfortable speaking during the group meetings to express their opinion. Three-quarters of the sample respondents indicated they were had the ability to influence some or most of the decisions and only one-quarter reported they could not influence any of the decisions made by the group.

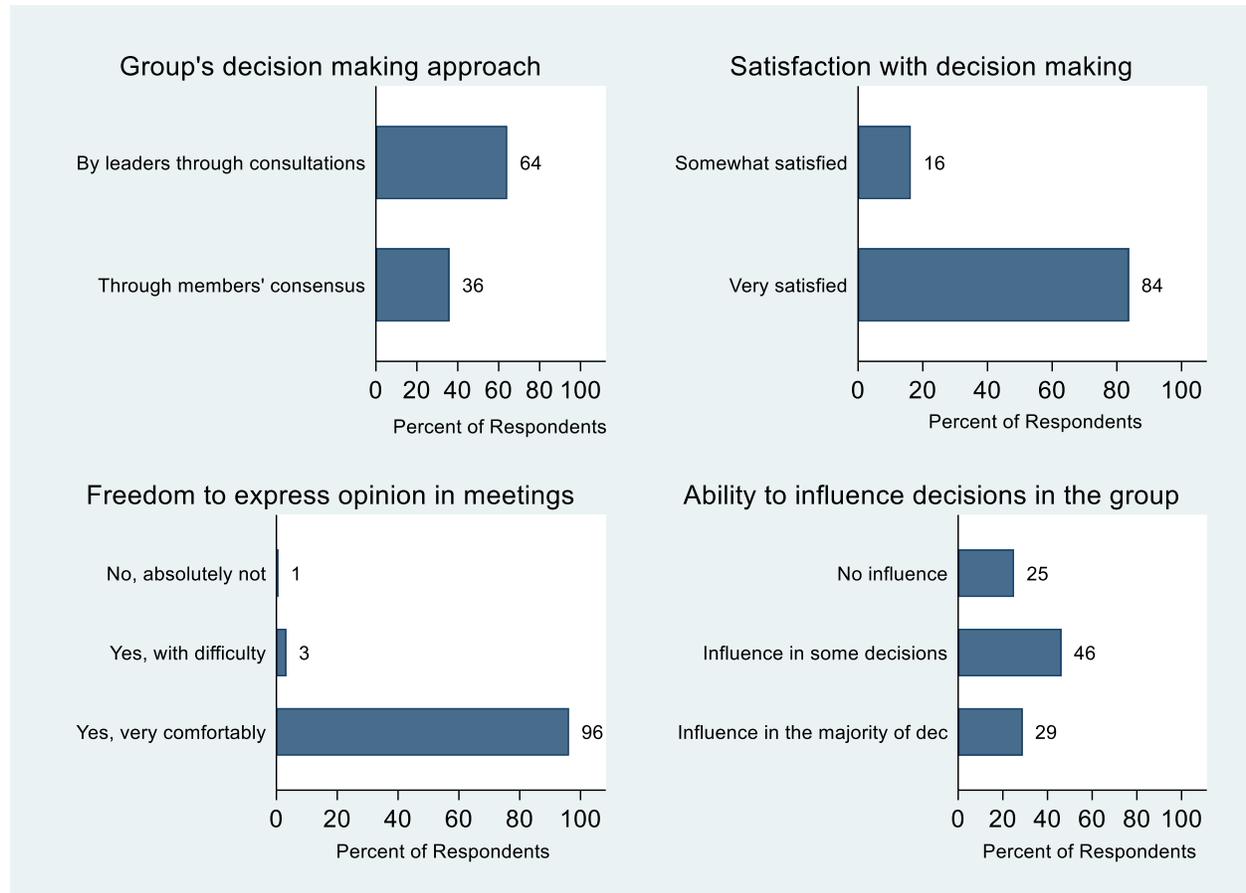


Figure 5. Decision making with pastoralist groups in Kenya

3.3 Livelihoods and sources of income

This section presents results of the assessment of livelihoods and income sources. The section first looks at the occupation of the household head. Results in Figure 6 show that most heads of the household primary engage in livestock herding. The proportion of male-headed households engaging in livestock herding is significantly higher than that of female-headed households. Although the proportions are generally low, more male-headed households engage in casual and salaried employment than female-headed households. However, female-headed households engage more in small businesses and petty trade than male-headed households. Results about income sources are consistent with the main occupation of the household head (Figure 7). Specifically, selling of livestock and livestock products are major sources of income: together, 77% of the households derive income from these two sources. A

considerable share (30%) obtain income from businesses. Casual and salaried employment also contribute to the incomes of households: each of these sources provide income to 12% of the households.

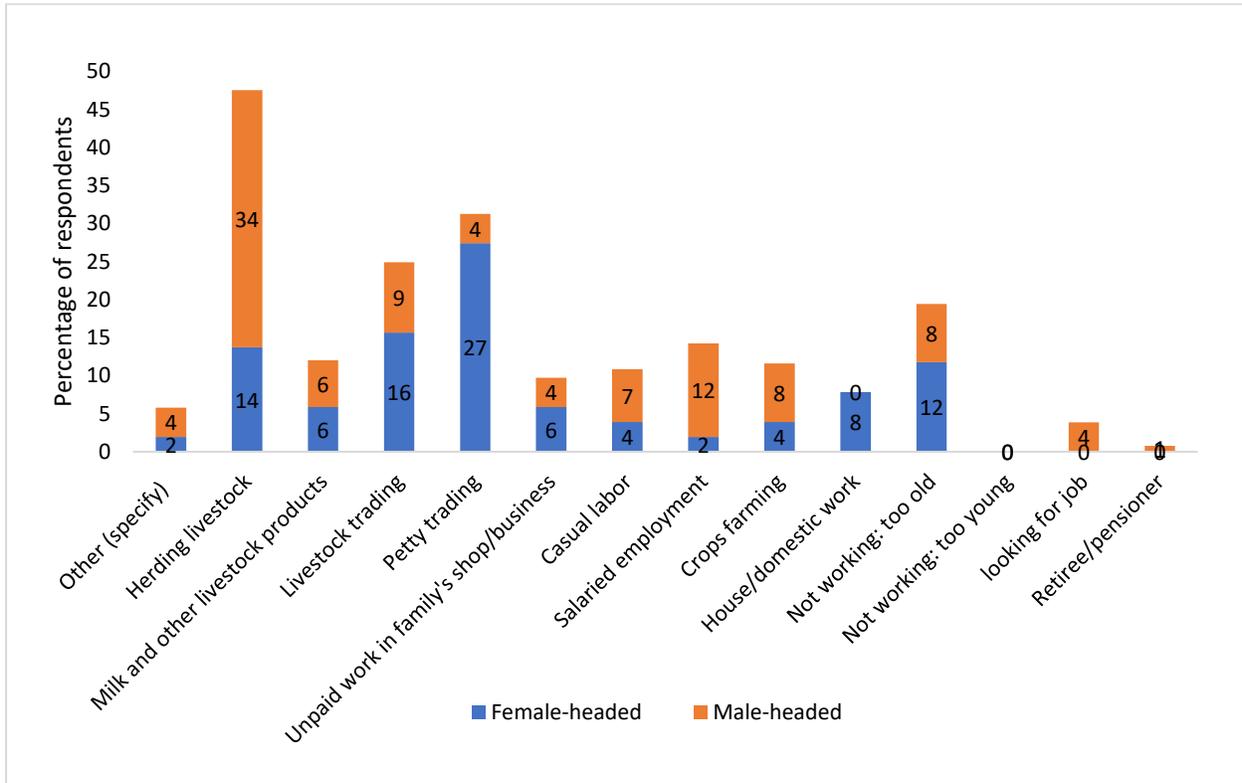


Figure 6. Main occupation of the heads of household in Kenya

Among households that earned income from livestock, there was variability across seasons (Figure 8). Income fell by almost half from KES23,000 in October-December 2020 to KES13,000 in January-February 2021 before rising again to KES20,000 in March-May 2021 and KES22,700 in June-September 2021. It is important to note that these statistics about livestock income reflect income earned from livestock for the sub-sample that sold livestock in a particular season. They do not represent average income in the whole population. Household income varies both across time and spatially. Generally, income earned in satellite camps is lower than that earned from base camps (Table 5). Income from livestock is lower during the dry seasons than during the rainy seasons. During the dry seasons, diversification into non-livestock activities seems to contribute substantially to household income.

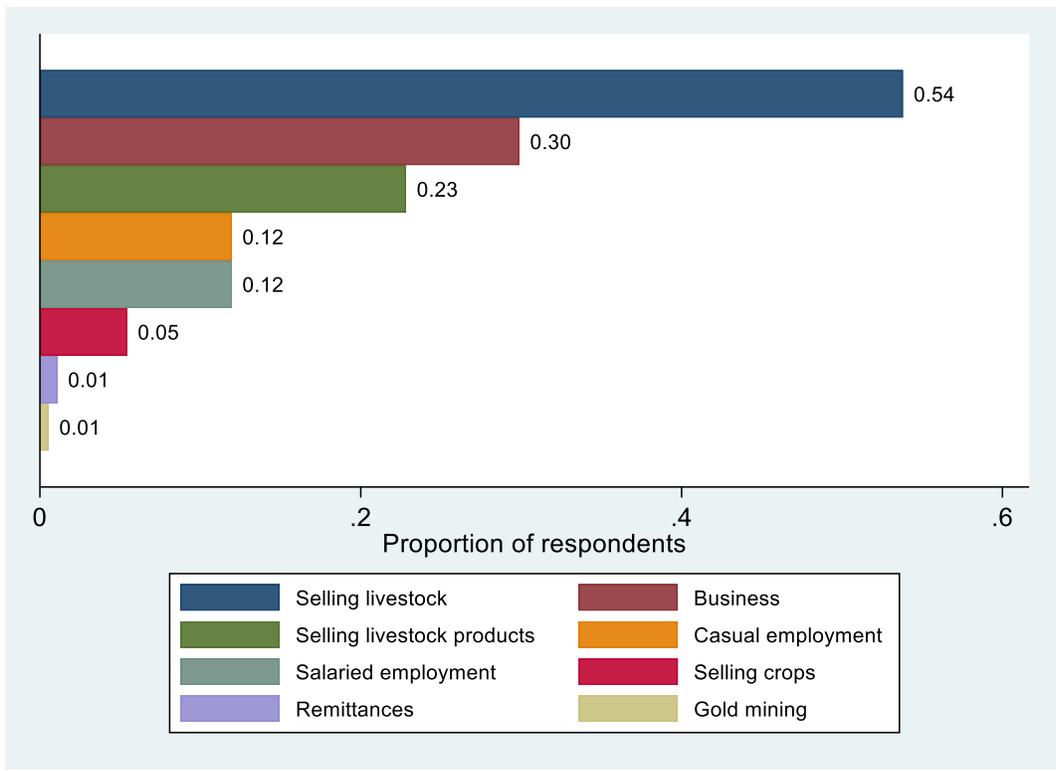


Figure 7. Sources of household income for pastoralists in Kenya

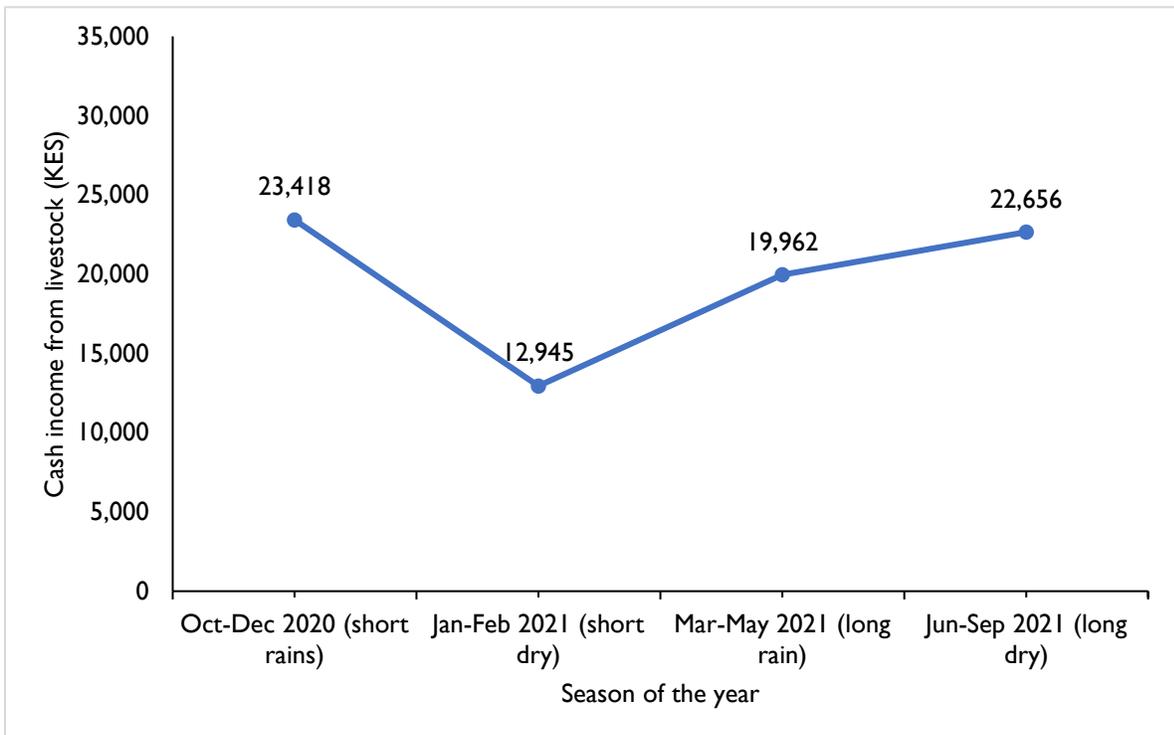


Figure 8. Trends in cash income earned from livestock across seasons in Kenya

Table 5. Income earned by pastoralist households from diverse sources across seasons in both base and satellite camps in Kenya

Income source	October-December 2020		January-February 2021		March-May 2021		June-September 2021	
	Base camp	Satellite camp	Base camp	Satellite camp	Base camp	Satellite camp	Base camp	Satellite camp
Sale of livestock	53,385	40,000	51,328	12,000	53,380	35,140	42,245	34,140
Sale of livestock products	24,300	-	13,910	-	20,330	-	14,300	-
Working in salaried job	81,690	75,200	58,700	57,365	75,390	72,900	59,220	58,060
Working in casual employment	16,670	15,750	19,420	19,410	29,500	38,110	28,520	24,800
Engagement in business including petty trading	24,145	23,050	17,050	16,485	25,535	23,850	20,210	21,290

3.4 Shocks and coping mechanisms

Households sometimes experience unexpected events that hurt them economically and can affect their normal livelihood. The survey asked a series of questions about the negative unexpected events that may have been faced over the last five years before the survey. Figure 9 shows that the most experienced shocks are climate related. Specifically, 80% of the survey respondents had experienced prolonged drought. The frequency of drought is also increasing: 14% of the respondents indicated they faced frequent droughts. Households were also affected by the COVID 19 pandemic: 59% of the survey respondents had experienced the impact of the pandemic. In addition, market shocks, particularly changes in prices for livestock and livestock products as well as diseases and pests adversely affected households. These findings indicate the need for pairing climate adaptation with adaptation in response to changing market conditions and other shocks. These results suggest the need for further work on the careful design of climate change interventions to complement adaptive activities.

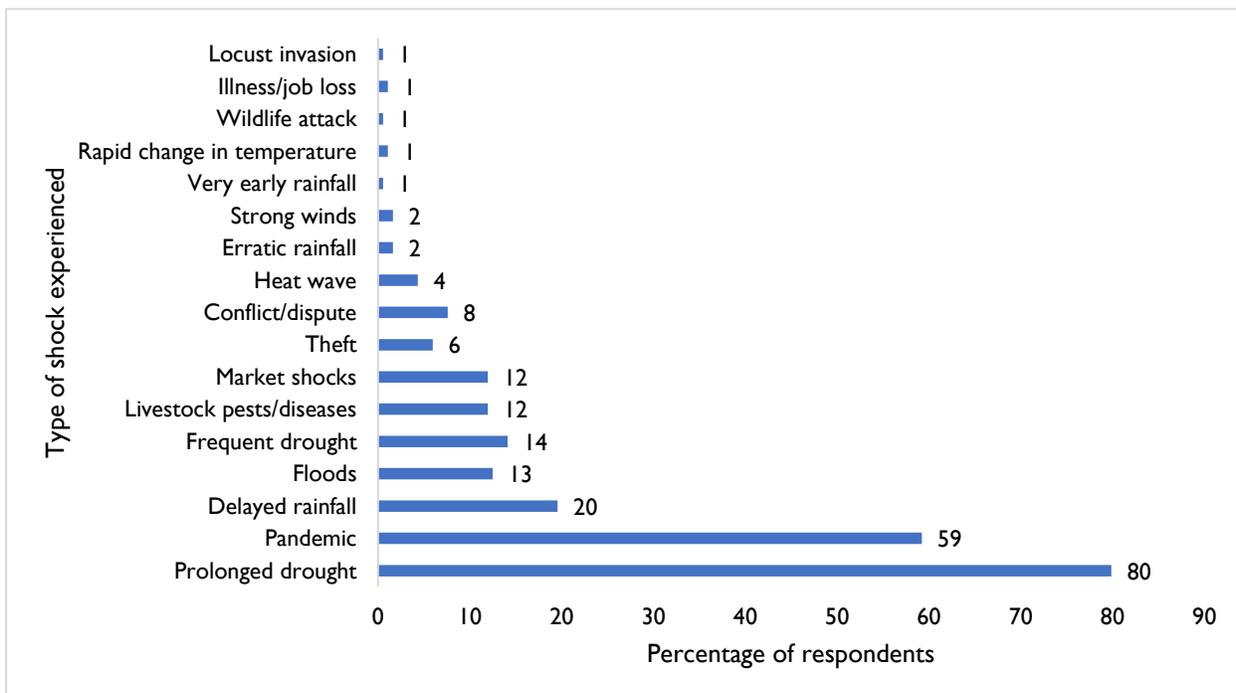


Figure 9. Types of shocks faced by pastoralist groups in Kenya

The proportion of households experiencing droughts has been rising rapidly (Figure 10). The droughts are also prolonged. This indicates increasing vulnerability of pastoralist populations. Figure 11 shows that the shocks are mostly covariate in nature: they affect most community members as opposed to only a few households. The impacts of the shocks are severe: 86% of the respondents rated the severity of the impacts as high or very high.

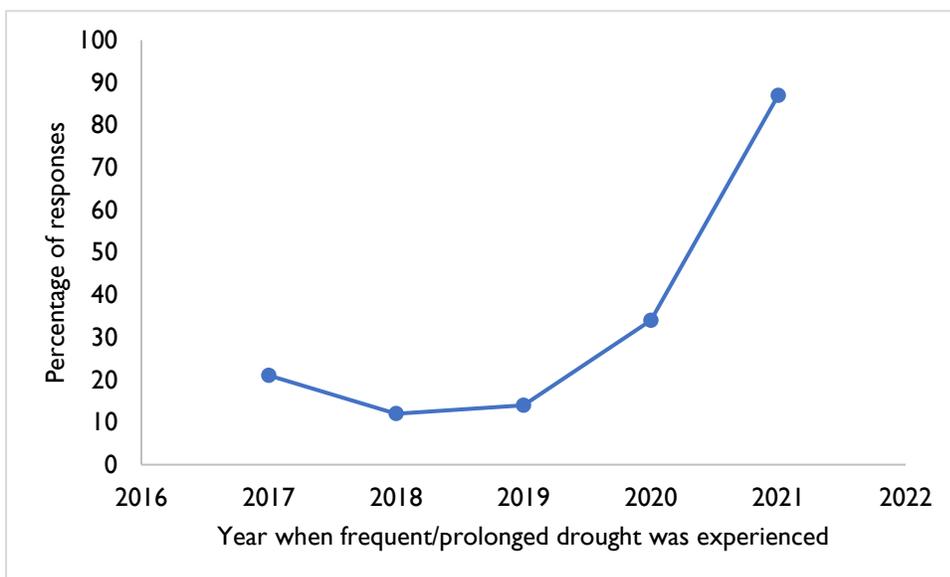


Figure 10. Trends in the occurrence of shocks in Kenya

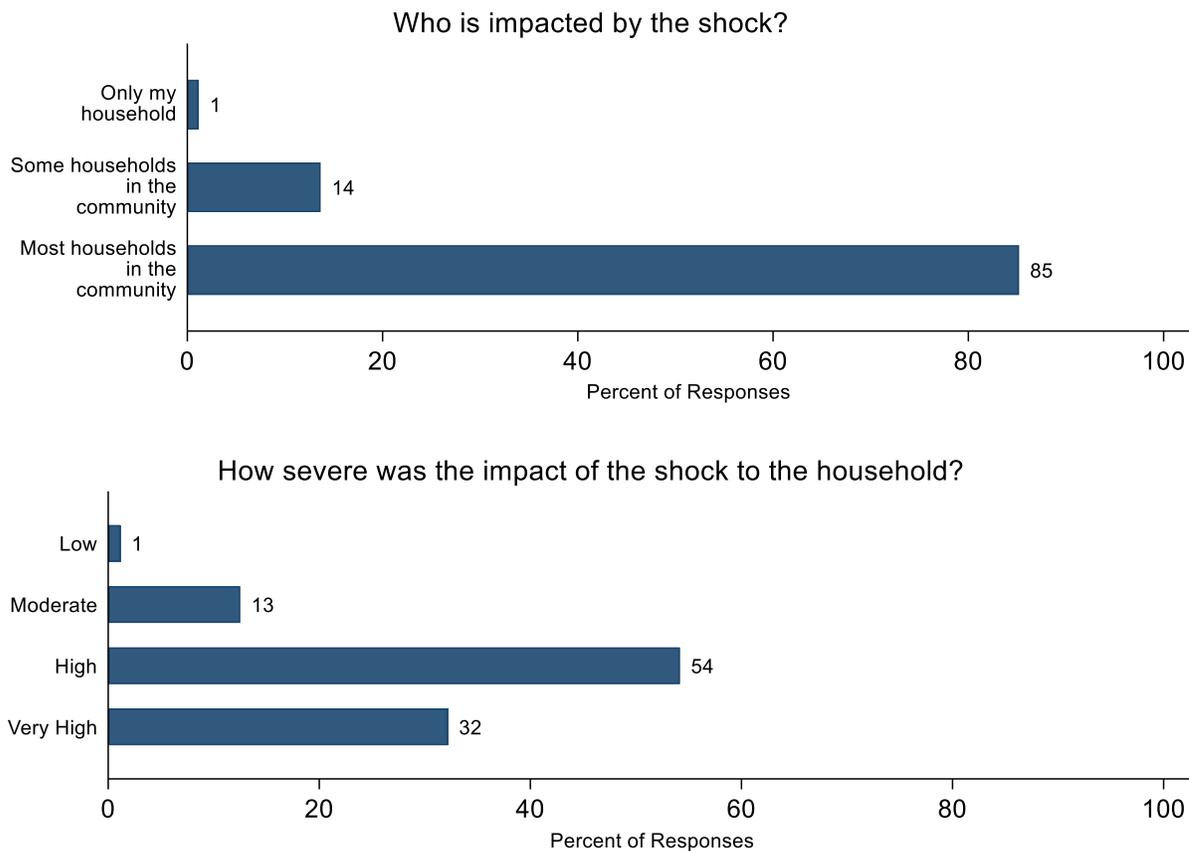


Figure 11. Impact of shocks on pastoralists' livelihoods in Kenya

Households are implementing several strategies to address the shocks. Some households scale back on consumption of food to cope with unexpected shocks. Indeed, the results of this study (Figure 12) indicate that about one-fifth of the households reduced food consumption to cope with unexpected shocks (in general). In a context where food and nutrition insecurity are major development challenges, these results indicate that shocks will exacerbate the already poor situation. Another strategy used by pastoralists is diversification into non-livestock activities. The most common non-livestock activities relate to labor supply and include working off-farm in casual and salaried employment (17%) and engaging in food for work activities (7%).

Migration plays an important role as an adaptation strategy. Results show that 16% of the households migrated to cope with shocks. In the context of pastoralism, migration could take two main forms. The first one, which could also relate to the diversification into casual and salaried employment, involves labor supply whereby household members move to nearby towns in search for jobs. The second form involves movement of pastoralists with their livestock in search for pasture and water.

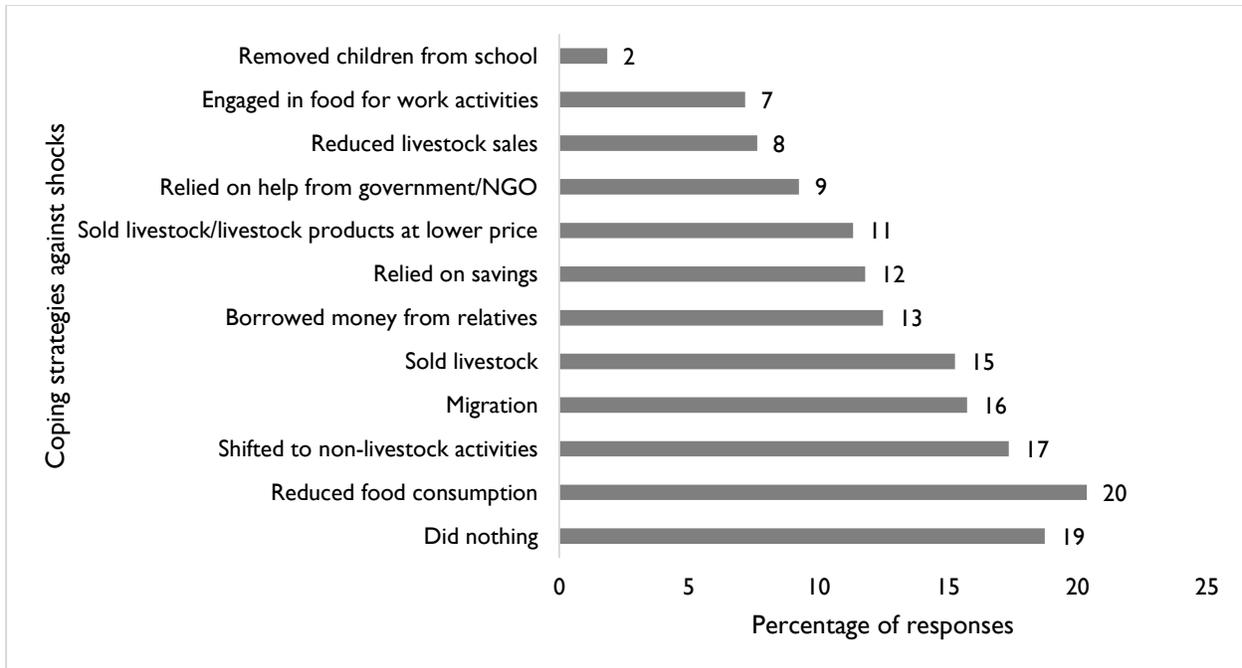


Figure 12. Coping strategies used by households to cope with shocks in Kenya

As shown in Figure 12, a considerable proportion of pastoralists cope with shocks by running down assets and past savings and relying on informal borrowing: the proportion of households selling livestock, relying on past savings, and borrowing from relatives was 15%, 12%, and 13%, respectively. Results further show that pastoralists tend to sell their livestock and livestock products at lower than usual prices. It seems, therefore, that pastoralists are selling livestock not as a commercial activity but out of desperation. The lower prices obtained could also indicate low quality of the livestock at the time of selling. The findings suggest an opportunity for improving the functioning of the livestock value chain including facilitation of trade and addressing quality issues. Use of informal borrowing as a coping strategy indicates the importance of kinship networks in addressing shocks. However, because the most severe shocks (drought) are covariate, chances of accessing informal credit will tend to diminish especially when such shocks are not only more frequent but also prolonged. This finding possibly suggests the need to improve credit worthiness of pastoralists and increase access to formal credit.

3.5 Climate change impacts

Survey respondents were asked whether they had observed any changes related to climate or weather. Consistent with information reported in section 3.4 about shocks, we find that most perceived changes related to the persistence and frequency of droughts. Specifically, 58% and 24% report that they have observed prolonged droughts and frequent droughts, respectively (Figure 13). A sizeable proportion (28%) report that rainfall is increasingly unpredictable while 21% indicated delays in rainfall. These changes underscore the importance of livestock insurance and reinforce the need for appropriate interventions to ensure feed availability during drought.

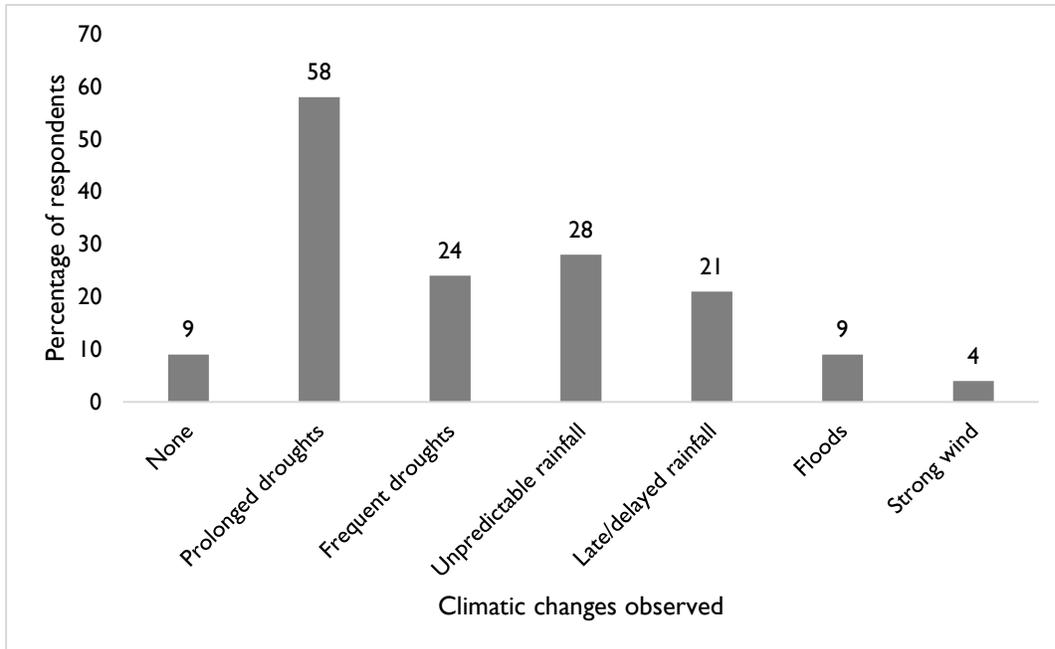


Figure 13. Pastoralists' perceptions about changes in climate/weather in Kenya

The survey further asked respondent to rate on a Likert scale ranging from 1 (extremely unlikely) to 5 (very likely), the extent to which the perceived that climate change would happen in the future. If people are forward-looking, meaning that they make decisions based not only on what is currently happening, but also considering what might happen in the future, this can influence the choice of measures implemented. Results in Figure 14 show that only 12% of the survey respondents perceive that climate change is extremely unlikely to happen in the future. Further, close to three-quarters (72%) of the respondents perceive that the impacts of climate change in the future will be medium or strong.

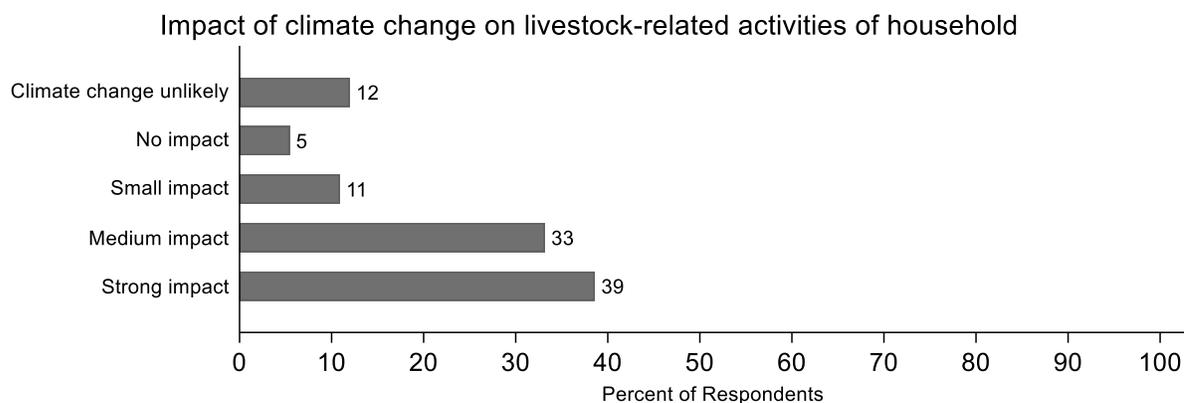
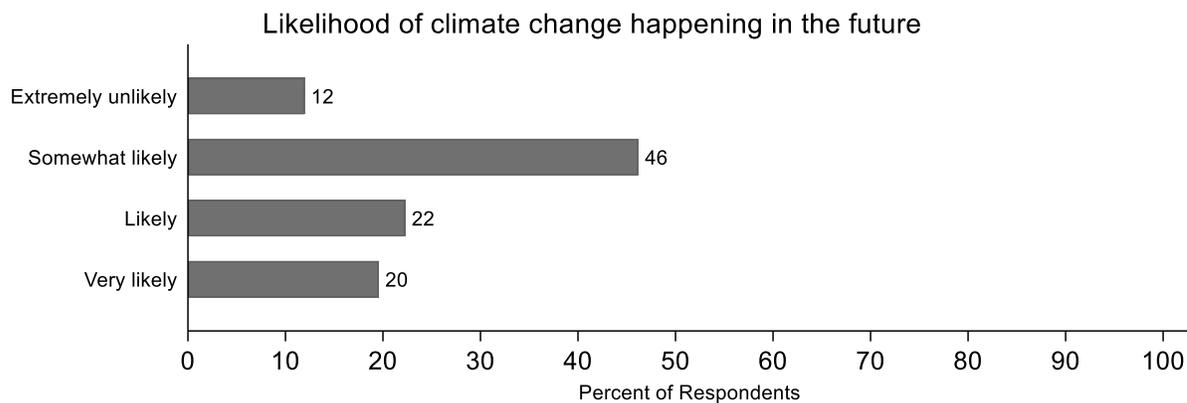


Figure 14. Pastoralists' perceptions of the impacts of changes in climate and weather

3.6 Access to mobile services

The proportion of households that own a mobile phone is very high: 96% of the male-headed households and 92% of female-headed households had at least one household member owning a mobile phone (Figure 15). In almost all cases, for both male-headed and female-headed households, the phones owned have mobile money. However, there are differences in other phone features between male-headed and female-headed households. Significantly less female-headed (27%) than male-headed households (50%) have phones with WhatsApp (Figure 16). Similarly, the proportion of female-headed households (23%) with access to Facebook is considerably lower than that of male-headed households (41%).

Survey findings show that there is no significant difference in the gender of the person whose name is registered for the mobile money account. In almost 50% of the cases, the mobile money account is registered to a male household member while in the remaining 50% of the cases, the account is registered to a female household member (Figure 17). Mobile money accounts are rarely registered on the names of non-household members.

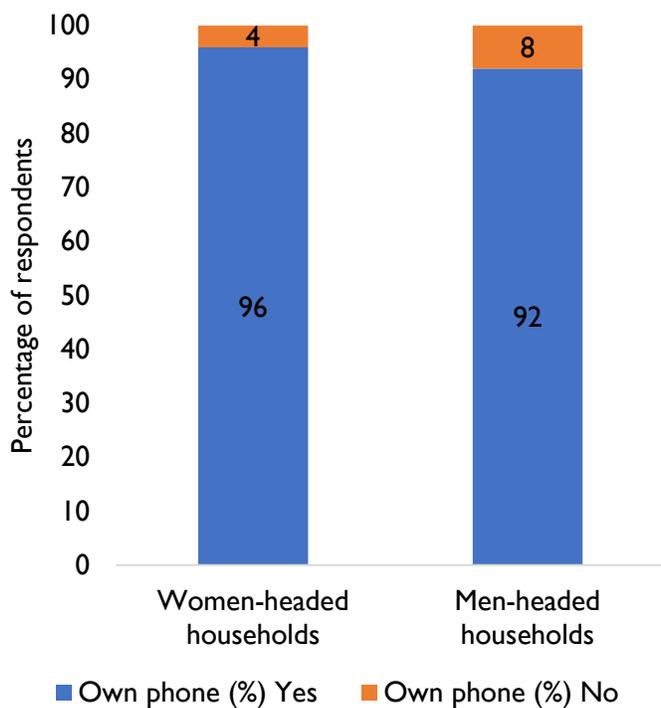


Figure 15. Ownership of phones by male-headed and female-headed pastoralists households in Kenya

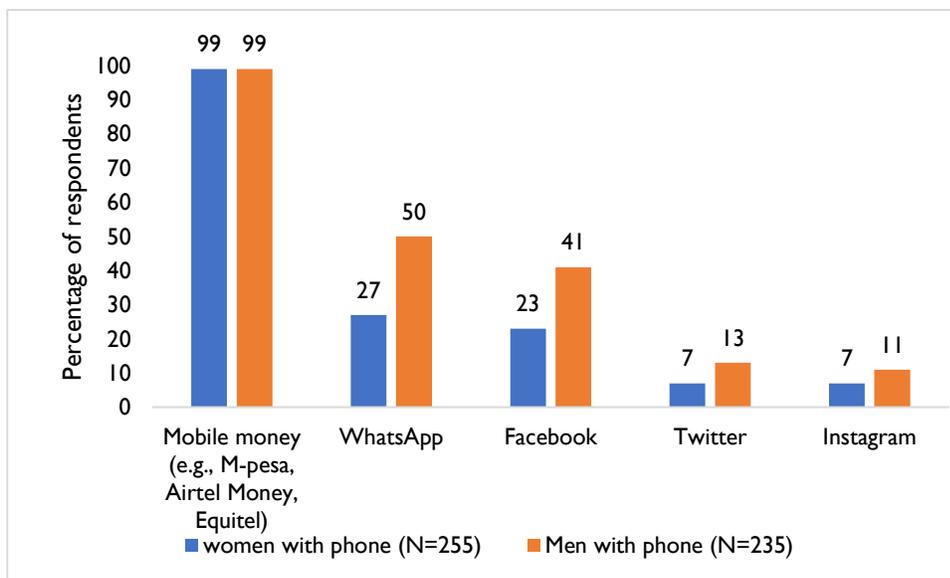


Figure 16. Features of the phones owned by men and women household members who own a phone in Kenya

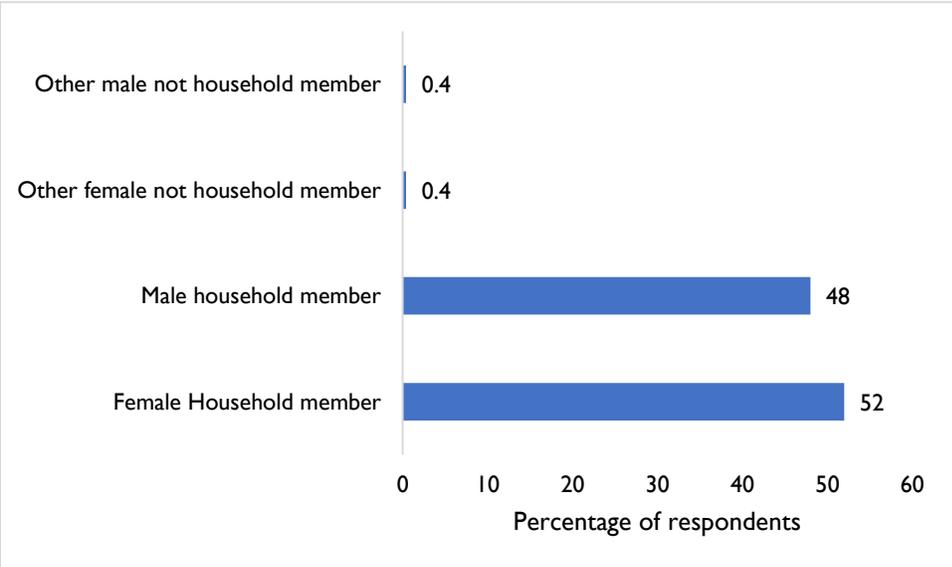


Figure 17. Gender of the person whose names are registered on the mobile money account – for those whose phones have mobile money

The median amount of money that a phone owner spends per week is KES300. Phone expenses are mostly used on airtime only (63%). A sizeable share (36%) is spent on both airtime and internet bundles, and only 3% is used on internet only. More than three-quarters (77%) of the household members owning a phone did not experience connectivity problems.

3.7 Access to financial services

Access to financial services is crucial for enhanced resilience of pastoral systems and livelihoods. As results of section 3.4 showed, access to financial services can help to directly address shocks. More importantly, increased access to financial services can reduce liquidity constraints and enable the adoption and diffusion of livestock insurance and other innovations. This section assesses the availability, affordability, and accessibility of financial services. It further examines pastoralists’ preferences for financial services. The analysis focuses on three types of financial services, namely savings, formal insurance, and credit.

3.7.1. Access to savings

The survey asked participants whether their households had any cash savings. Overall, 41% of the households have cash savings. Analysis by gender of the household head (Figure 18) shows that the proportion of male-headed households (46%) with cash savings is higher than that of female-headed households (35%). However, a *t*-test showed that the difference is not statistically significant. There are differences in the sources of cash savings between male-headed and female-headed households. Results of the survey shows that men mostly save in the bank whereas women save using mobile money and at home (Figure 19).

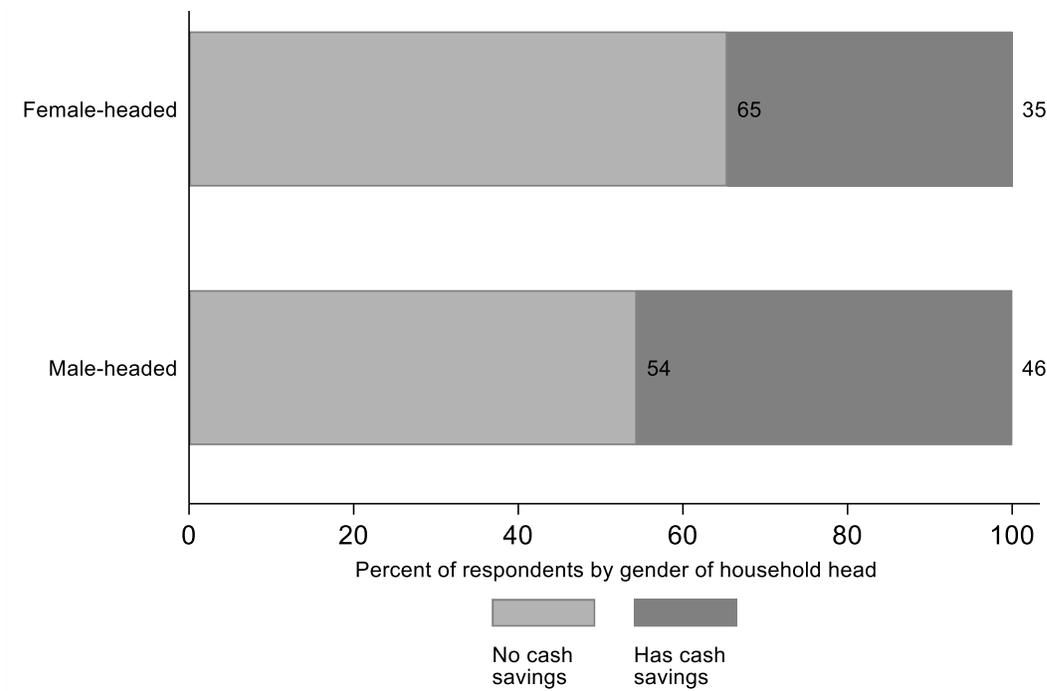


Figure 18. Access to cash savings by male-headed and female-headed pastoralist households in Kenya

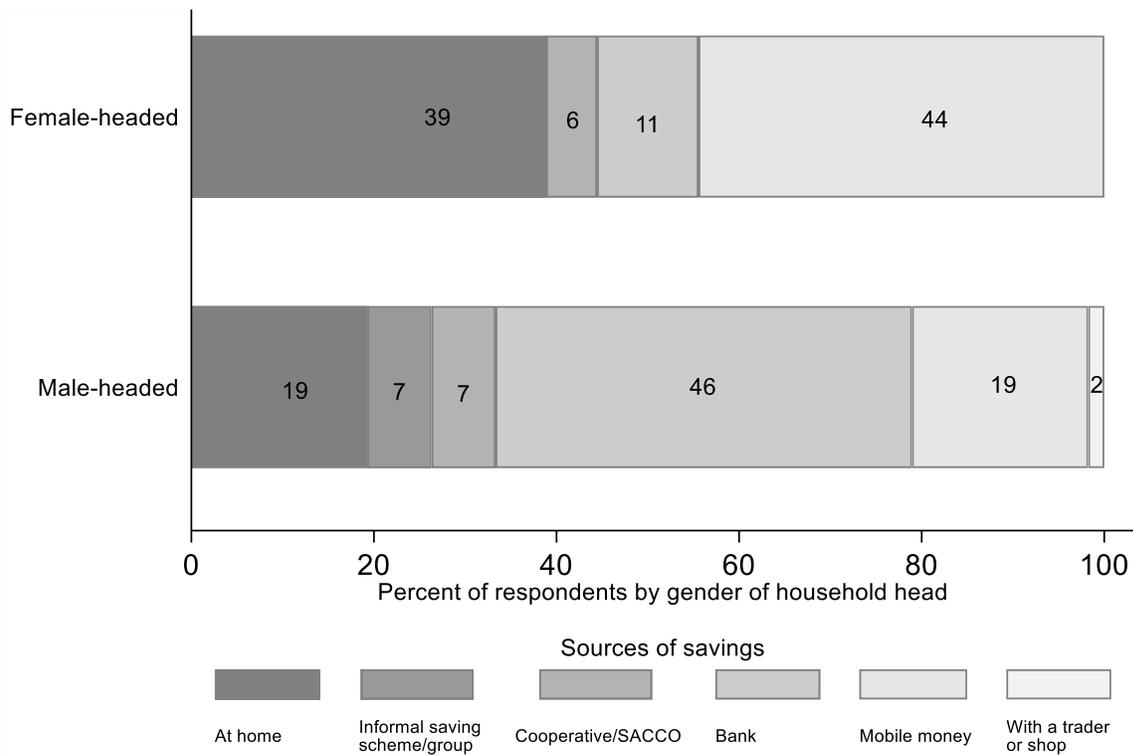


Figure 19. Sources of cash savings by male-headed and female-headed pastoralist households in Kenya

About one-quarter (24%) of the households have a bank account. As shown in Figure 20, significantly more male-headed (31%) than female-headed (9%) households have a bank account (p -value = 0.00). This finding is consistent with the earlier result that more male-headed than female-headed households save in banks. The finding possibly suggest that women face more barriers in accessing bank facilities than men. Results in Table 6 shows that in more than three-quarters of the households that have a bank account, it is registered on a man’s name compared with 33% for women. Men also tend to decide more about where to save and the amount of savings to keep than women (Table 7).

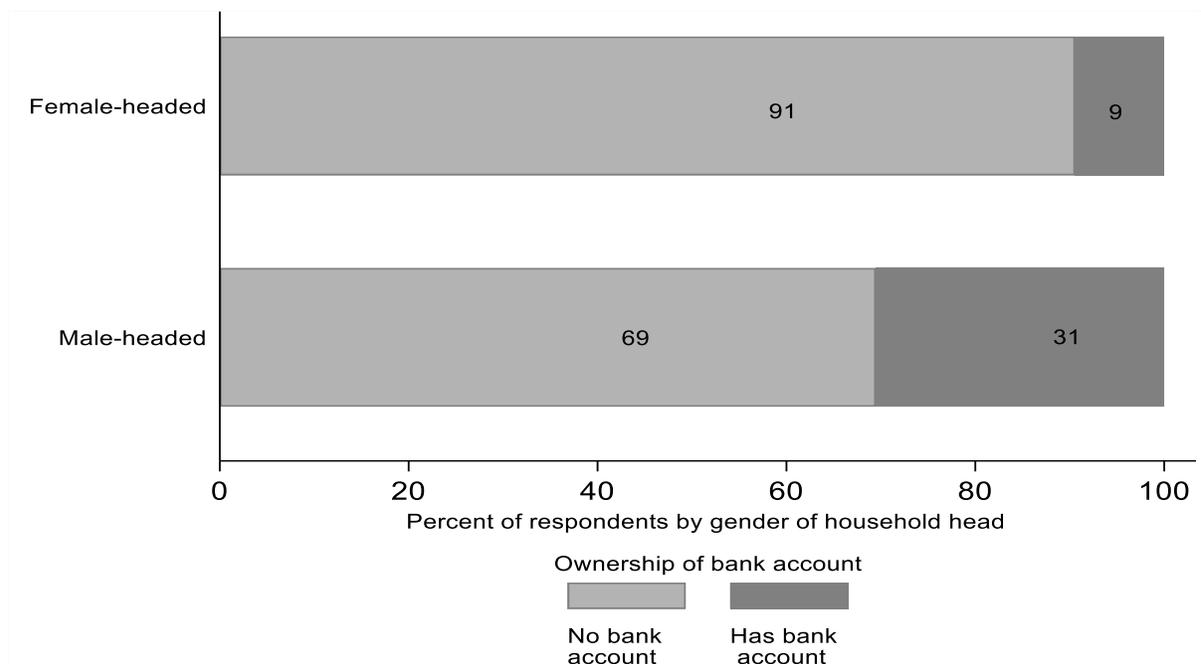


Table 6. Gender of the person whose name is registered on the bank account

Figure 20. Ownership of bank account by male-headed and female-headed pastoral households in Kenya

Gender	Yes (%)	No (%)
Men	76	24
Women	33	67

Table 7. Gender of the person deciding where and amount to save

Variable	Men (%)	Women (%)
Where to save	63	56

How much to save	61	57
------------------	----	----

The survey asked for the reasons that explain limited use of banking facilities. Both male-headed and female-headed households indicated that lack of banks in the areas where they reside is the main constraint (Figures 21 and 22). In addition, female-headed households (29%) seem to have less trust in the bank as a savings source. A sizeable proportion of female-headed households (14%) reported they do not have enough money to warrant saving in a bank. In other words, they perceived that the amount of money they had was very little to be saved in a bank. Another 14% of female-headed households that felt they did not need a bank account. These findings suggest that interventions targeted at boosting incomes among women and improving financial literacy are likely to incentivize saving behavior. Men-headed households further indicated that lack of trust, cost of banking services, and religion were factors that hindered use of banks for savings. Among households that reported they had cash savings, the average amount of savings was KES48,566. The median savings amount was KES20,000.

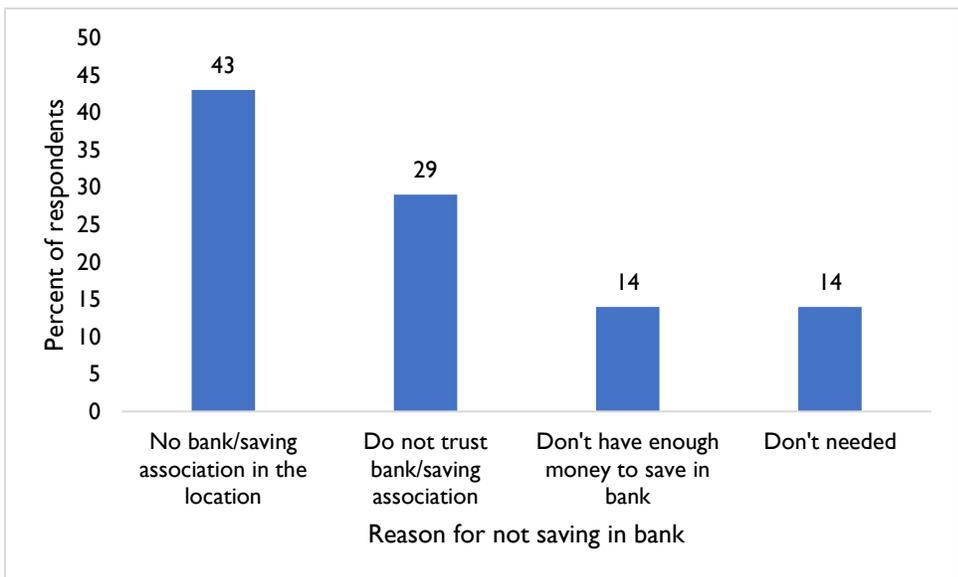


Figure 21. Reasons for female-headed pastoralist households not saving in bank in Kenya

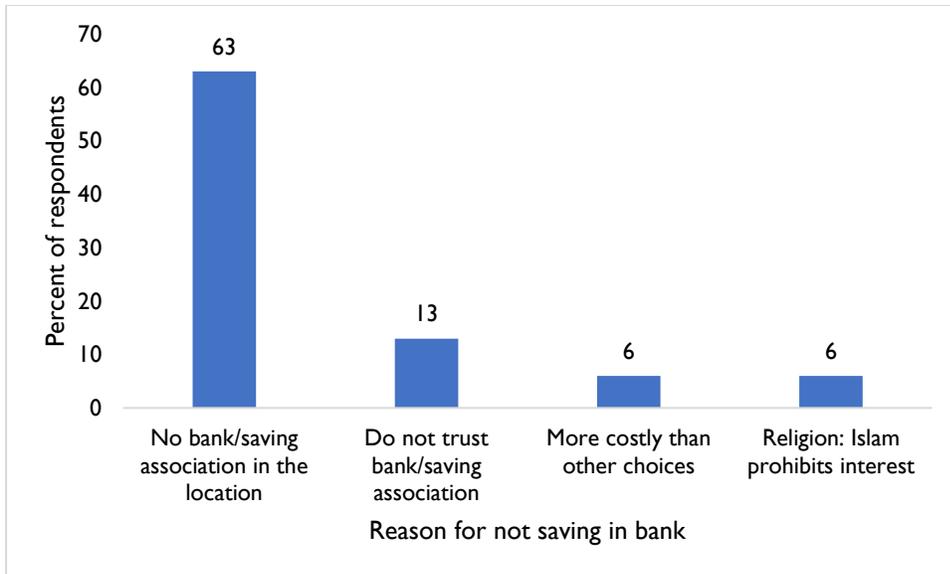


Figure 22. Reasons for male-headed pastoral households not saving in bank in Kenya

3.7.2. Demand, availability, and affordability of livestock insurance

Turning to livestock insurance, the study began by assessing awareness exposure of pastoralists. The survey asked respondents whether they had heard about livestock insurance. Results show that about 50% of both male-headed and female-headed households is aware about livestock insurance (Figure 23). The main sources of information about livestock insurance include social learning from relatives, friends, and neighbors, mass media (radio/television), government officers, NGO staff, and community barazas (Figure 24). The finding that relatives, friends, and neighbors, are the main source of information on livestock insurance reinforce that social network in pastoral settings play multiple roles including information diffusion. The finding suggests that a careful identification of village champions for insurance and leveraging social networks can be an effective approach to the diffusion of livestock insurance. Access to information from government officers could have happened through the Kenya Livestock Insurance Program (KLIP). Dissemination at community barazas where important announcements are made shows that livestock insurance is discussed at such forums. There is no significant difference in the sources of information about livestock insurance between male-headed and female-headed households.

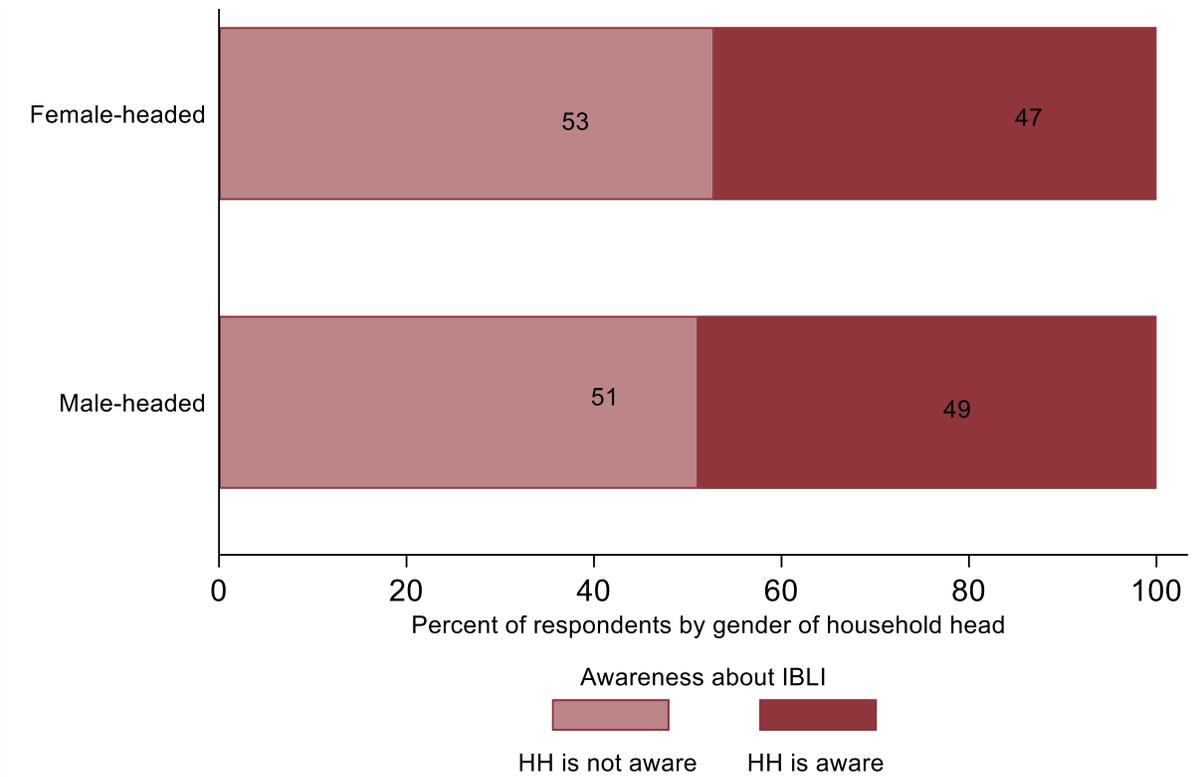


Figure 23. Awareness of male-headed and female-headed pastoralist households about livestock insurance in Kenya

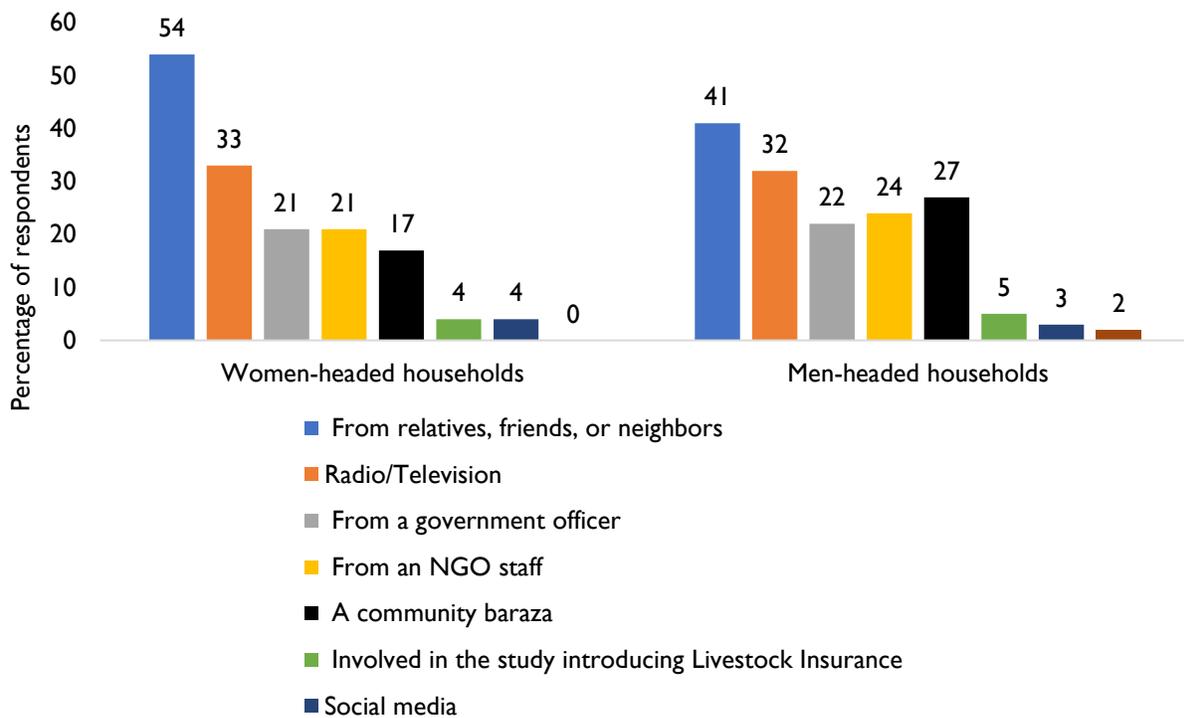


Figure 24. Sources of information about livestock insurance in Kenya

The survey probed for awareness of the respondents about the existence of livestock insurance in their area. Results show that 55% are aware that livestock insurance is available in their area (Table 8). However, the proportion of respondents indicating their households had purchased livestock insurance was low (13%). A considerable share (35%) indicated they knew other people in their area who have purchased livestock insurance. Respondents reporting that they knew someone in the area who has purchased livestock insurance indicated they knew six people, on average.

Table 8. Awareness and purchase of livestock insurance by pastoralist households in Kenya

Variable	Yes (%)	No (%)
Household is aware of existing livestock insurance in the area	55	45
Household has purchased livestock insurance	13	87
Household knows people in the area who have purchased livestock insurance	35	65

The average willingness to pay for livestock insurance was KES1,267 for cattle, KES1,660 for camel, and KES140 for shoats (Table 9). At these premiums, pastoralists would be willing to insure six cattle, four camels, and 25 shoats. Results further show that 45% of the respondents would be willing to make contributions to a savings account as payment for livestock insurance (Figure 25). Among those indicating willingness to contribute to savings account, 51% are willing to buy livestock insurance every year if offered for purchase (Figure 26). The survey also asked about other types of insurance including health and motor vehicle insurance. A sizeable proportion (21%) of households indicated they have public health insurance (Table 10). However, usage of private health insurance and motor vehicle insurance was low, 5% and 6%, respectively.

Table 9. Willingness to pay for livestock insurance by pastoralist households in Kenya

Variable	Mean	Standard deviation
WTP cattle (KES)	1,267	967
Number of mature cattle willing to insure	5.8	6.4
WTP camel (KES)	1,660	2,213
Number of camels willing to insure	4.4	4.9
WTP shoats (KES)	140	120
Number of shoats willing to insure	25.2	32.4

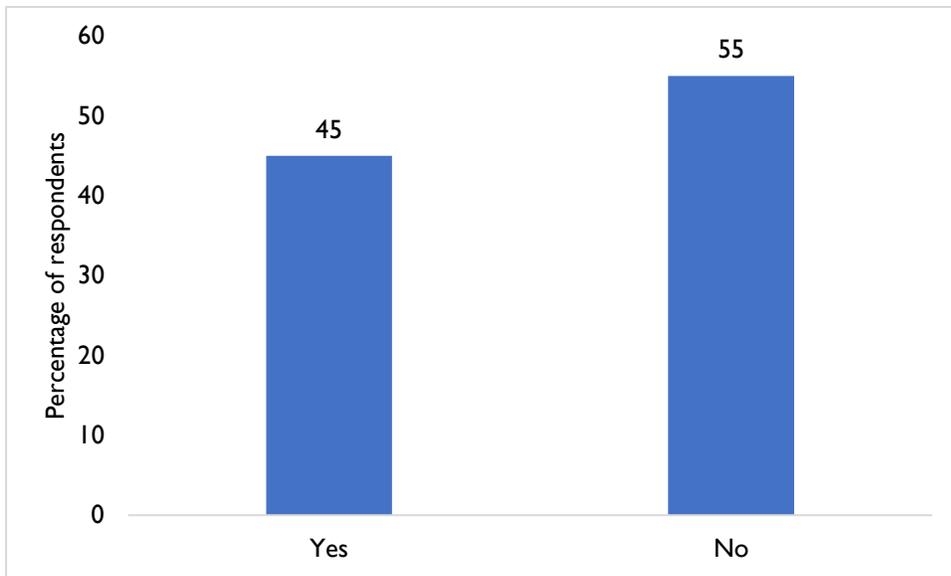


Figure 25. Willingness to contribute to a savings account as payment for livestock insurance

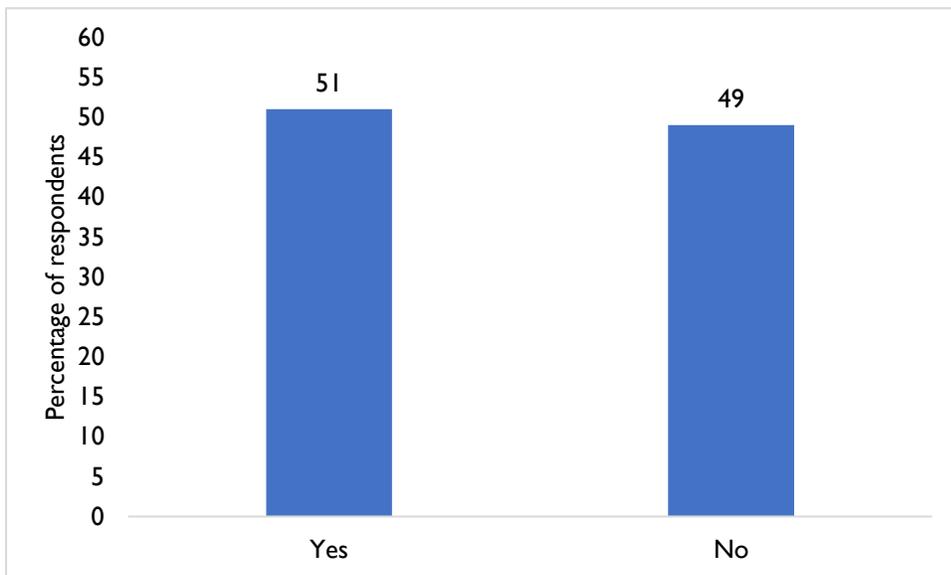


Figure 26. Willingness to buy livestock insurance every year if offered for purchase

Table 10. Use of health and motor vehicle insurance by pastoralists in Kenya

Variable	Yes (%)	No (%)
Household has health insurance (Public)	21	79
Household has health insurance (Private)	5	95
Household has motor vehicle insurance	6	94

3.7.3. Demand, availability, and affordability of credit

The survey asked respondents whether their households borrowed money in the one year before the survey. Access to credit is generally low. Overall, only 13% of the respondents indicated their households had borrowed money. Analysis by gender shows that 17% of male-headed and only eight percent of female-headed households borrowed credit (Figure 27). Pastoralists borrow from friends and relatives, informal schemes, SACCOs, and bank (Figure 28). The survey further assessed decision-making regarding whether or not to borrow, the amount of money to borrow, sources of credit, and the use of the money borrowed. Results in Table 11 show that in 54%, 65%, 58%, 65% of the cases, a male household member decides whether to borrow, how much to borrow, where to borrow, and how to use the money, respectively. The corresponding proportions for women are 50%, 50%, 50%, and 46% for the decision to borrow, how much to borrow, where to borrow, and how to use the money, respectively (Table 11).

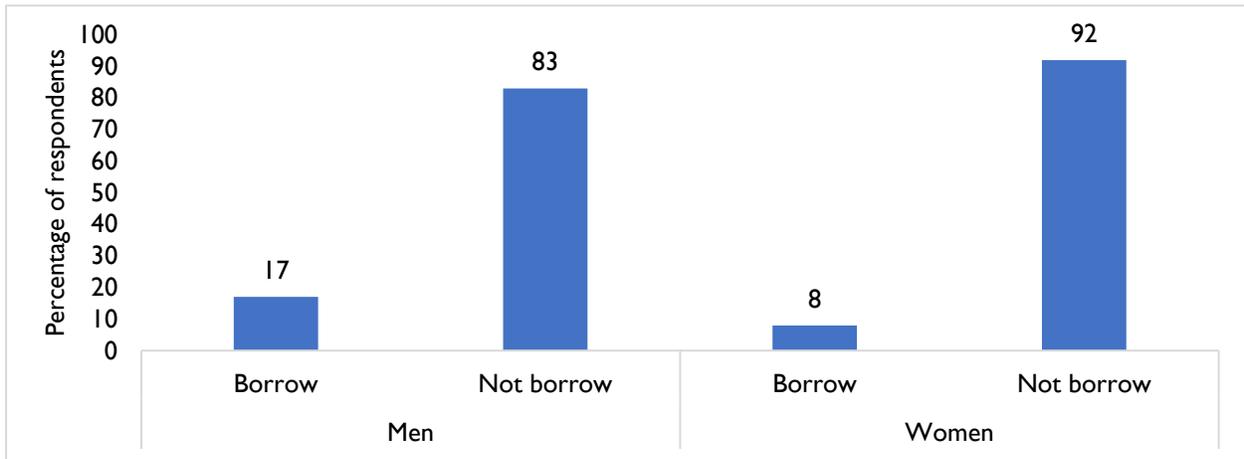


Figure 27. Access to credit by male-headed and female-headed pastoralist households in Kenya

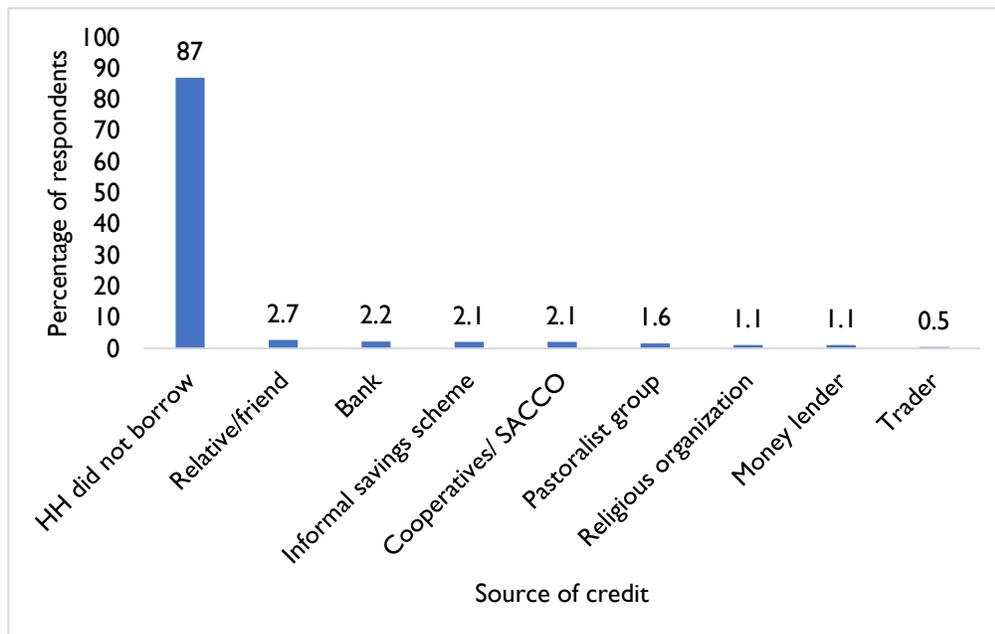


Figure 28. Sources of credit for pastoralist households in Kenya

Table 11. Decision making about credit borrowing and use by pastoralists in Kenya

Gender deciding	Men (%)	Women (%)
Decision to borrow	54	50
Decision about amount to borrow	65	50
Decision about source of credit	58	50
Decision about use of credit	65	46

Results in Table 12 show that the average frequency for borrowing is about twice in a year. The median amount borrowed is KES33,000 per year. While the average amount received (KES67,000) is considerably lower than the average amount pastoralists ask for (139,000), the median amount borrowed and that received are almost the same (KES30,000). The average loan duration is 6.8 months with a median of five months. The interest charged on loans is 9.3% on average (median=7.5%). At the time of the survey, households that borrowed had an outstanding loan balance of KES16,500, on average (median=KES10,000).

Table 12. Summary statistics about loans borrowed by pastoralists in Kenya

Variable	Mean	Standard deviation	Median
Number of times household borrowed money	1.8	0.9	1.5
Amount of money borrowed (KES)	138,769	248,872	33,000
Amount of money received (KES)	67,088	126,199	30,000
Duration of the loan	6.8	7.8	5
Interest rate	9.3	10.8	7.5
Loan balance (KES)	16,535	20,010	10,000

3.8 Information access and use

Access to information by pastoralists is crucial for improved decision making. The survey collected data on access to production, marketing, and weather-related information. Results are presented in Figure 29. One-fifth of the households have access to information about livestock production and management. A sizeable proportion (26%) has received information on livestock marketing. However, access to weather-related information is low. The study finds that only five percent of the households have access to short-term weather forecast. Similarly, the proportion receiving medium-term and long-term forecasts is only four percent. These results call for the need to promote awareness and knowledge creation about livestock production and marketing. The results further indicate the urgent need to promote the diffusion of climate information services to ensure pastoralists have access to both short-term and long-term forecasts.

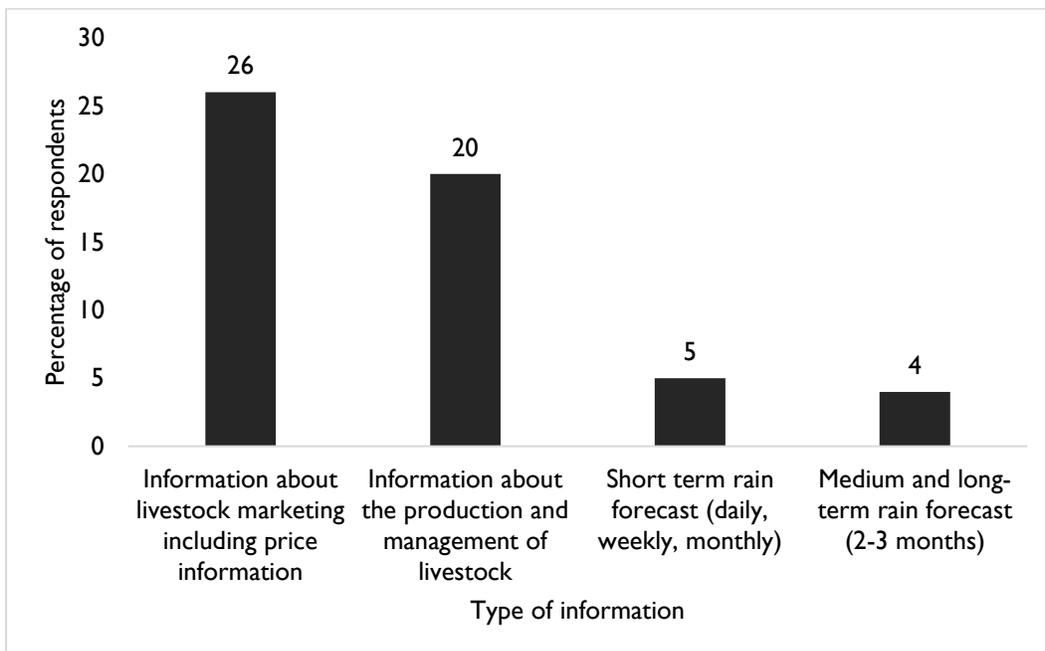


Figure 29. Access to information by pastoralist households in Kenya

Figure 30 presents results about the sources of different types of information. The main sources of information about production and management of livestock include NGO staff, government officers, community barazas, and radio/television. Marketing information is mostly accessed through social networks of relatives and friends as well as community barazas. The weather forecasts are mostly obtained through radio/television.

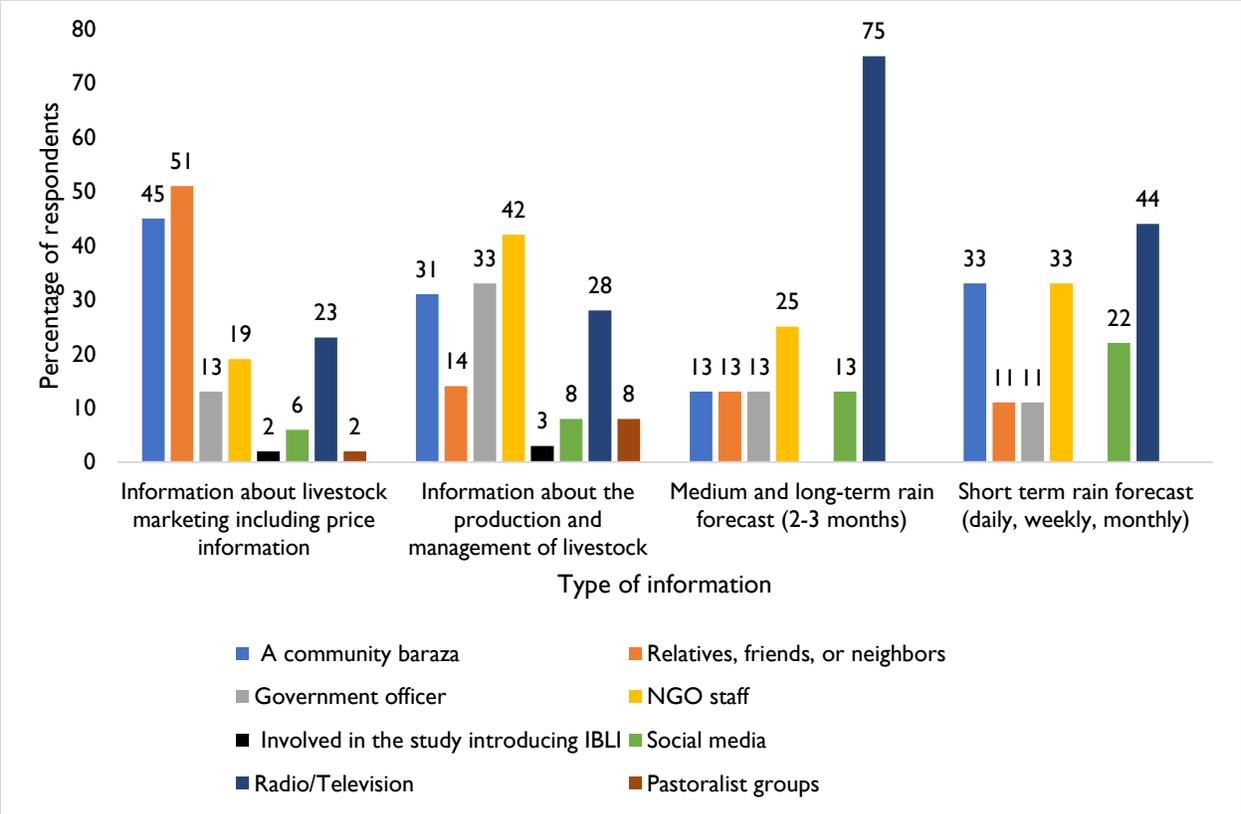


Figure 30. Sources of information by pastoralist households in Kenya

3.9 Migration patterns of groups and group members

Survey respondents were asked to indicate the number of months their households had been located on the current spot where they were staying. On average, households had stayed for 14 years (Table 13). When asked whether their household had migrated during October 2020 to September 2021, only nine percent of the household that are not permanently settled had migrated. This proportion is surprisingly low. On average, migrating households moved to one satellite camp.

Table 13. Migration by pastoralists in Kenya

Variable	Mean/ proportion	Standard deviation	Minimum	Maximum	N
Length of time a household has stayed in current location (months)	165.2	163.1	1	720	184
Has migrate the household or herd since October 2020 to September 2021	0.09	0.28	0	1	184
Number of areas/locations where the household set satellite camp from October 2020 to September 2021	1.4	0.6	1	3	

3.10 Livestock diversification and management

Results in Figure 31 show that the proportion of households keeping shoats is significantly higher than that keeping cattle and camels across all seasons. Generally, the proportion of male-headed households keeping livestock is higher than that of female-headed households for all types of livestock (Figure 32). The proportion of female-headed households keeping camels is especially very low. These findings not only show diversity in herd composition but also possibly indicate changes in species composition in response to drought. Female livestock are mainly kept for food security whereas male animals are mainly for cash.

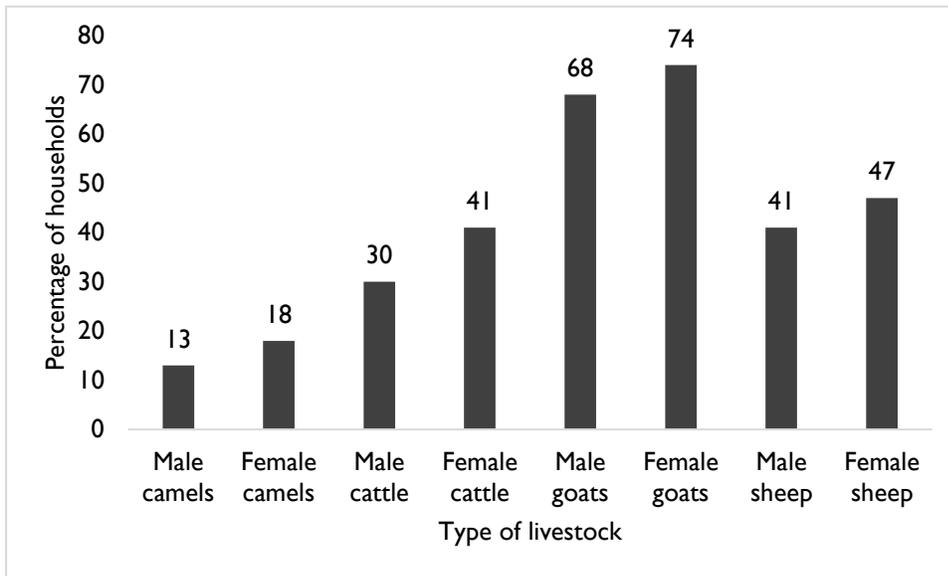


Figure 31. Types of livestock kept by pastoralist households in Kenya

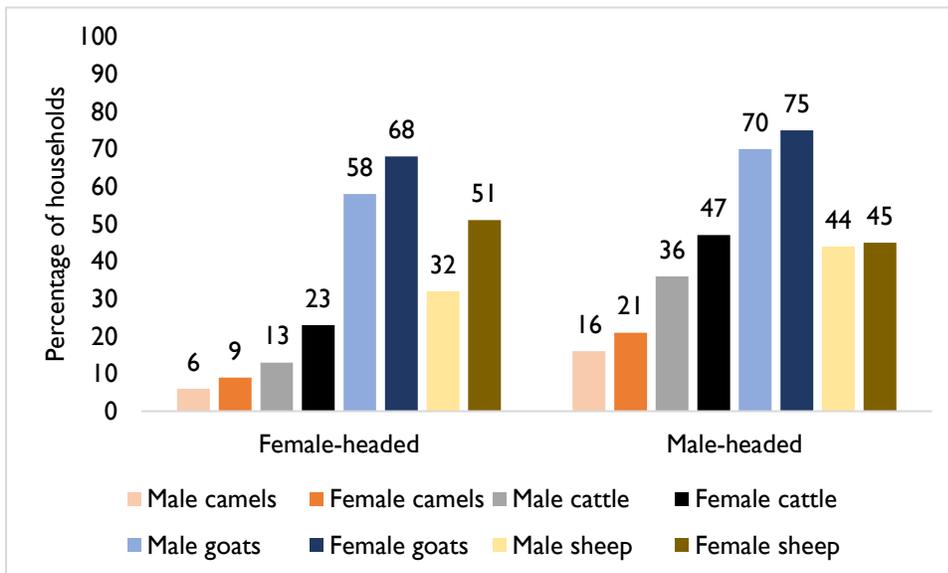


Figure 32. Types of livestock kept by male-headed and female-headed pastoralist households in Kenya

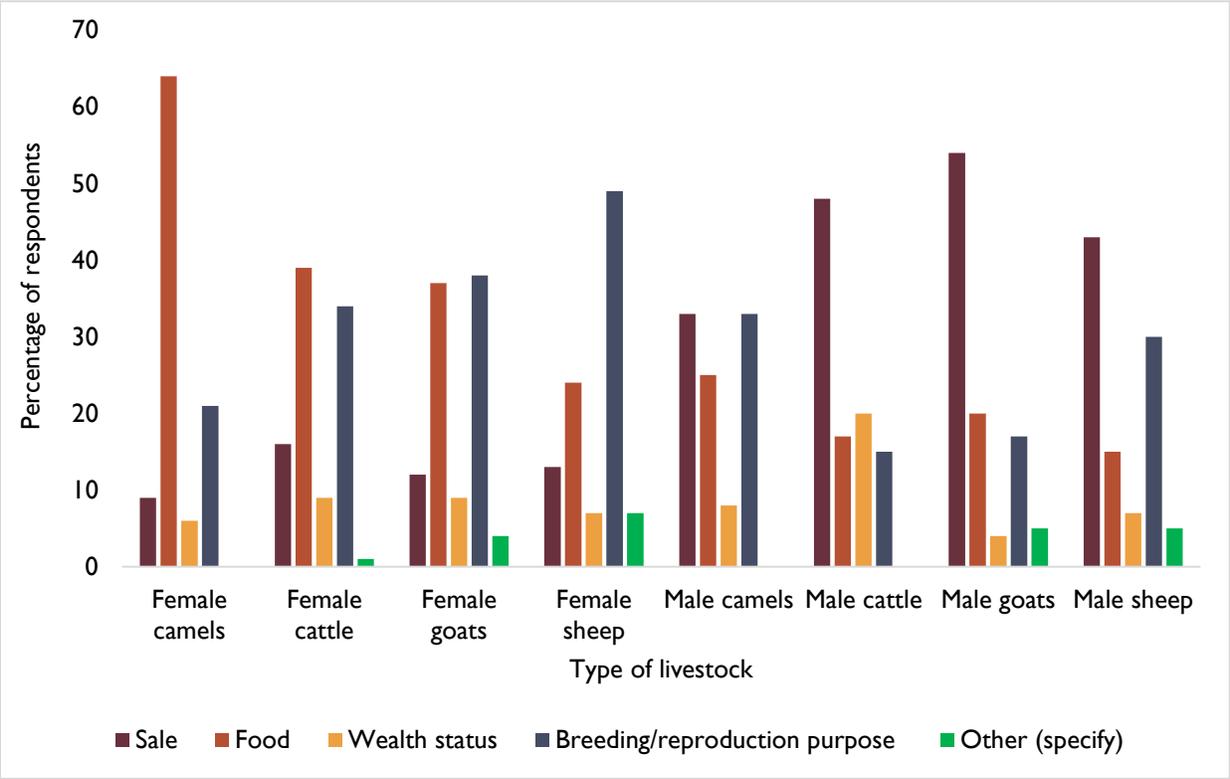


Figure 33. Main purpose for keeping livestock in Kenya

3.11 Access to inputs

This section presents results of the different inputs used by pastoralists in their livestock production activities. Analysis is conducted by season. The study further assessed the amount of money spent for the main livestock expenditure categories. Results show that across all seasons, households mostly spend money on buying livestock medicine and feed (Figure 34). Other important expenditure categories with a considerable share in the cost include water for livestock, veterinary services, and hired labor. As expected, expenditure on feed is higher during the dry seasons than wet seasons (Table 14). However, even in the rainy seasons, the proportion of households spending money on livestock feed is considerable. This indicates that forage availability has reduced both in the rainy and dry seasons. Table 14 also reveals variation in livestock expenditure across seasons with the largest burden experienced during the June-September long dry season. The calculation here is based on a sub-sample that actually incurred the specific type of livestock expense in a particular season as opposed to whole sample average.

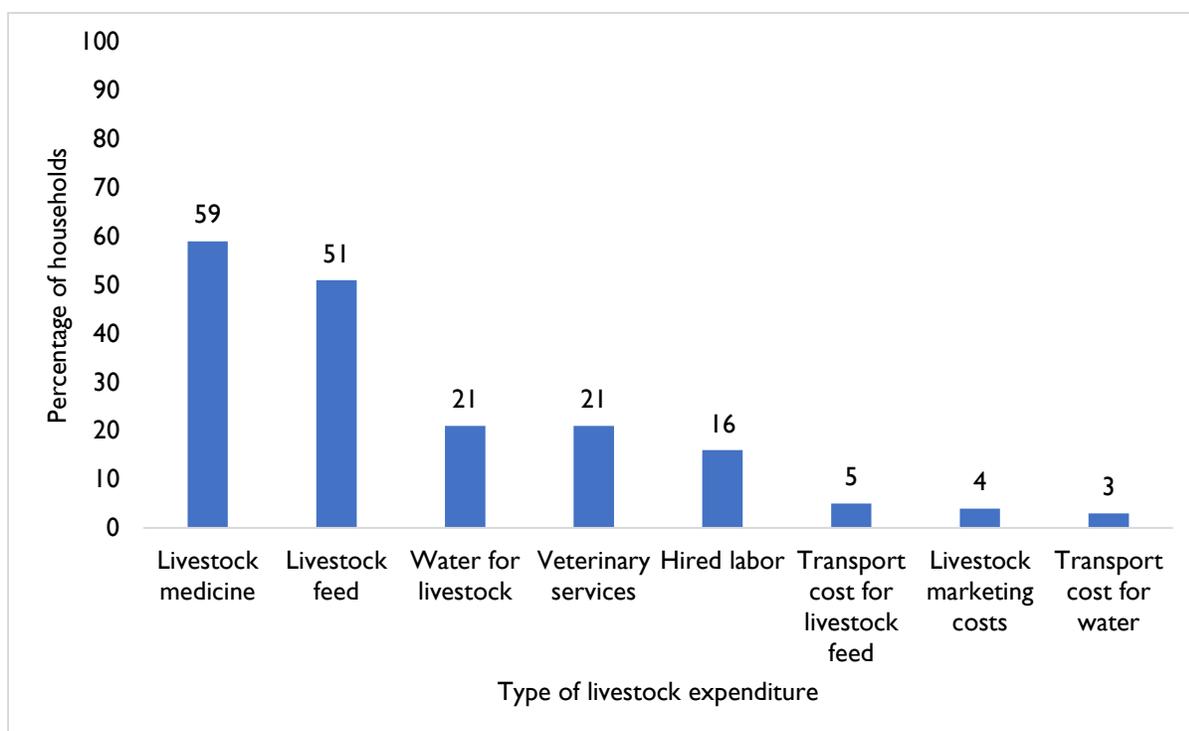


Figure 34. Livestock expenditure by pastoralist households in Kenya

Table 14. Average amount of money spent (KES) by pastoralist households across seasons in Kenya

Expense type	October-December 2020	January-February 2021	March-May 2021	June-September 2021
Livestock feed	7,330	6,320	6,650	17,325
Water for livestock	11,070	3,460	6,290	10,205
Livestock medicine	5,345	4,220	5,330	6,670
Veterinary services	2,180	1,560	2,270	2,170
Hired labor	-	8,610	11,620	15,240

3.12 Natural resource management

The traditional pastoralists norms, institutions, and land management practices have over time reinforced the rangelands as adaptation mechanisms related to the availability of rainfall, mobility, flexibility and

opportunistic resources, prioritizing the right of the livestock owners to access the resource over ownership rights. The vast majority of these rangelands are situated on communal rather than private land and are managed collectively by the people who live there. While pastoral and agropastoral communities have had traditional institutions and practices for managing their resources, these traditional systems have been eroding over time in most communities. Focus group discussions conducted by Robinson et al. (2021) showed that the influence of the role of elders was rapidly diminishing in some communities as a result of modernization of governance systems. For example, formation of Ward Development Planning Committees (WDPC) with a significant role in resource management but requiring members to be educated was perceived as a way of excluding most elders whom the community would have preferred to be members of the WDPC. A hybrid governance model is, therefore, emerging with local leaders, some government involvement, educated youth, and NGOs.

The erosion dates back to the colonial times, where prior to colonization, the pastoralist communities had diverse institutions and management practices. With the colonial administrators, however, any land which was not farmed, was seen as waste and unoccupied land. Over time, this led to greater restrictions on herd mobility, one of them being in the form of 'tribal grazing areas' that separated ethnic communities, restricted movement and reduced interaction amongst them.

The 2010 Constitution and the Community Land Act of 2016 together lay the groundwork for a potential transformation of property rights in both the group ranch and Trust Land areas, establishing a land tenure category of community land which has equal standing with private land and state-owned land. It is envisioned that intact group ranches will transition, adjusting their organizational structure and bylaws, if necessary, to meet the requirements of communities under the Community Land Act, and that such communities will be identified and formalized in the former Trust Land areas. Given the nature of land tenure in most counties in northern Kenya, which is largely community land held in trust by counties, it is relatively easy for the rights of communities, as opposed to private landowners, to be disregarded through displacement with inadequate or slow compensatory mechanisms (Mkutu, 2019). There are widespread private enclosures established mostly associated with infrastructure development projects in northern Kenya such as the LAPSSET project and other road/infrastructure projects. These affect land rights (Elliot, 2016; Mkutu, 2019). Some of these enclosures (2-8 hectare in size) are associated with the growth in livestock trade, as wealthy herders and traders utilize them to fatten livestock. These enclosures often hurt the average pastoralist and have been a source of resentment in some areas. Speculation and fears that development projects might displace indigenous communities can cause protests against investors or increased competition and conflict between pastoralist groups over shrinking rangeland and water sources (Mkutu, 2019). The DRIVE project should be aware that investments in market and other infrastructure will increase the value of land and might motivate the growth of private enclosures/fragmentation of lands with implications for equity and possible conflict. It is important that the DRIVE project avoids elite capture which often occurs when enclosures are carved out of communal grazing areas.

Social relations and patterns of mobility and resource use exist at different scales and levels and overlap greatly. CBNRM and interventions for communal tenure struggle in such circumstances as there is no single level or spatial extent that stands out as best for communal management. For example, establishing clear inter-community borders often exacerbates conflicts rather than enabling communal resource management. The creation of community conservancies and other types of CBNRM institutions in Kenya with clear territorial boundaries has also produced various unintended consequences.

Where customary forms of pastoral governance of rangelands are strong, they often rely on types of governance mechanisms other than land tenure. Such mechanisms include negotiation and relations of reciprocity. The building of social capital in connection with natural resource management may offer the best return on investment for CBNRM. Information sharing has also proven very important for effective resource governance in pastoral systems.

Findings from the survey showed that very few households used routes that passed through protected areas/ conservancies and the ones that did, required a permit to do so. This permit is in the form of a letter of agreement between the conservancies/ protected areas and the households using that area. The finding that pastoralists do not use migration routes passing through conservancies or protected areas should, however, be interpreted with caution given the small sample size. Studies have shown that conservancies and protected lands are often used by pastoralists during droughts. Robinson et al. (2021), for example, documented based on focus group discussions and key informant interviews that the Nakuprat Gotu conservancy located in Isiolo County and supported by the NRT has a total population of 20,000 semi-nomadic pastoralists who exercise seasonal movement with dry season movements within and outside of the conservancy in search of water and pasture for their livestock, has contributed towards reducing conflict, highway banditry, and insecurity as well as bringing different ethnic communities together to build multi-ethnic peace.

The DRIVE project can contribute to maintenance and preservation of the rangelands if incentives can be attached to the premiums or different options of products can be provided where rangeland management can be integrated with insurance. Given the complexity of land ownership, management, private enclosures and increasingly changing practices in migration, further stakeholder consultations and innovations would have to be considered, in order to ensure that negative spillovers such as over grazing and desertification are not caused because of a 'perceived protection' that a livestock insurance product provides for the livestock. Previous empirical studies have shown that IBLI coverage leads to reduced herd sizes and increased expenditures on livestock veterinary services (Jensen et al., 2017). However, recent theoretical evidence suggests that where property rights are poorly defined and resources are increasingly scarce, IBLI can create an incentive for increased herd sizes consequently causing degradation (Bulte and Haagsma, 2021).

As far as management and ownership of water points are concerned, findings from the survey suggest that, on average, pastoralists walk 72 minutes during the dry season and 55 minutes during the wet season to access watering points (Table 15). The median distance walked to access watering points both during the wet and dry seasons is 30 minutes. 73% and 80% of the watering points accessed were the most reliable during the wet and dry seasons, respectively (Figure 35). Most of the water points are communally owned (Figure 36). Incidences of conflict related to access and use of water were generally few (Figure 37). The proportion of conflict cases related to accessing and using water was higher during the dry season. The use of water resources, especially during the dry season, is based on open property regimes which though have undergone changes, are still followed. Water harvesting is not a common practice in the pastoral areas, and findings suggest that very few households and individuals have heard about the practice of water harvesting; of the ones that had, the sources of information were mainly community barazas, friends, and neighbors.

Pastoralist Integrated Support Programme (PISP) has been engaged in a variety of water-related activities including working with local stakeholders to form water users associations or water committees, improvement to traditional wells, and water harvesting (Robinson and Berkes, 2011). The Water Act of 2002 recognizes and assigns a role to community organizations and other non-state actors in the

management of water resources (GOK, 2002). In nomadic pastoralist societies, much of the deliberation and collective decision making takes place in occasional meetings, scheduled as the need arises. Many of the important decisions related to management of water points tend to be made at these meetings: determining the operational rules for particular water points; at ‘traditional’ water points, assigning slots in the rotational order according to which livestock owners will water their animals; for ‘modern’ water points, deciding whether and how much to charge for water; deciding which animals will be allowed to use certain water points; etc (Robinson et al., 2010). There are, however, concerns that marginal groups and women tend to be excluded from customary clan-based resource management institutions (King-Okumu et al., 2017).

Table 15. Summary statistics related to access to water points by pastoralist households in Kenya

Variable	Mean	SD	Min	Max
Number of watering points accessed during dry season	1.4	0.8	0	4
Number of watering points accessed during wet season	1.2	0.5	0	3
Distance to the nearest watering point during dry season (walking minutes)	72 [30]	91	0	480
Distance to the nearest watering point during wet season (walking minutes)	55 [30]	85	0	460

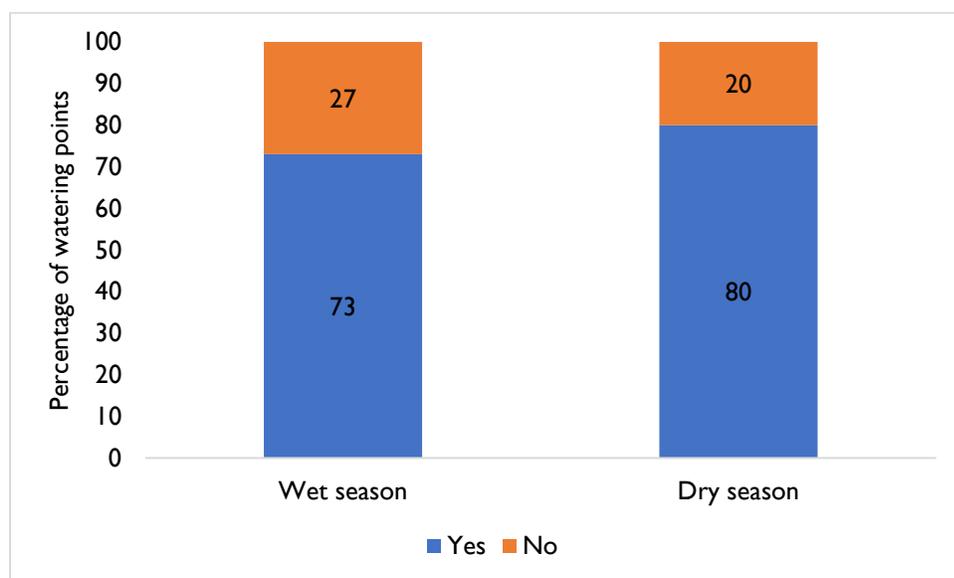


Figure 35. Reliability of water points in Kenya

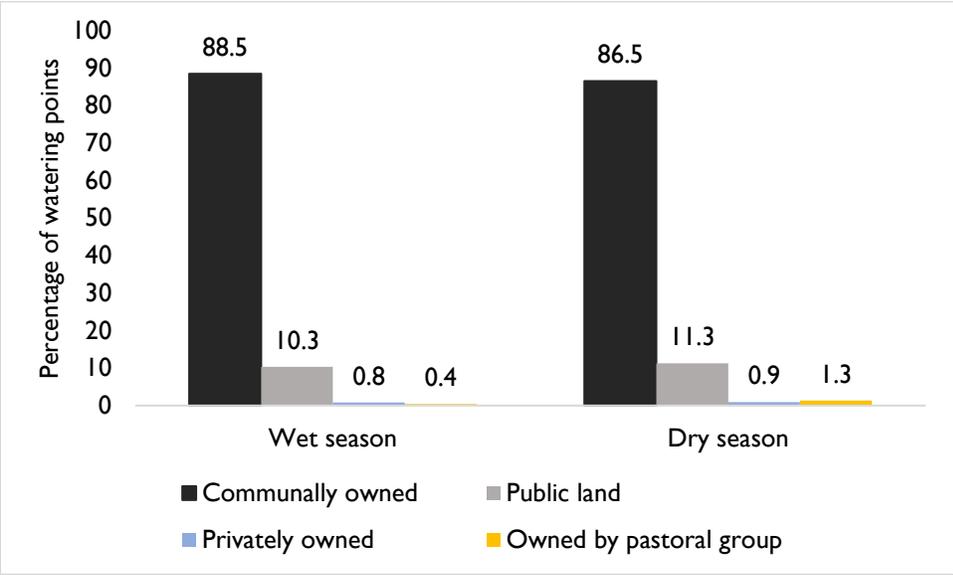


Figure 36. Ownership of water points in Kenya

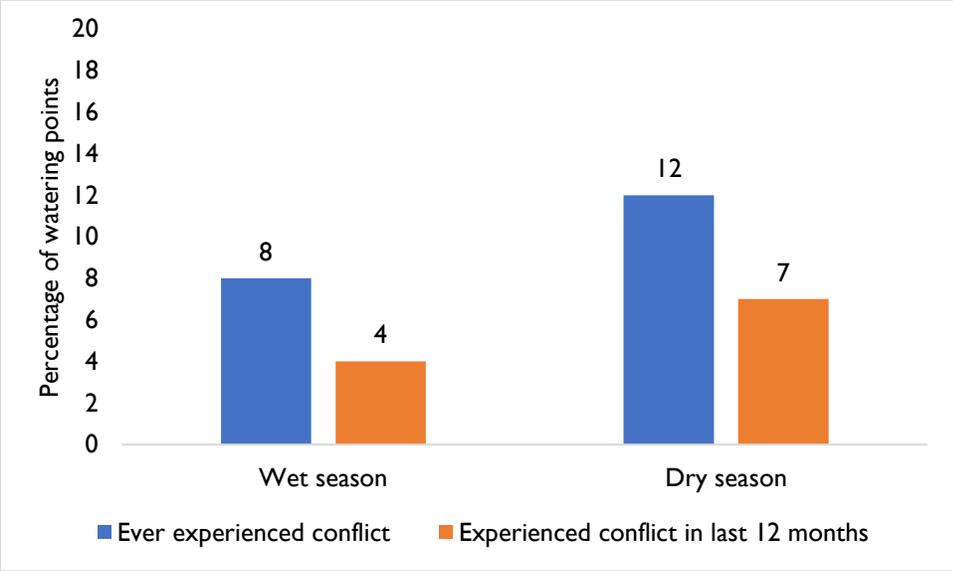


Figure 37. Conflict incidences related to access to water points in Kenya

4. Findings: Somalia

4.1 Demographics

Most households (64%) are headed by men. The heads of households are 43 years old, on average. Respondents indicated they had lived in the area continuously for 24 years. This means that respondents understand the climatic shocks and changes that have occurred in the study site. The average household size is 5.3. The age dependency ratio was 1.1, on average.

The education level of the household heads is low: 45% of the household heads have no formal education, only 6% have completed primary education, and only 2% have completed secondary education. Figure 38 shows that education levels are lower for female than male household heads: none of the female heads of households have completed secondary education and above. Education level has implications on financial literacy and the ability to grasp and apply knowledge about IBLI, beyond simple awareness exposure, and should be carefully considered by interventions aimed at promoting IBLI. 83% of the household heads were married. A considerable proportion (8%) of the household heads were divorced. Most of the sample households are fully settled (79%), 12% are partially settled, and 9% are nomadic.

Table 16. Demographic characteristics of surveyed pastoralist households in Somalia

Variable	Mean/ proportion	Standard deviation	Minimum	Maximum
Gender of the household head (1=male, 0=female)	0.64	0.48	0	1
Age of the household head (years)	42.62	11.65	19	80
Household size	5.30	2.95	1	13
Education of household head:				
No formal education	0.45	0.50	0	1
Some primary education	0.24	0.43	0	1
Completed primary education	0.06	0.23	0	1
Some secondary education	0.03	0.18	0	1
Completed secondary education	0.02	0.15	0	1
University or higher education	0.02	0.15	0	1
Marital status of the household head:				
Single (never married)	0.08	0.27	0	1
Married	0.83	0.38	0	1
Divorced/separated	0.08	0.27	0	1
Widowed	0.01	0.11	0	1
Household type:				
Fully settled	0.79	0.41	0	1
Partially settled	0.12	0.33	0	1
Nomadic	0.09	0.29	0	1

Main religion of the household:				
Muslim	1.00	0.00	0	1
Number of observations	90			

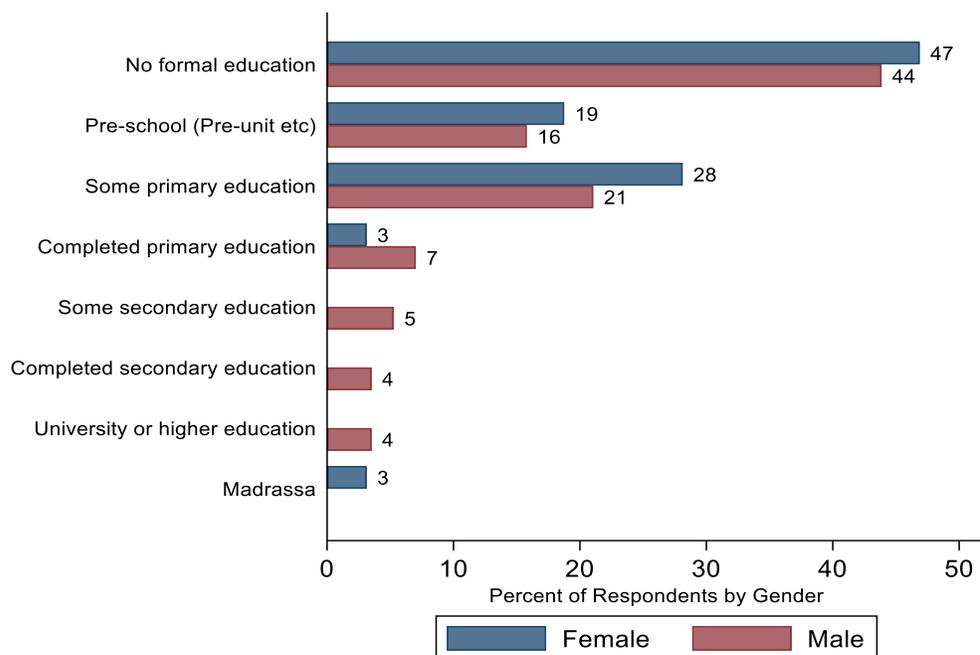


Figure 38. Education of the household head by gender

4.2 Group characteristics

The study assessed the characteristics of the different pastoralist groups by examining several aspects including the size and composition of the groups, the functions of the groups, frequency of meeting, and decision making, and leadership within the groups. Figure 39 shows that diversity in the functions of the groups. The main functions of the groups include financial (savings, loan etc.) and milk production. Importantly, all the selected groups were involved in livestock production-related activities. Table 17 presents results of the characteristics of the groups. The average size of the groups was 19 members: among these seven are men and 12 are women. This finding shows women's active participation in pastoralist groups. The groups are fairly recent: on average, the groups have existed for one year.

The survey asked respondents to indicate whether they had a document showing proof of groups' registration. Results show that most (80%) have a proof of registration. Most of the respondents (90%) reported that their groups had an office where meetings are held. The average distance from the homestead to the office was 2.6km. Respondents were asked about the number of times their households had attended group meetings in the past one year before the survey. The average number of times households attended meetings was 15.

The survey further probed for the leadership and decision-making approach of the groups. In 30% of the households, a household member had held a leadership position in the group. Figure 40 shows that most of the respondents (96%) were satisfied with the leadership of the group. Decisions were either made by group leaders in consultation with other members (51%) or through consensus (40%). Most respondents (67%) reported they felt comfortable speaking during the group meetings to express their opinion. More than three-quarters of the sample respondents indicated they were had the ability to influence some or most of the decisions and only 22% reported they could not influence any of the decisions made by the group.

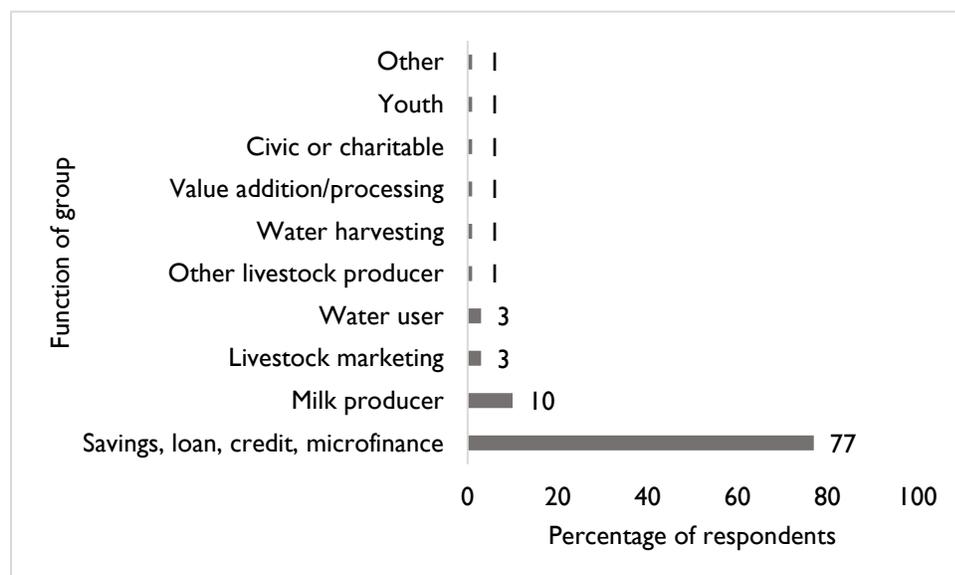


Figure 39. Main functions of surveyed pastoralist groups in Somalia

Table 17. Characteristics of the pastoralist groups sampled

Variable	Mean/ proportion	Standard deviation	Minimum	Maximum	N
Size of the group	19.0	9.7	3	50	90
Number of men group members	6.8	5.8	0	25	90
Number of women group members	12.1	5.8	2	25	90
Number of years of group's existence	1.1	0.4	1	4	90
Group has a proof of formal registration	0.8	0.4	0	1	90
Group has an office	0.9	0.3	0	1	90
Average distance from homestead to office (km)	2.6	3.3	1	23	81
The group meets at least weekly (1= yes, 0=no)	0.3	0.5	0	1	90
The group meets at least once every two weeks (1= yes, 0=no)	0.1	0.3	0	1	90
The group meets at least once every three weeks (1= yes, 0=no)	0.3	0.5	0	1	90

The group meets at least monthly (1= yes, 0=no)	0.3	0.4	0	1	90
Number of times the household attended meetings in past one year	14.7	15.4	1	48	90
A household member holds a leadership position in the group	0.3	0.5	0	1	90



Figure 40. Decision making and leadership within pastoralist groups in Somalia

4.3 Livelihoods and sources of income

This section presents results of the assessment of livelihoods and income sources. The section first looks at the occupation of the household head. Results in Figure 41 show that most heads of the household primary engage in livestock herding. Although the proportions are generally low, more male-headed households engage in casual, salaried employment, and livestock trading than female-headed households. Results about income sources are consistent with the main occupation of the household head (Figure 42). Specifically, selling of livestock and livestock products are major sources of income. A considerable share (13%) obtain income from self-employment in businesses. Casual employment and cash transfers also contribute to the incomes of households: each of these sources provide income to 8% of the households. Table 18 shows that there is considerable variability in income across seasons. Generally, income from livestock sales is lowest during the long dry season in the base camp and highest during the long rains season.

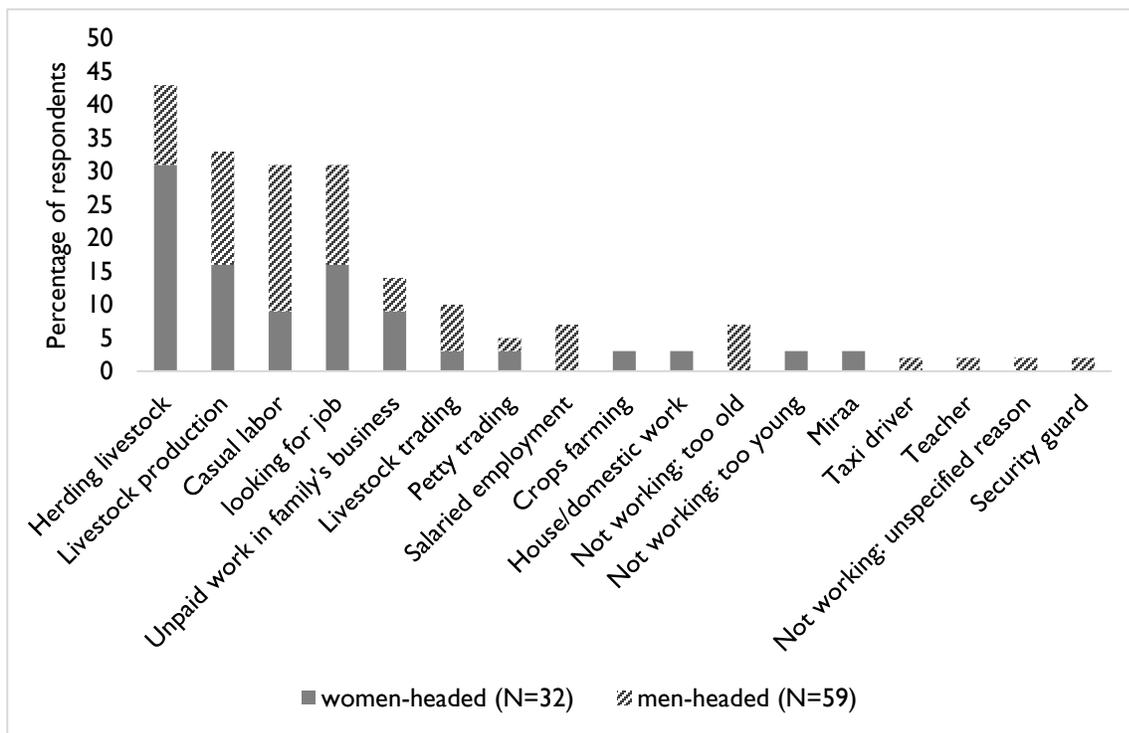


Figure 41. main occupation of the heads of pastoralist households in Somalia

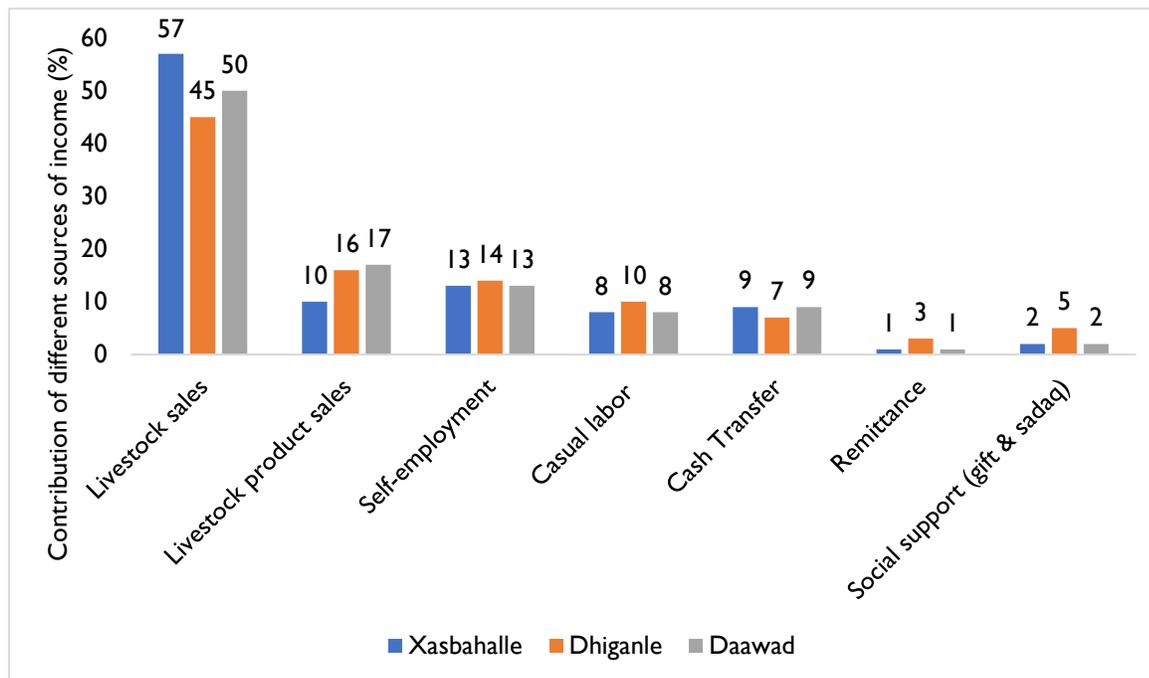


Figure 42. Main sources of cash income for pastoralist households in Somalia

Table 18. Variability in pastoralist household income across seasons and spatially in Somalia

Income source	October-December 2020		January-February 2021		March-May 2021		June-September 2021	
	Base camp	Satellite camp	Base camp	Satellite camp	Base camp	Satellite camp	Base camp	Satellite camp
Sale of livestock	386	150	180	-	740	200	66	128
Sale of livestock products	-	-	-	-	-	-	-	-
Working in salaried job	-	786	-	-	434	434	1,032	1,031
Working in casual employment	68	68	15	85	132	183	101	108
Engagement in business including petty trading	150	150	-	102	118	113	81	209

4.4 Shocks and coping mechanisms

The survey asked a series of questions about the negative unexpected events that may have been faced over the last five years before the survey. Figure 43 shows that most shocks facing households are climate related. Specifically, 30% of the survey respondents had experienced frequent droughts. A sizeable proportion (13%) experienced prolonged drought. Another 13% faced delayed rainfall. Households were also affected by the COVID 19 pandemic: 11% of the survey respondents had experienced the impact of the pandemic.

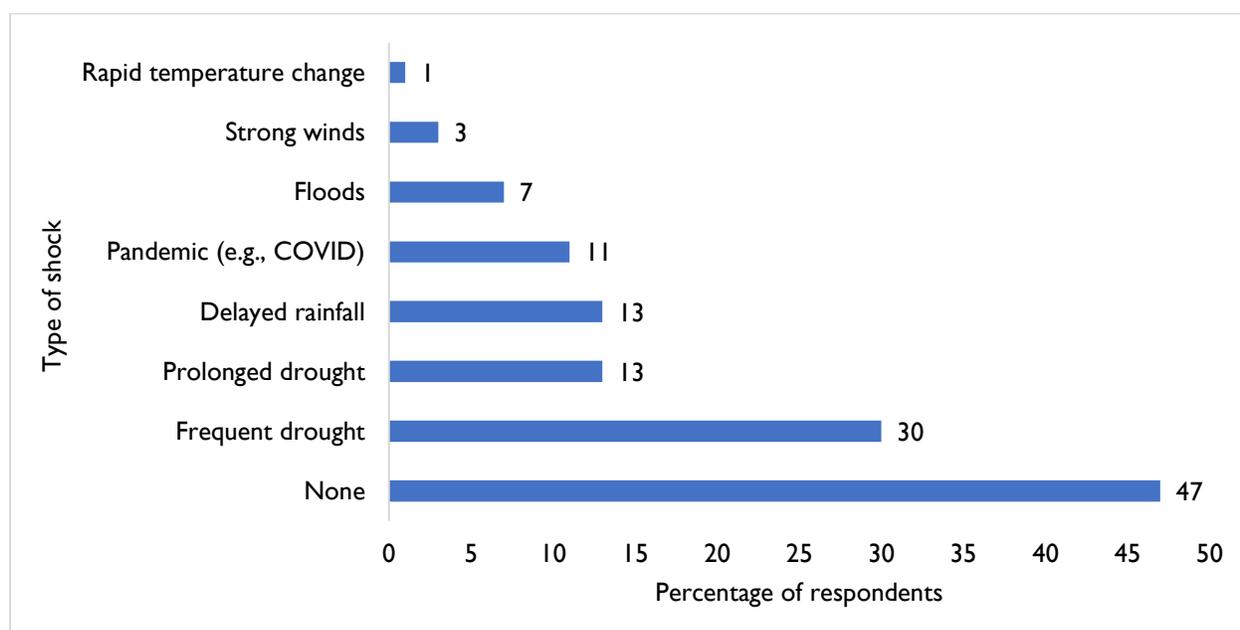


Figure 43. Types of shocks faced by pastoralist households in Somalia

There has been a rapid increase in the proportion of households experiencing drought (Figure 44). This indicates increasing vulnerability of pastoralist populations. Figure 45 shows that the shocks are mostly covariate in nature: they affect most community members as opposed to only a few households. The impacts of the shocks are severe: 77% of the respondents rated the severity of the impacts as high or very high.

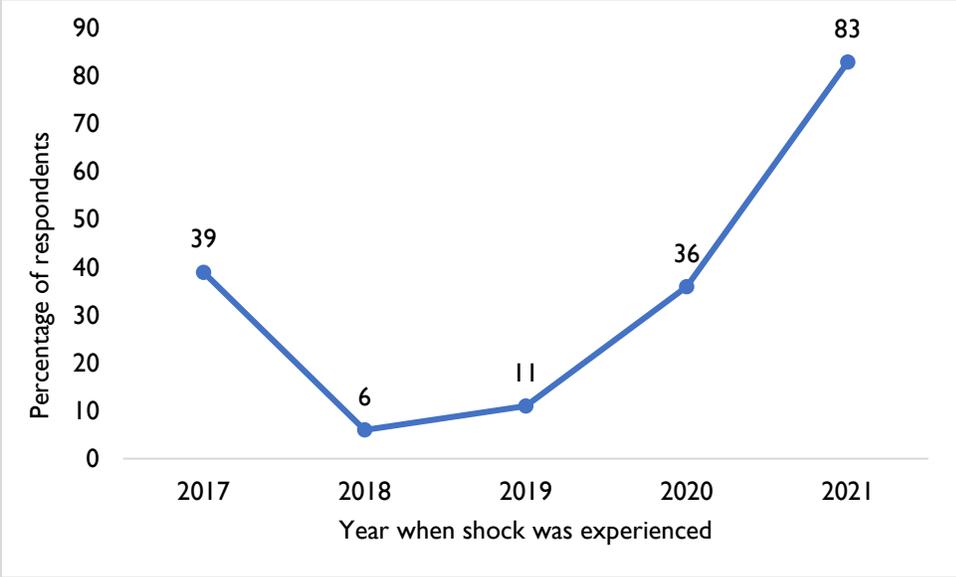


Figure 44. Trends in the occurrence of shocks in Somalia

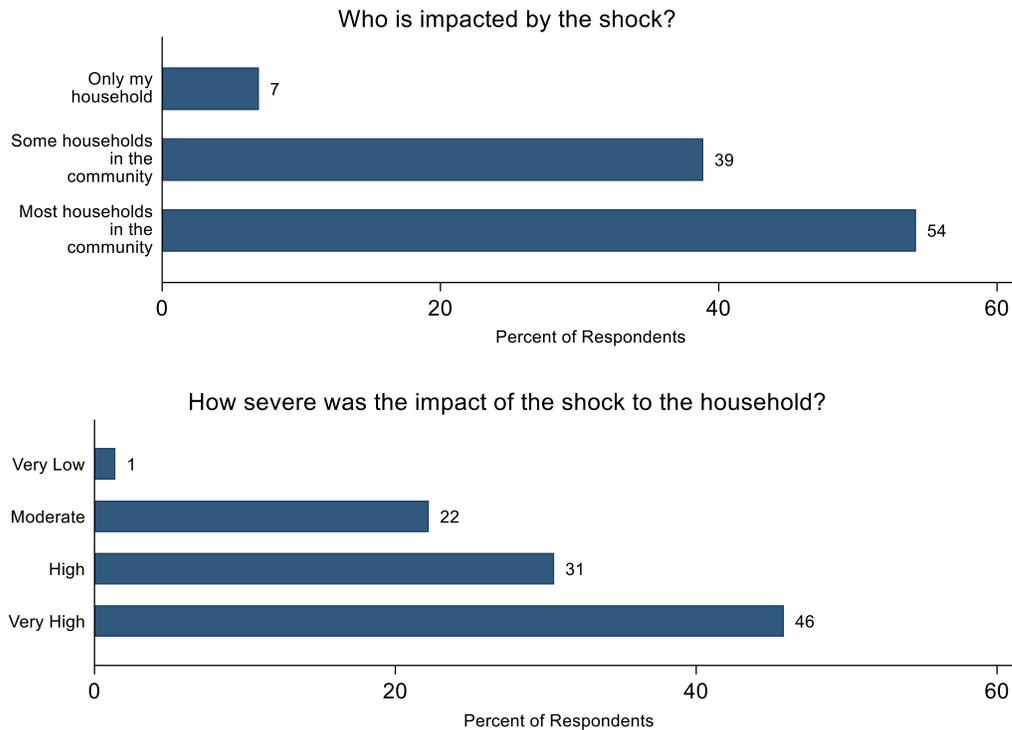


Figure 45. Impact of shocks facing pastoralist households in Somalia

While 28% of the households were unable to implement any measures to cope with the shocks, the remaining 78% of the households implemented several strategies to address the shocks (Figure 46). As shown in Figure 46, a considerable proportion of pastoralists cope with shocks by running down assets and past savings and relying on aid from the government or NGO: the proportion of households selling livestock, relying on past savings, and receiving aid was 22%, 19%, and 18%, respectively. Results further show that pastoralists tend to reduce livestock sales or sell their livestock and livestock products at lower than usual prices. It seems, therefore, that pastoralists are selling livestock not as a commercial activity but out of desperation. The lower prices obtained could also indicate low quality of the livestock at the time of selling. The findings suggest an opportunity for improving the functioning of the livestock value chain including facilitation of trade and addressing quality issues.

Household also cope by scaling back on consumption of food to cope with unexpected shocks. About eight percent of the households reduced food consumption to cope with unexpected shocks (in general). In a context where food and nutrition insecurity are major development challenges, these results indicate that shocks will exacerbate the already poor situation. Another strategy used by pastoralists is diversification into non-livestock activities. Migration plays an important role as an adaptation strategy. Results show that six percent of the households migrated to cope with shocks.

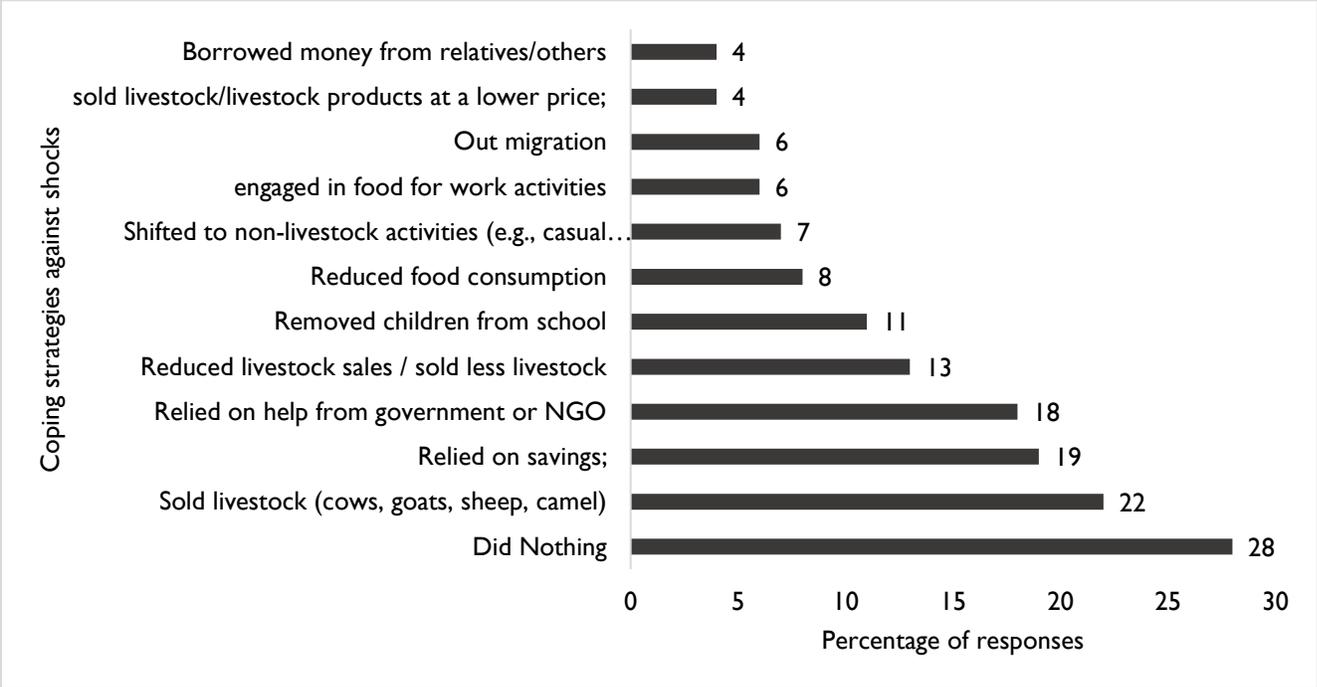


Figure 46. Coping strategies used by pastoralist households to address shocks in Somalia

4.5 Climate change impacts

Survey respondents were asked whether they had observed any changes related to climate or weather. Consistent with information reported in section 4.4 about shocks, we find that most perceived changes related to the persistence and frequency of droughts. Specifically, 58% and 24% report that they have observed prolonged droughts and frequent droughts, respectively (Figure 47). A sizeable proportion (28%) report that rainfall is increasingly unpredictable while 21% indicated delays in rainfall. These changes underscore the importance of livestock insurance and reinforce the need for appropriate interventions to ensure feed availability during drought.

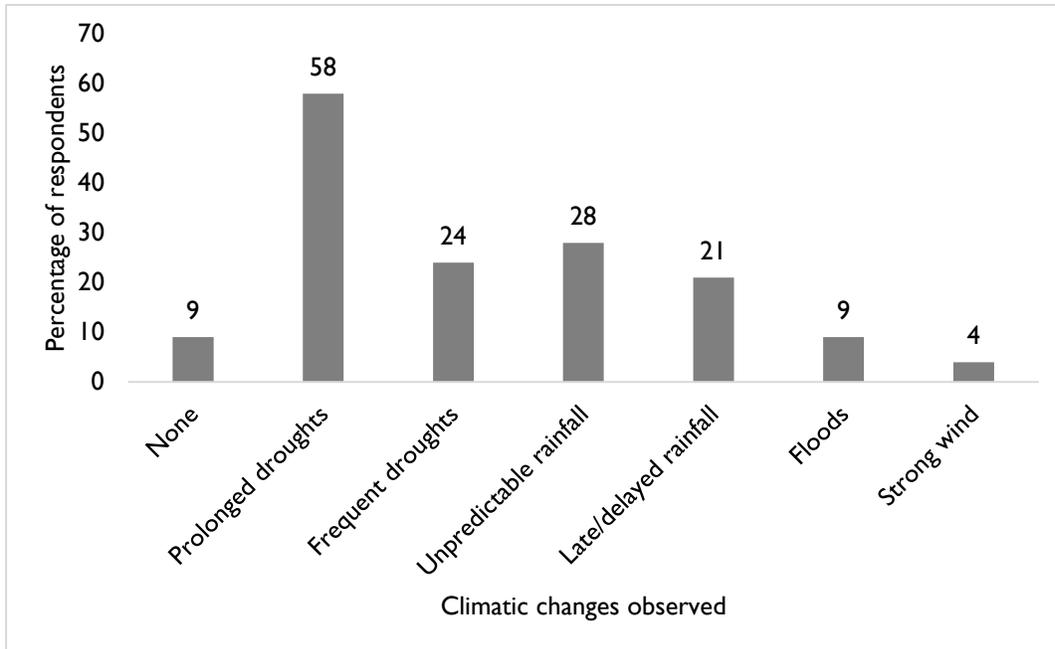


Figure 47. Pastoralists' perceptions about changes in climate/weather in Somalia

The survey further asked respondent to rate on a Likert scale ranging from 1 (extremely unlikely) to 5 (very likely), the extent to which the perceived that climate change would happen in the future. Results in Figure 48 show that only one-fifth of the survey respondents perceive that climate change is extremely unlikely to happen in the future. Further, 38% of the respondents perceive that the impacts of climate change in the future will be medium or strong.

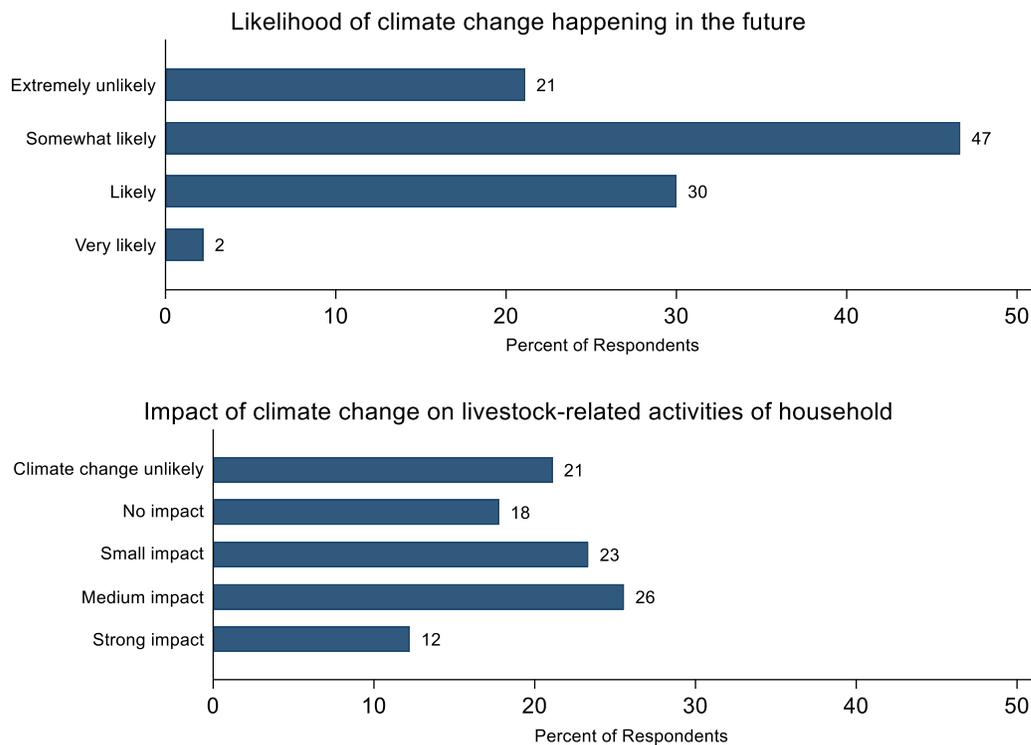


Figure 48. Pastoralists' perceptions of the impacts of changes in climate and weather in Somalia

4.6 Access to mobile services

The proportion of households that own a mobile phone is very high (98%): 98% of the male-headed households and 97% of female-headed households had at least one household member owning a mobile phone (Figures 49 and 50). In all cases, for both male-headed and female-headed households, the phones owned have mobile money. However, there are differences in other phone features between male-headed and female-headed households. Significantly less female-headed (17%) than male-headed households (28%) have phones with WhatsApp (Figure 51). Similarly, the proportion of female-headed households with Facebook (9%) is considerably lower than that of male-headed households (15%).

Survey findings show the proportion of women household members whose names are registered for the mobile money account is higher than that of men household members (Figure 52). In almost 55% of the cases, the mobile money account is registered to a female household member while in the remaining 45% of the cases, the account is registered to a male household member. Mobile money accounts are rarely registered on the names of non-household members.

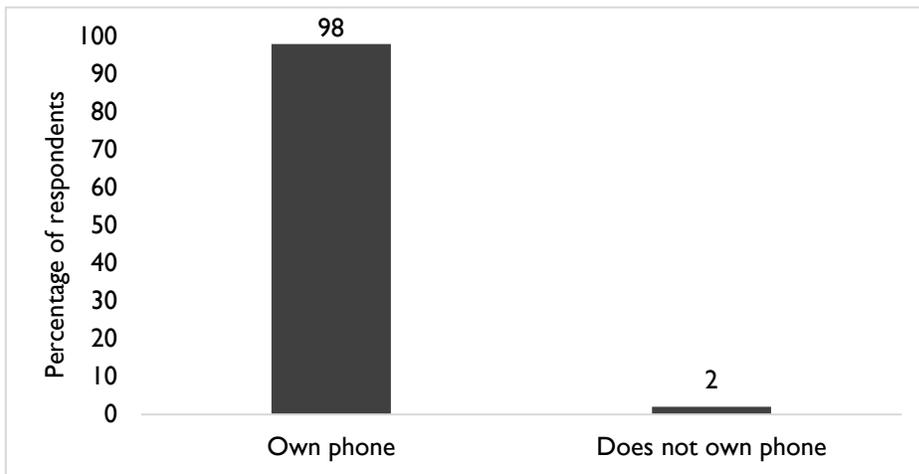


Figure 49. Ownership of mobile phones by pastoralist households in Somalia

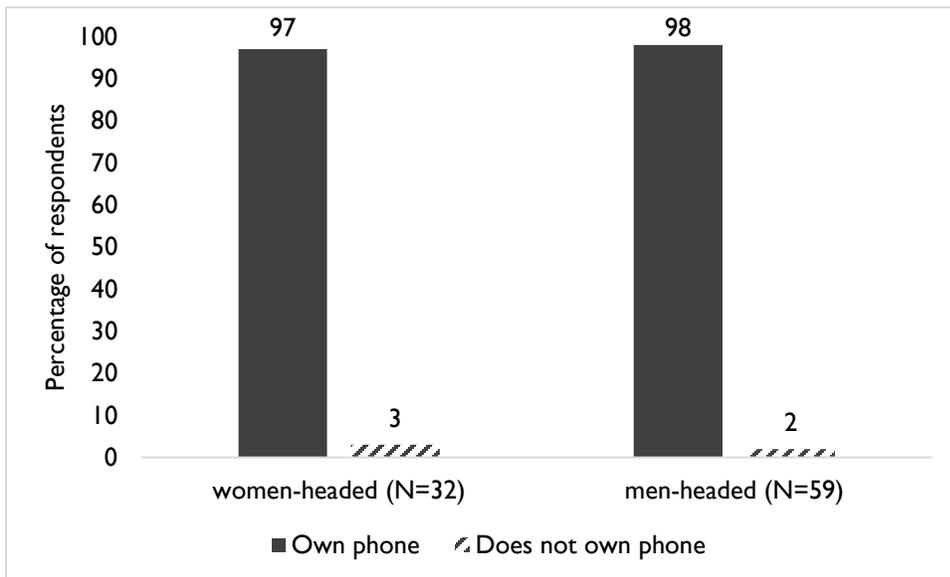


Figure 50. Ownership of phones by male-headed and female-headed pastoralists households in Somalia

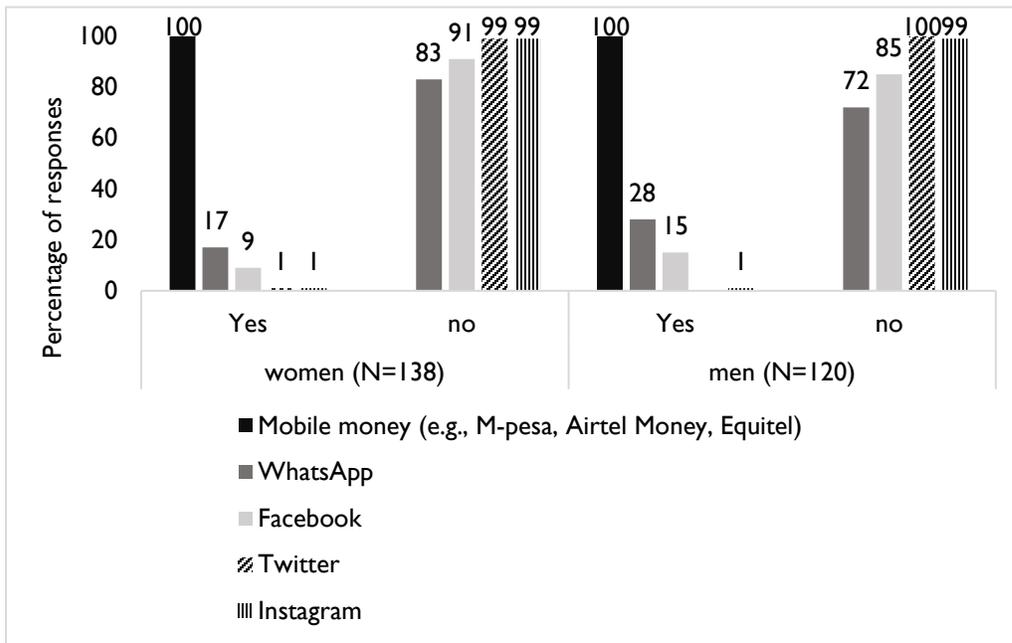


Figure 51. Features of the phones owned by men and women household members who own a phone

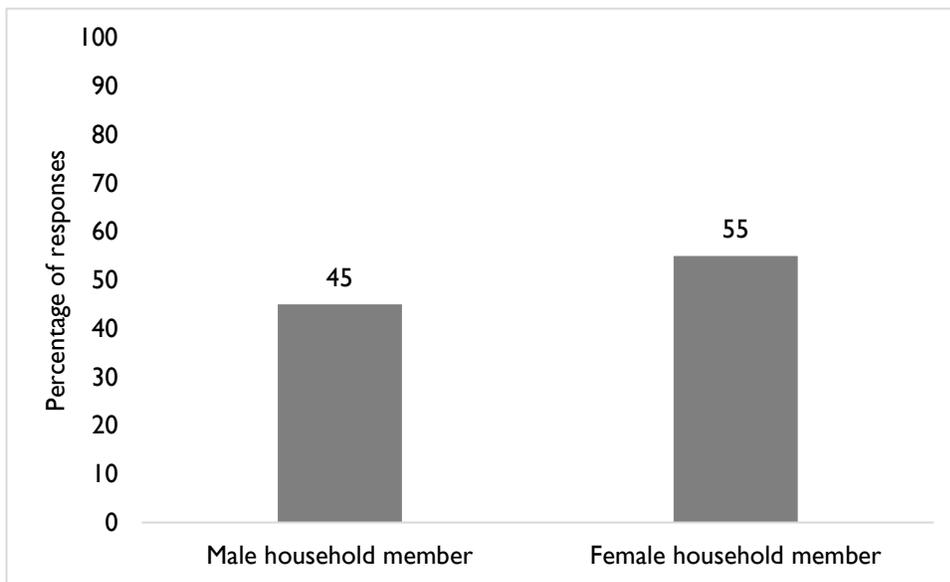


Figure 52. Gender of the person whose names are registered on the mobile money account – for those whose phones have mobile money

The average amount of money that a phone owner spends per week is USD4.8. Phone expenses are mostly used on airtime only (64%). A sizeable share (32%) is spent on both airtime and internet bundles, and only 4% is used on internet only. 60% of the household members owning a phone did not experience connectivity problems.

4.7 Access to financial services

4.7.1. Access to savings

The survey asked participants whether their households had any cash savings. Overall, 41% of the households have cash savings. Analysis by gender of the household head (Figure 53) shows that the proportion of male-headed households (49%) with cash savings is higher than that of female-headed households (43%). However, a *t*-test showed that the difference is not statistically significant. There are differences in the sources of cash savings between male-headed and female-headed households. The proportion of female-headed households saving in mobile money (67%) was higher than that of male-headed households (Figure 54). However, the proportion of male-headed households saving in informal saving associations and groups (32%) was higher than that of female-headed households (17%). Male-headed and female-headed households also save at home.

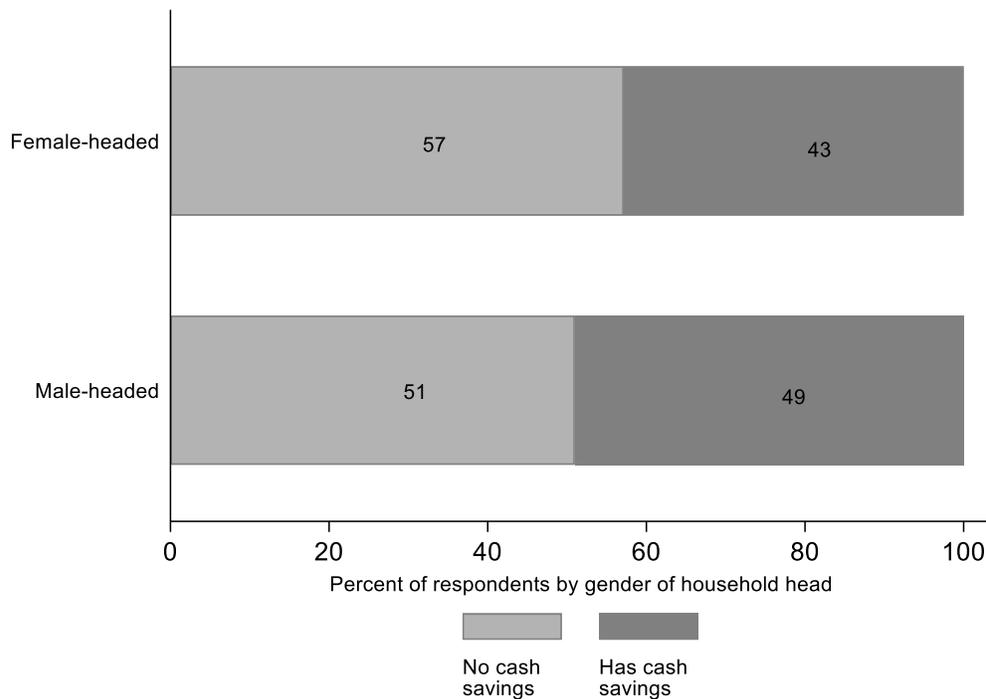


Figure 53. Access to cash savings by male-headed and female-headed pastoralist households in Somalia

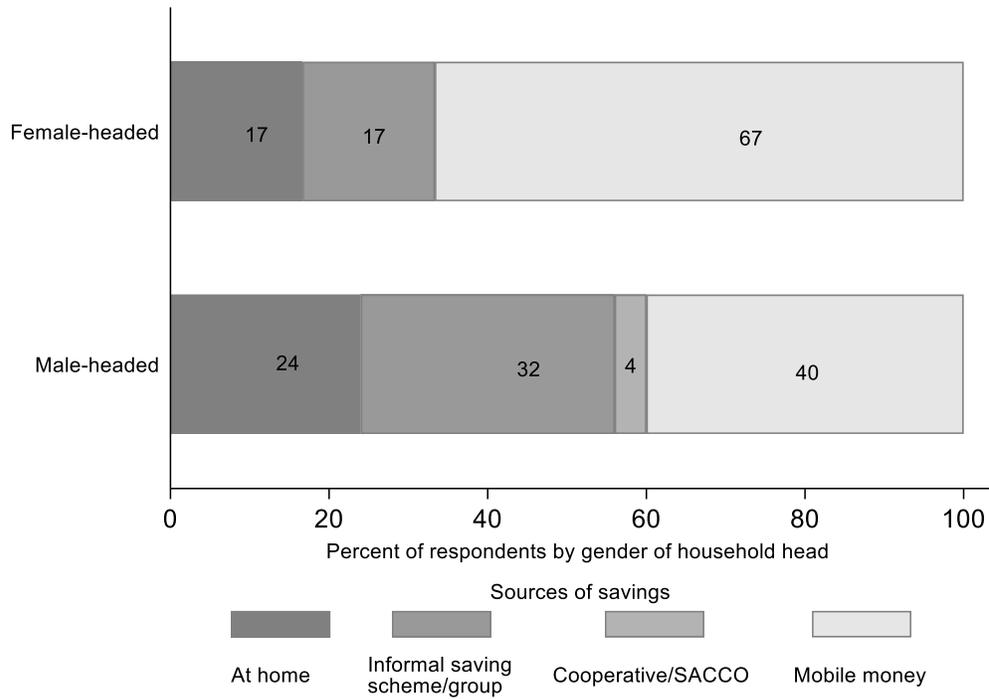


Figure 54. Sources of cash savings for male-headed and female-headed households in Somalia

None of the female-headed households and only 4% of the male-headed households have a bank account (Figure 55). Among households that reported they had cash savings the average amount of savings was USD253. The median savings amount was USD65.

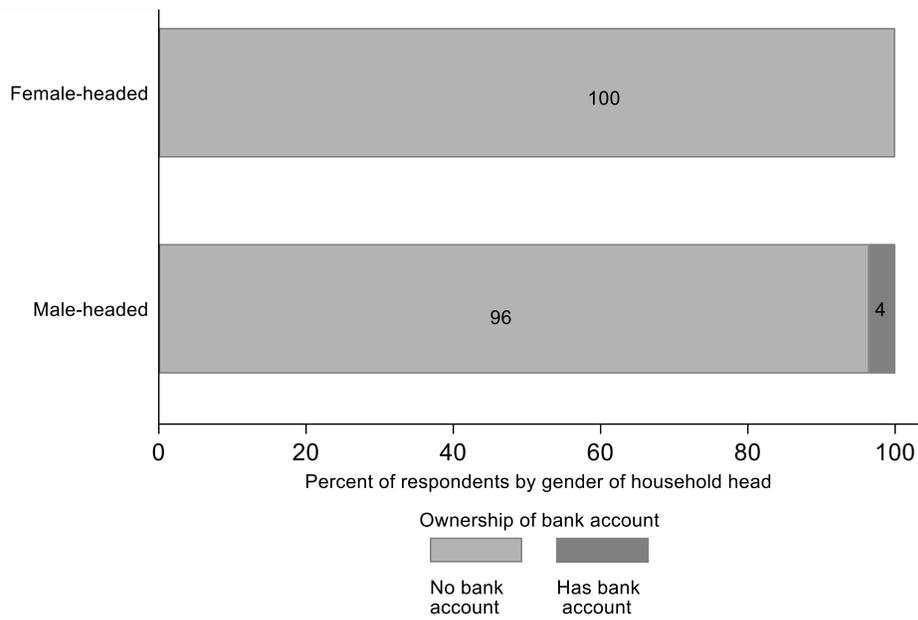


Figure 55. Ownership of bank account by pastoralist households in Somalia

4.7.2. Demand,

availability, and affordability of livestock insurance

The percentage of households aware about index-based livestock insurance was very low (6%) (Figures 56). Focusing on those household aware about IBLI, only 5 in the sample for Somalia (4 women-headed and 1 man-headed), 2 women were willing to pay for insurance for cattle, 3 women were willing to pay insurance for camel, and 2 women were willing to pay insurance for goat/sheep. The one man aware of IBLI was willing to pay livestock insurance for cattle, camel, and shoats. Two out of the four women aware of IBLI and the one man indicated willingness to make contributions to a savings account as part of payment for livestock insurance. They would also be willing to buy livestock insurance every year if offered for purchase. 24% of the households think members of their community would be interested to form a group to manage the purchase of livestock insurance on behalf of their community. Specifically, 23% of female-headed and 25% of male-headed households think members of their community would be interested to form a group to manage the purchase of livestock insurance on behalf of their community (Figure 57). Results in Table 19 show that use of other insurance products is generally very low.

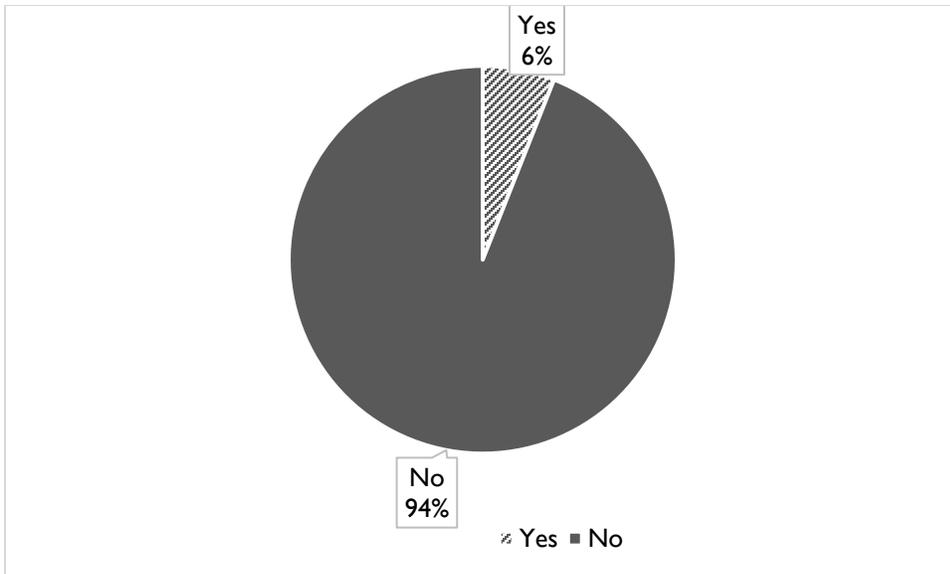


Figure 56. Percentage of households aware about index-based livestock insurance in Somalia

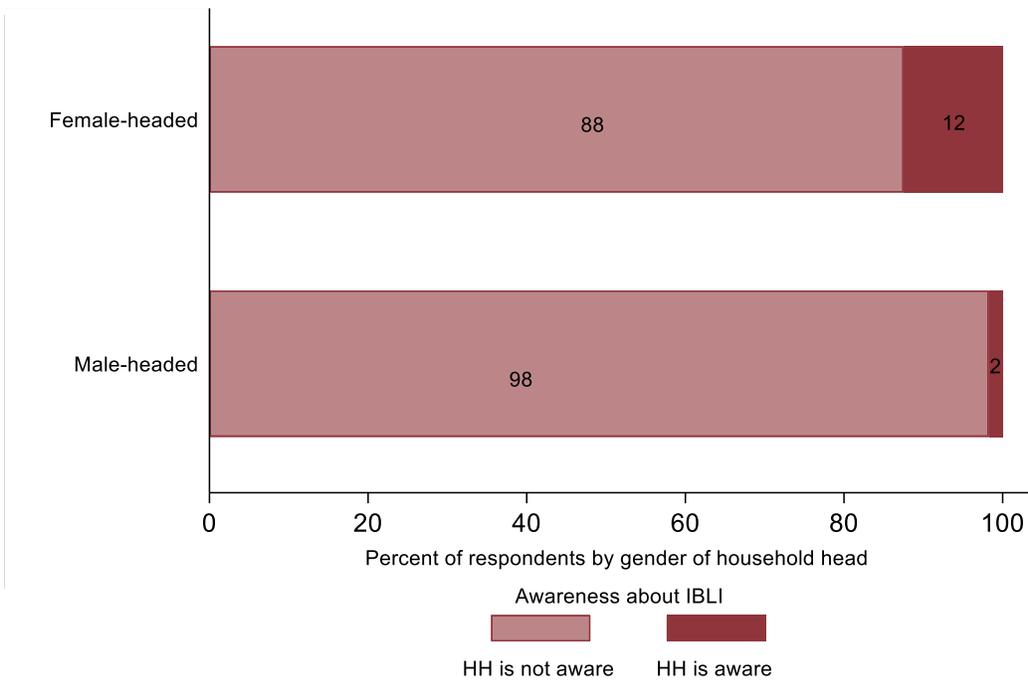


Figure 57. Awareness of male-headed and female-headed households about livestock insurance in Somalia

Table 19. Use of health, funeral, and motor vehicle insurance by pastoralists in Somalia

Variable	Yes (%)	No (%)
Household has health insurance (Public)	16	84
Household has health insurance (Private)	5	95
Funeral insurance	1	99
Household has motor vehicle insurance	6	94

4.7.3. Demand, availability, and affordability of credit

The survey asked respondents whether their households borrowed money in the one year before the survey. More than one-fifth of both the male-headed and female-headed households borrowed money (Figure 58). There was no difference in the percentage of households borrowing money between male-headed and female-headed households. The main source of credit was relatives and friends (Figure 59). Female-headed households reported that the main reason for not borrowing were that credit is unavailable (36%) and that no one would lend them because they were not credit worthy (29%) (Figure 60). Male-headed households on the other hand reported that they did not need credit or prefer not to owe money (38%). 14% of the male-headed households reported that no one would lend to them because they were not credit worthy.

The survey further assessed decision-making regarding whether or not to borrow, the amount of money to borrow, sources of credit, and the use of the money borrowed. Results in Table 20 show that in 45% of the cases, a male household member decides whether to borrow, how much to borrow, and where to borrow. In 50% of the cases, a man decides about how to use the money. The corresponding proportion for women is 60% for the decision to borrow, how much to borrow, where to borrow, and how to use the money (Table 20).

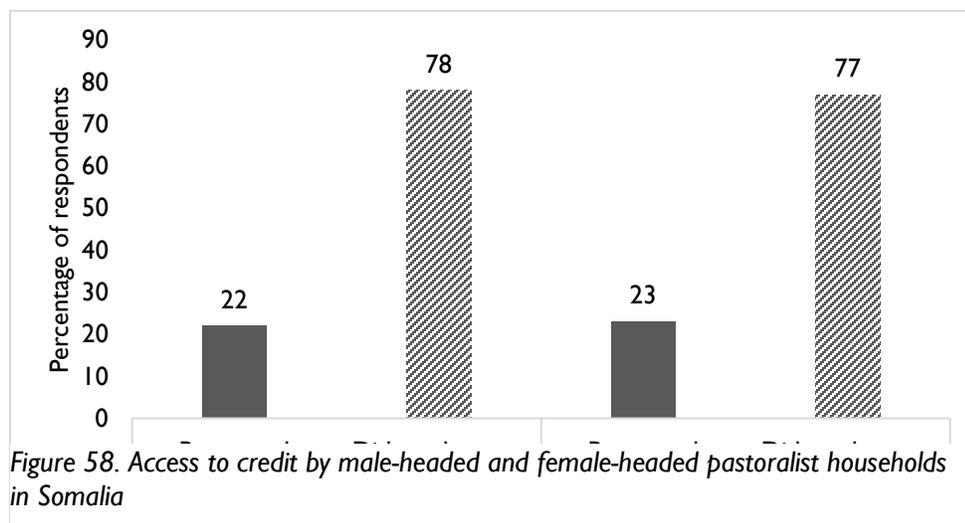


Figure 58. Access to credit by male-headed and female-headed pastoralist households in Somalia

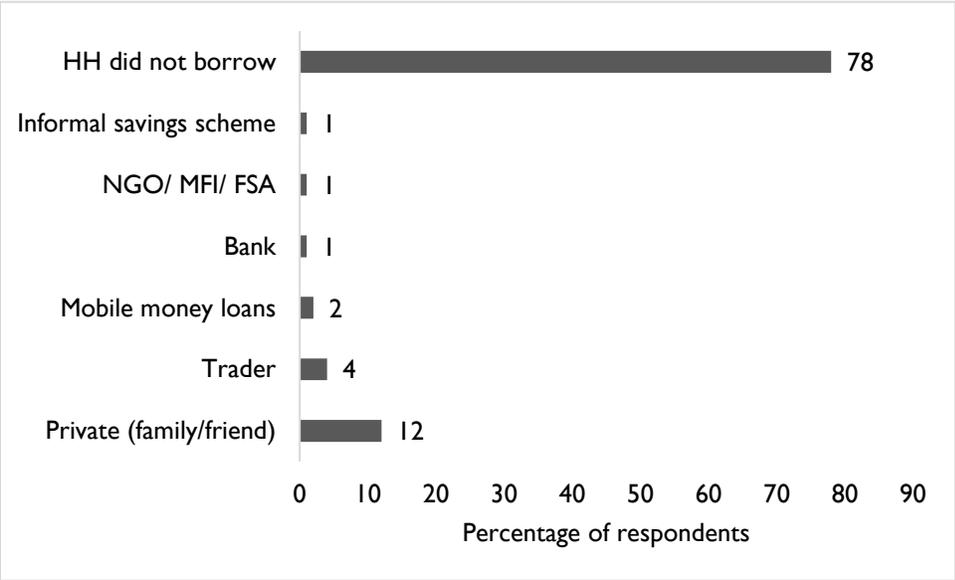


Figure 59. Main sources of credit for pastoralist households in Somalia

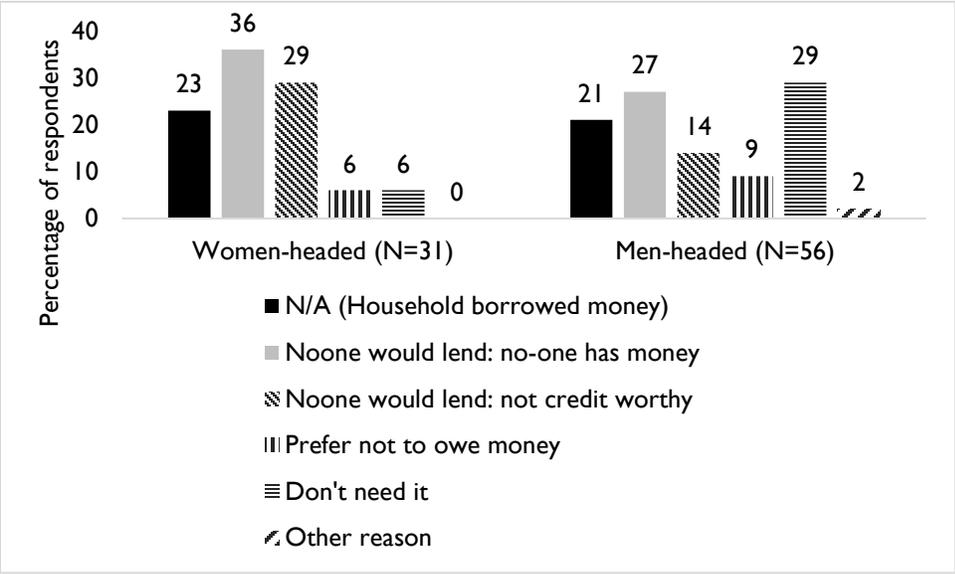


Figure 60. Reasons for not asking for credit

Table 20. Decision making about borrowing of credit in Somalia

Variable	Mean	Standard deviation	Median
Number of times household borrowed money	2.7	1.6	2.5
Amount of money borrowed (USD)	576	809	300
Amount of money received (USD)	345	306	200
Duration of the loan (months)	4.5	4.9	2
Loan balance (USD)	269	374	200

Results in Table 21 show that the average frequency for borrowing is 2.7 in a year. The median amount borrowed is USD300 per year. The average amount received (USD345) is considerably lower than the average amount pastoralists ask for (USD576). Similarly, the median amount received (USD200) is USD100 lower than that asked for. The average loan duration is 4.5 months with a median of two months. At the time of the survey, households that borrowed had an outstanding loan balance of USD269, on average (median=USD200).

Table 21. Summary statistics related to access to credit by pastoralist households in Somalia

Variable	Men (%)	Women (%)
Decision to borrow	45	60
Decision about amount to borrow	45	60
Decision about source of credit	45	60
Decision about use of credit	50	60

4.8 Information access and use

Access to information by pastoralists is crucial for improved decision making. The survey collected data on access to production, marketing, and weather-related information. Results are presented in Figure 61. The study finds that 16% of the households have access to short-term weather forecast. However, the proportion receiving medium-term and long-term forecasts is only nine percent. Similarly, only nine percent of the households receive information about livestock production and marketing. These results call for the need to promote awareness and knowledge creation about livestock production and marketing. The results further indicate the urgent need to promote the diffusion of climate information services to ensure pastoralists have access to both short-term and long-term forecasts.

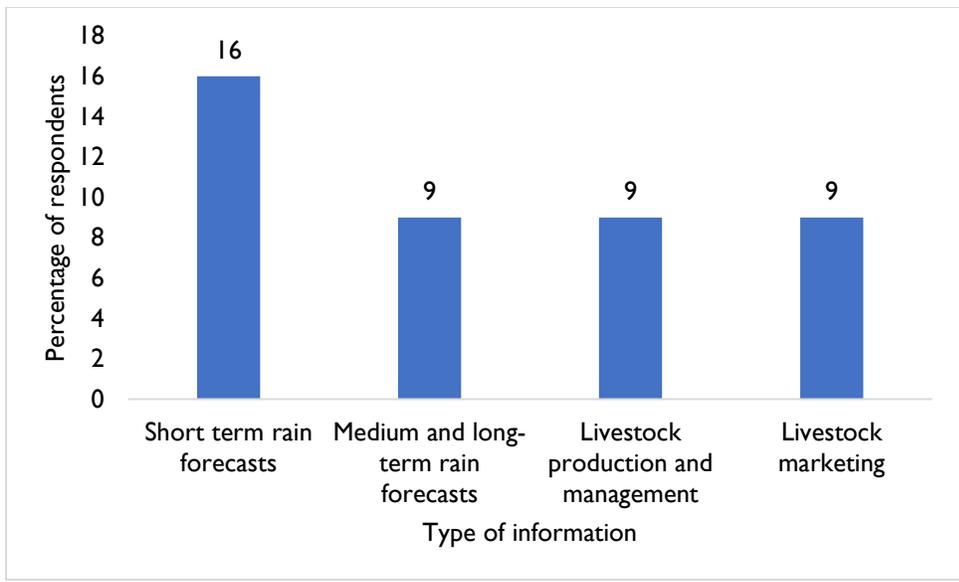


Figure 61. Access to information by pastoralist households in Somalia

Figure 62 presents results about the sources of different types of information. Community barazas and social networks are the main sources of both short-term weather forecasts and medium/long-term rainfall forecasts. Households also receive information about medium/long-term rainfall forecasts through social media. The main source of information about production and management of livestock is social learning. Marketing information is mostly accessed through social networks of relatives and friends as well as community barazas.

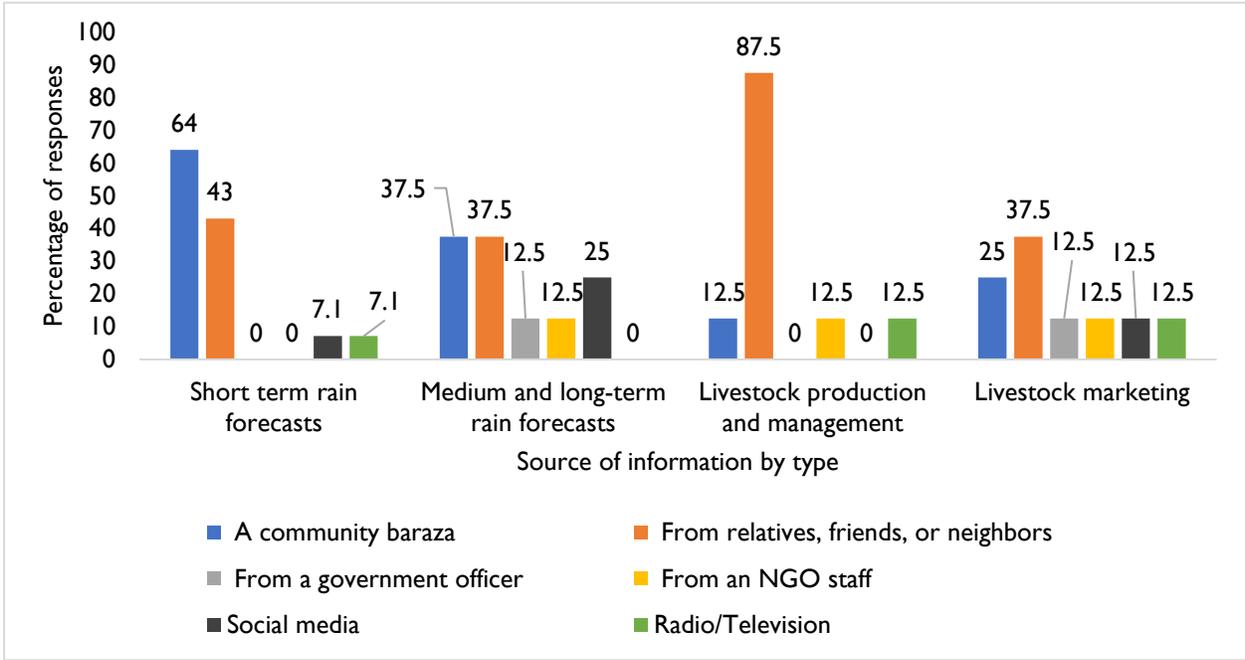


Figure 62. Sources of information by pastoralist households in Somalia

4.9 Migration patterns of groups and group members

Survey respondents were asked to indicate the number of months their households had been located on the current spot where they were staying. On average, households had stayed for about three years (Table 22). When asked whether their household had migrated during October 2020 to September 2021, only 12 percent of the household had migrated. On average, migrating households moved to two satellite camp.

Table 22. Migration by pastoralists in Kenya

Variable	Mean/ proportion	Standard deviation	Minimum	Maximum	N
Length of time a household has stayed in current location (months)	34.9	91.5	1	500	83
Has migrated the household or herd since October 2020 to September 2021	0.1	0.3	0	1	90
Number of areas/locations where the household set satellite camp from October 2020 to September 2021	1.5	0.8	1	3	11

4.10 Livestock diversification and management

Both women and men mostly own and keep female goats (68% for women and 60% men) and male goats (20% for women and 15% men) (Figure 63). Ownership of camels and cattle was generally low and almost absent among women. However, a few men keep camels and female cattle. The main purpose for keeping livestock was subsistence (i.e., food). Households also kept livestock for breeding/reproduction purposes (Figure 64). Less than 10% of both women-and men-headed households reported selling as the main purpose for keeping livestock. This indicates a lower degree of commercialization and an opportunity for improved market participation.

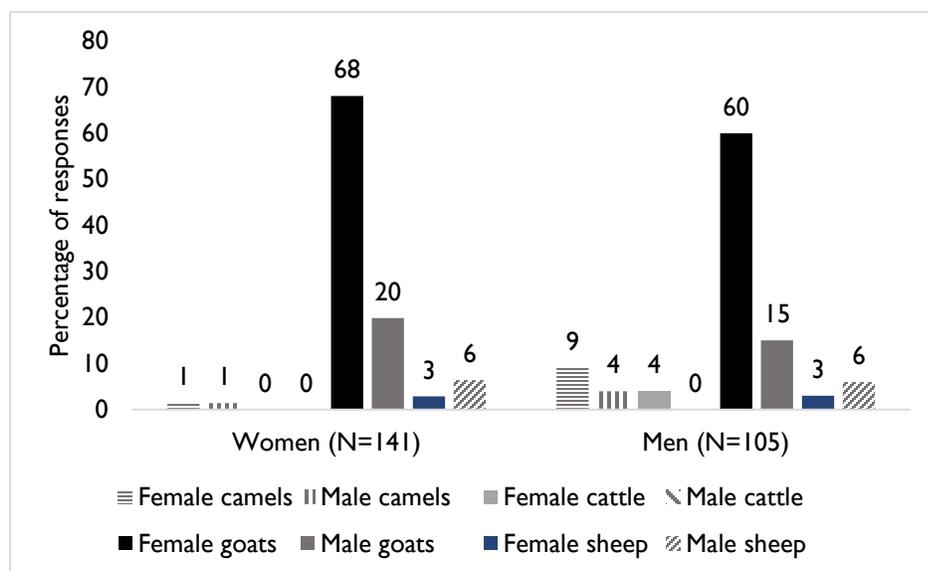


Figure 63. Types of livestock kept by pastoralist households in Somalia

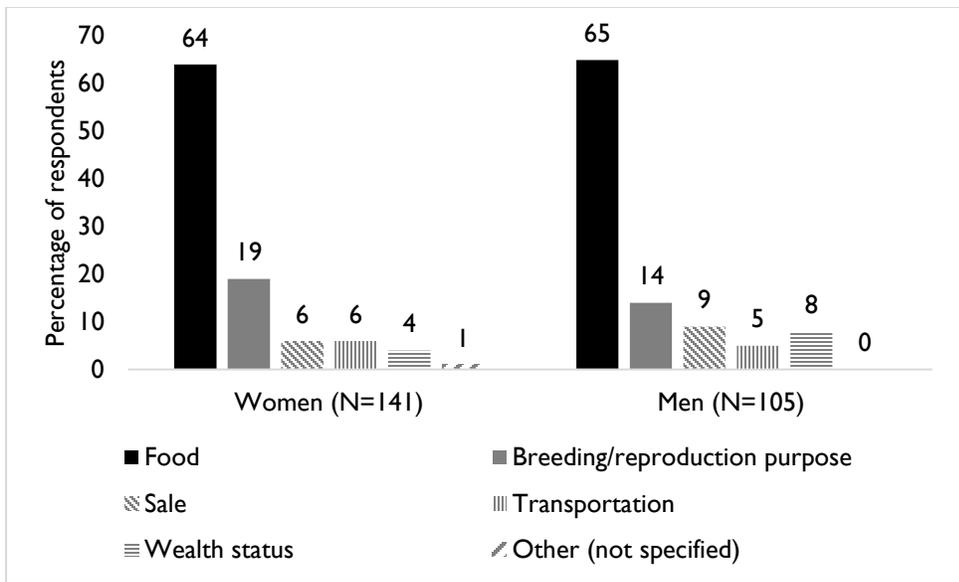


Figure 64. Main purpose of keeping livestock types in Somalia

4.11 Access to inputs

This section presents results of the different inputs used by pastoralists in their livestock production activities. Analysis is conducted by season. The study further assessed the amount of money spent for the main livestock expenditure categories. Results show that across all seasons, households' expenditure is mainly on buying livestock feed, paying for veterinary services and transportation for water, and purchasing of water for livestock (Figure 65). As expected, expenditure on feed is higher during the dry seasons than wet seasons (Table 23).

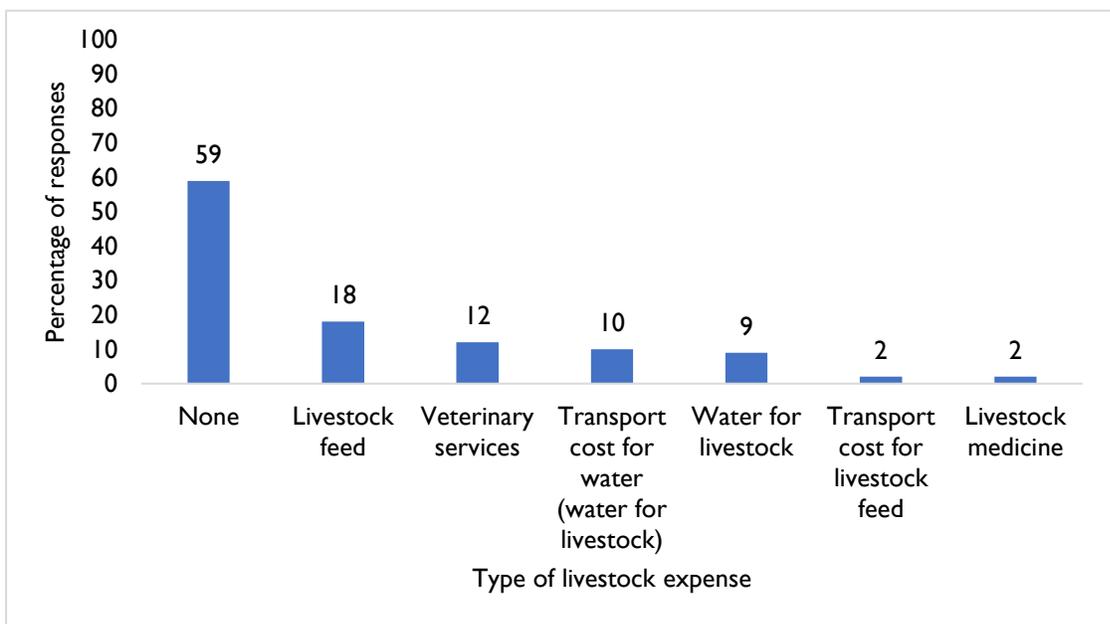


Figure 65. Types of livestock expenditure incurred by pastoralist households in Somalia

Table 23. Variability in livestock expenditure across seasons and spatially in Somalia

Expense type	October-December 2020	January-February 2021	March-May 2021	June-September 2021
Livestock feed	45	227	-	472
Transport cost for livestock water	46	267	-	190
Water for livestock	50	150	-	221
Veterinary services	30	87	25	101

4.12 Natural resource management

In response to the dry, harsh conditions, Somali pastoralists have developed sophisticated herding responses: mobility – the movement of herds from ‘wet’ to ‘dry’ season grazing areas, for accessing water and markets, among others; diversification – herding mixed animal types that include grazers (sheep and cattle) and browsers (goats and camels) that utilize different rangeland resources; splitting – with cattle trekked to one area better suited to their grazing needs, while goats and camels are moved to another that better favors their browsing needs (Banerjee et al., 2021).

Traditionally, rangelands were managed by clans under Somali *Xeer* customary law that continues to hold significant local legitimacy (UK Essays, 2018; Banerjee et al., 2021). The result, however, of the 1975 Somalia Land Law, civil war, and subsequent inter-clan conflict, is that increasing numbers of pastoral households have enclosed land for rainfed farming, pasturing lactating animals, and for dry-drought season grazing (UK Essays, 2018; Banerjee et al., 2021).

Land legislation passed in 1975 officially transferred control of tenure rights over all Somali land from traditional authorities to the Government of Somali. The 1975 land policy has not been reformed since the collapse of the Somali Democratic Republic in 1991. These policies have increased land concentration, displaced landholders, and increased tenure insecurity for the remaining landholders without leasehold rights (Economic Commission for Africa (ECA), 2017).

Demographic trends are very much linked with other trends in pastoral areas, especially loss of rangeland and commercialization of livestock production and marketing. For example, the ‘high export’ and relatively commercialized pastoral areas of Somalia are characterized by a gradual transfer of livestock from smaller/poorer herders to larger/richer herders, with the former falling out of pastoralism and the latter expanding their herds and selling more animals into the export markets (African Union (AU), 2013). Simultaneously, richer and more politically connected herders are able to create private enclosures on the rangeland, which further limits the productivity and growth of poorer/ smaller herds (AU, 2013). This displacement of smaller production units by larger units in pastoral areas contributes to pastoral destitution and out migration.

Focus group discussions indicated that Nugaal region has mountains and valleys. Generally, vegetation cover in Nugaal region is rich in plant diversity dominated by open grasslands, shrubs and scattered woody vegetation. Pastoral nomadism is the primary way of life for most of the people living in the valley. The quantity and quality of available pastures/forage have been adversely affected by prolonged and frequent dry seasons, making feed for livestock insufficient. Land and vegetation are shared by the whole community and no individual can claim or have the right to make enclosures. Management and utilization of the rangelands is controlled by the local administration, which also manages charcoal production. Participants in the FGD felt that lack of legislation and accountability in environmental protection in grazing lands were the causes of rangelands degradation. There are a few permanent wells, which nomadic population rely on during the dry season. Segments of the valley which converge into the Iyah plains are called *Jednugaal*. The northern part of Eyl district has dense trees and shrubs and is mainly grazed during the *Deyr* and *Guu* seasons. The area lacks permanent sources of water but has two seasonal rivers, the Nugal and westerly Dheere seasonal rivers, which fill briefly during *Guu* and drain into the Indian Ocean.

Key informants indicated that there was need for rules and regulations governing the grazing lands and that the communities should then be made aware of the laws. The key informants further suggested the need for legal enclosure during wet season for conservation of pastures and investment by private companies in commercial fodder production systems for selling to pastoralists during drought.

In the rural areas, land is collectively owned by the clans, rather than individuals. Local norms govern land resources and are used to resolve disputes. During severe droughts, elders from drought-stricken areas seek permission from elders in areas with stable condition to utilize their forage and water. This way, animals, and lives of those affected by drought are protected until they receive rains in their grazing lands.

There are civil committees comprising of sheikhs, traditional leaders and businessmen who raise funds to respond to severe droughts by providing emergency support. Elders monitor activities in the rangelands. Illegal closure is not allowed. Elders enforce penalties on anyone who violates the customary laws and rules, whether they are from same clan or those emigrated from other areas. No private agreements exist.

Literature indicates that the status of land governance and tenure security in Somalia is defined by legal pluralism, whereby multiple legal orders or systems coexist in the same social field (Adam Smith International, 2022). These include formal systems of the state enacted in legislation, Somali customary law (*Xeer*), and local adaptations of Islamic Shari'a. The three systems are not mutually exclusive but rather have been shaped interdependently through interactions between customary law; Islamic law, colonial history; the socialist regime of Siad Barre; the collapse of the state following overthrow of the regime; and subsequent years of conflict and insecurity. The interface between land governance and tenure security is most evident in the way that the weak land governance system in Somalia has impacted land rights of minorities and women. In particular, gender inequality poses a challenge in the traditional dispute resolution structures, whereby women are excluded as key actors due to the expectation that elders lead community activities (Adam Smith International, 2022).

Some watering points are communal while others are privately owned. In the former case, local norms govern access and use by the community while for the latter case, water is sold by the owner. Watering points at the district are managed and maintained by a committee. Although communal water points have no established arrangement that guide access and usage and pastoralists can use the water any time and, in any amount, crop and vegetable farmers who reside around natural streams have specific time when they are allowed to irrigate their crops.

As far as management and ownership of water points are concerned, findings from the survey suggest that, on average, pastoralists walk 14 minutes during the dry season and 12 minutes during the wet season to access watering points (Table 24). The median distance walked to access watering points during the wet and dry seasons is five and 10 minutes, respectively. 63% and 67% of the watering points accessed were the most reliable during the wet and dry seasons, respectively (Figure 66). Most of the water points are communally owned (Figure 67). A considerable share is owned privately or by pastoralist groups. In about one-fifth of the watering points, incidences of conflict related to access and use of water have been observed (Figure 68).

Table 24. Summary statistics related to access to water points in Somalia

Variable	Mean	SD	Min	Max
Number of watering points accessed during dry season	1.4	0.8	0	4
Number of watering points accessed during wet season	1.2	0.5	0	3
Distance to the nearest watering point during dry season (walking minutes)	14 [10]	14	1	60
Distance to the nearest watering point during wet season (walking minutes)	12 [5]	14	0	60

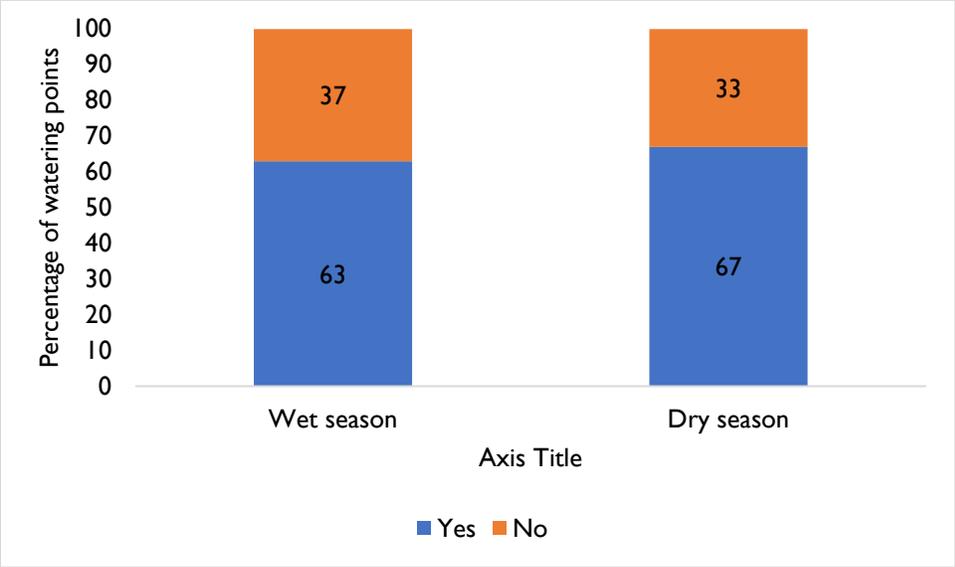


Figure 66. Reliable water points in Somalia

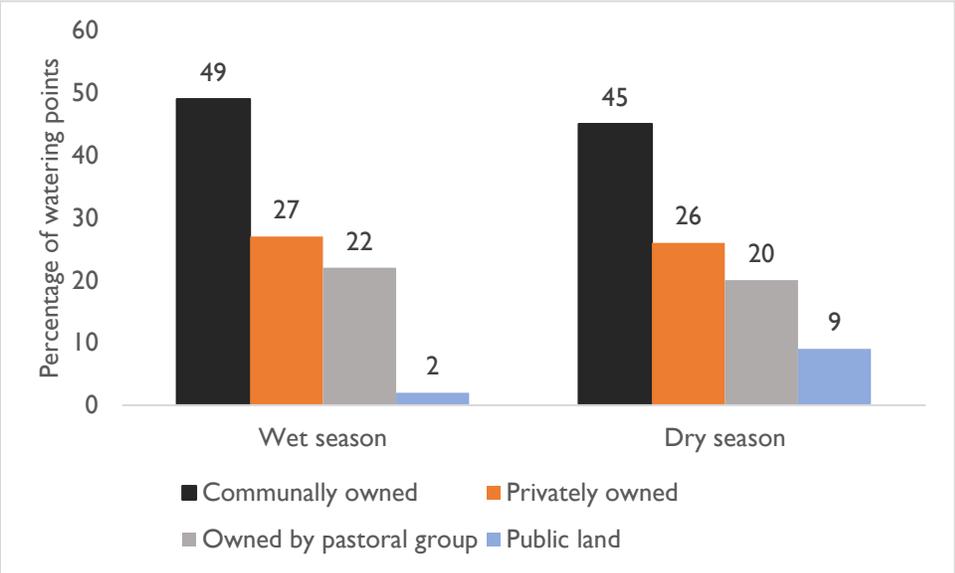


Figure 67. Ownership of water points in Somalia

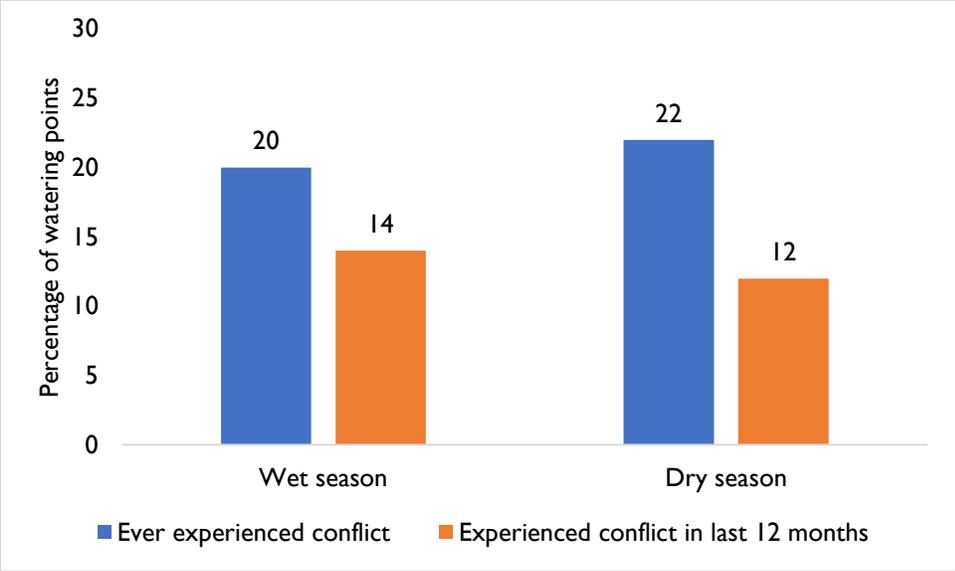


Figure 68. Exposure to conflict related to access to water points in Somalia

5. Findings: Ethiopia

5.1 Demographics

Most households (75%) are headed by men. The heads of households are 49 years old, on average. Respondents indicated they had lived in the area continuously for 26 years. This means that respondents understand the climatic shocks and changes that have occurred in the study site. The average household size is 8.5. The education level of the household heads is very low: 61% of the household heads have no formal education, only 7% have completed primary education, and only 2% have completed secondary education. Figure 69 shows that education levels are lower for female than male household heads: significantly more female heads of households have no formal education compared to male household heads. 91% of the household heads are married. A considerable proportion (7%) of the household heads are widowed. Most of the sample households are fully settled (62%), 23% are partially settled, and 15% are nomadic. Muslim is the dominant religion.

Table 25. Demographic characteristics of surveyed households in Somalia

Variable	Mean/ proportion	Standard deviation	Minimum	Maximum
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Gender of the household head (1=male, 0=female)	0.75	0.43	0	1
Age of the household head (years)	48.58	13.11	20	83
Household size	8.53	3.10	3	20
Education of household head:				
No formal education	0.61	0.49	0	1
Pre-unit	0.09	0.28	0	1
Some primary education	0.14	0.35	0	1
Completed primary education	0.07	0.26	0	1
Some secondary education	0.03	0.18	0	1
Completed secondary education	0.02	0.15	0	1
University or higher education	0.03	0.18	0	1
Marital status of the household head:				
Single (never married)	0.01	0.07	0	1
Married	0.91	0.29	0	1
Divorced/separated	0.02	0.13	0	1
Widowed	0.07	0.26	0	1
Household type:				
Fully settled	0.62	0.49	0	1
Partially settled	0.23	0.42	0	1
Nomadic	0.15	0.36	0	1
Main religion of the household:				
Muslim	0.73	0.44	0	1
Anglican	0.01	0.10	0	1
Other Christian	0.04	0.21	0	1
Traditional	0.14	0.35	0	1
Waqafataa	0.01	0.74	0	1
Other	0.05	0.23	0	1
Number of observations	182			

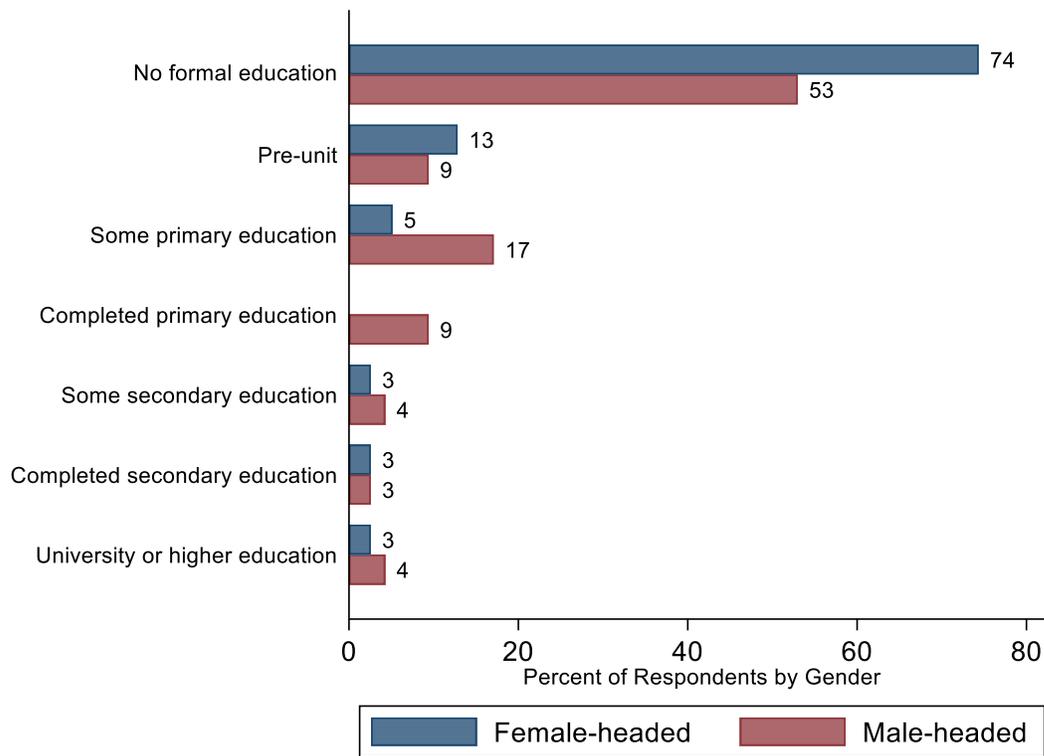


Figure 69. Education of the household head by gender

5.2 Livelihoods and sources of income

This section presents results of the assessment of livelihoods and income sources. The section first looks at the occupation of the household head. Results of the pastoral survey (Figures 70 and 71) showed that the main occupation of the household head in Oromia was livestock production (78%). Other activities included crops farming (10%), casual labor (1%), salaried employment (4%), and business (1%). In Somali, 25% of the heads of households in the sample engaged in livestock-related activities, 29% practiced crop farming, and 22% provided casual labor as their main occupation. When asked about other activities that the household engages in besides the main occupation of the household head, 84% and 34% mentioned livestock-related activities in Oromia and Somali, respectively. The proportion of male-headed households engaging in livestock-related activities is considerably higher than that of female-headed households. A sizeable proportion of female-headed households engages in household/domestic work. Although the proportions are generally low, more male-headed households engage in casual and salaried employment than female-headed households. Figure 72 shows that the main source of income in both Oromia and Somali is livestock sales. Results about income sources are consistent with the main occupation of the household head.

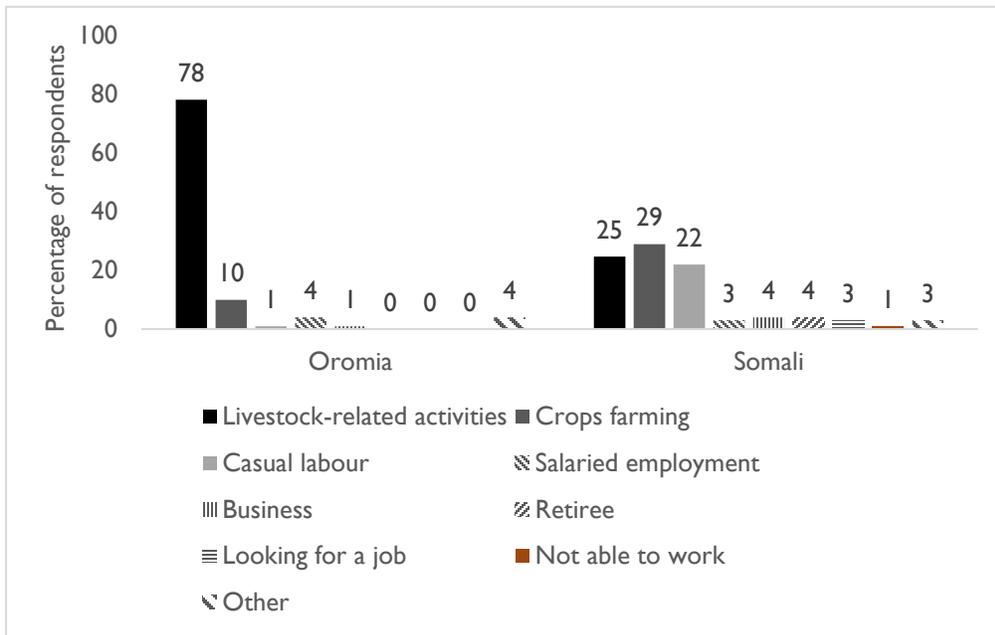


Figure 70. Main occupation of the household head in Oromia and Somali regions of Ethiopia

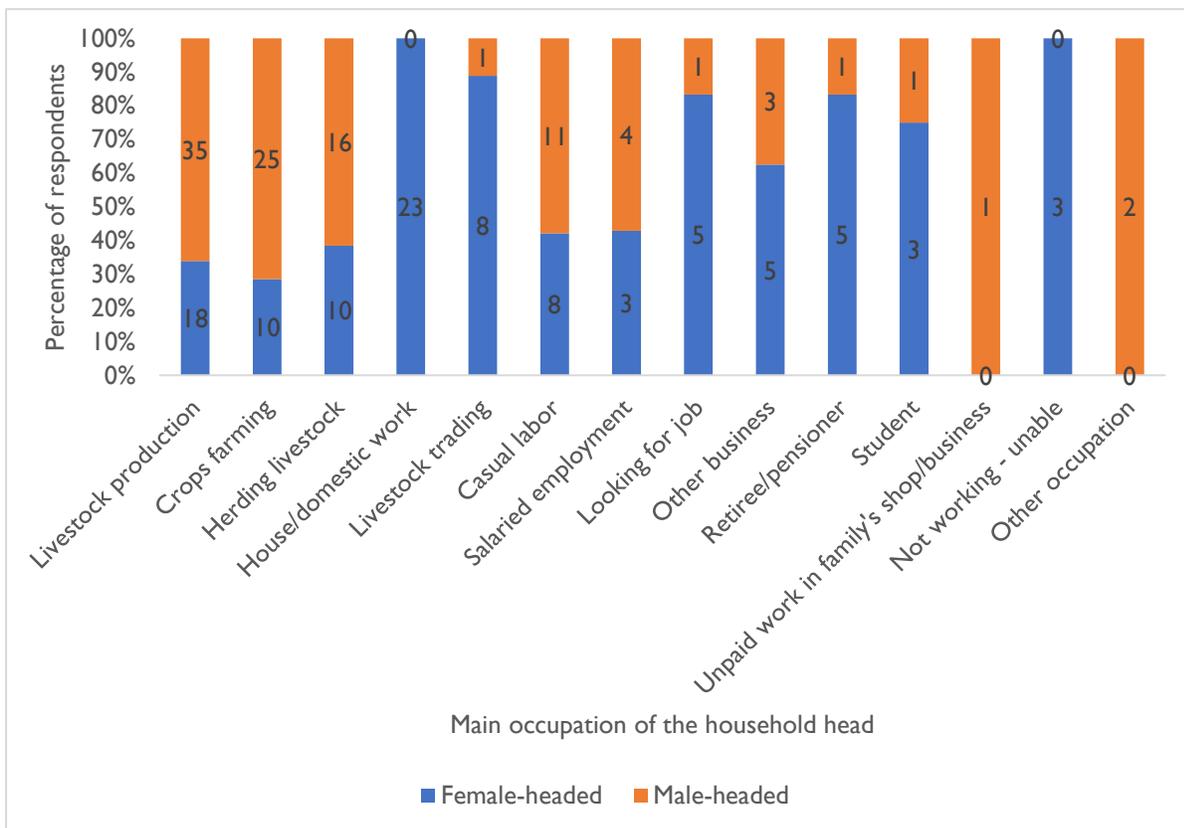


Figure 71. Main occupation of the household head, by gender

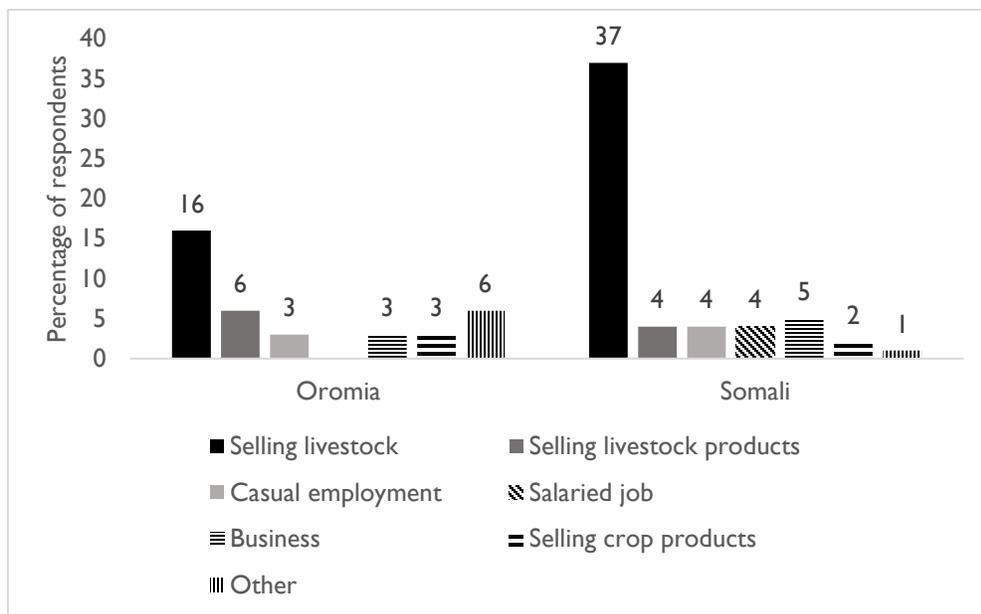


Figure 72. Sources of cash income for pastoralist households in Ethiopia

5.3 Shocks and coping mechanisms

Figure 73 shows that the most experienced shocks are climate related. Specifically, 53% of the survey respondents had experienced frequent drought. The duration of drought is also increasing: 45% of the respondents indicated they faced prolonged droughts. Households were also affected by livestock pests and diseases: 29% of the survey respondents had experienced the impact of pests and diseases. In addition, market shocks, particularly changes in prices for livestock and livestock products adversely affected 26% of the households. A sizeable proportion of the respondents indicated that discontinuation of support by the government or NGOs had negatively affected their households. These findings indicate the extent of vulnerability of pastoralist households.

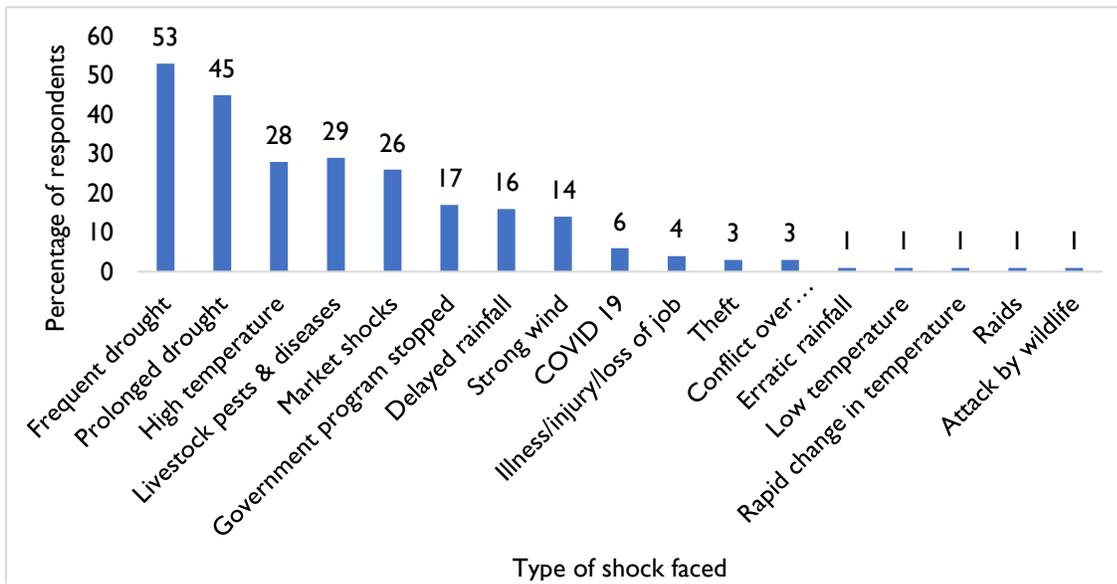


Figure 73. Types of shocks affecting pastoralist households in Ethiopia

Occurrence of shocks has increased tremendously over the past five years. While only 8% of the respondents indicated having been affected by a shock in 2017, the proportion increased to 74% in 2021 (Figure 74). This indicates increasing vulnerability of pastoralist populations. Figure 75 shows that the shocks are mostly covariate in nature: they affect most community members as opposed to only a few households. The impacts of the shocks are severe: 95% of the respondents rated the severity of the impacts as high or very high (Figure 76).

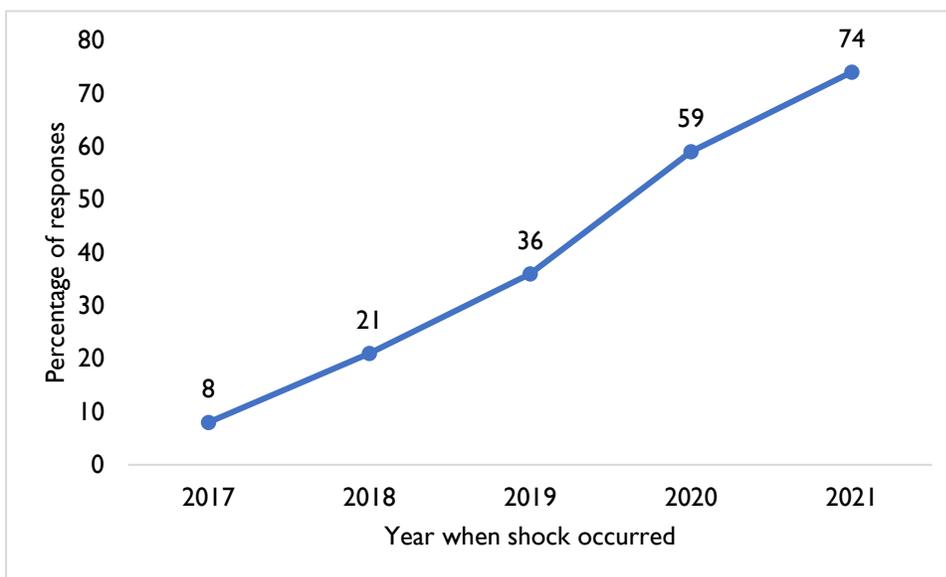


Figure 74. Occurrence of shocks between 2017 and 2021 in Ethiopia

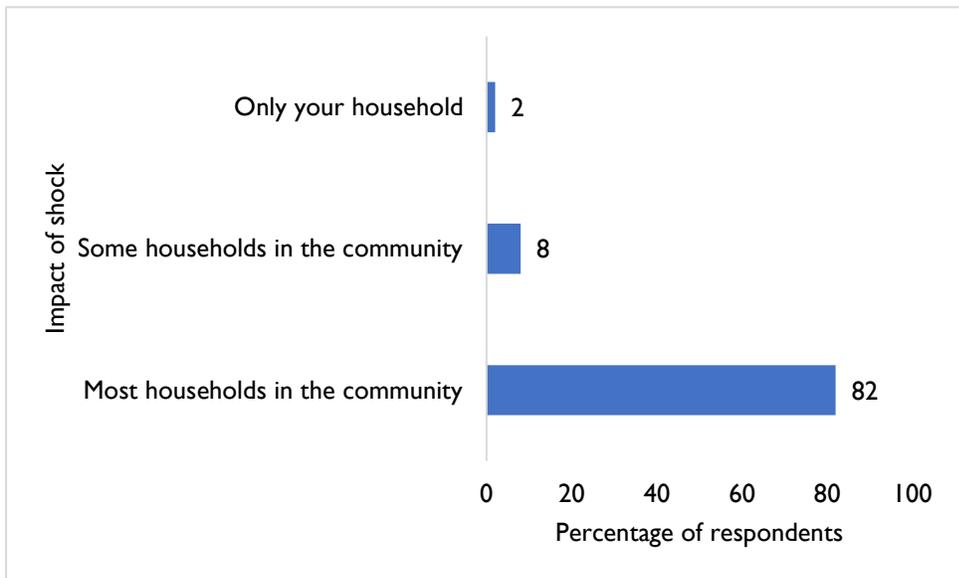


Figure 75. Extent of impact of shock on pastoralist households in Ethiopia

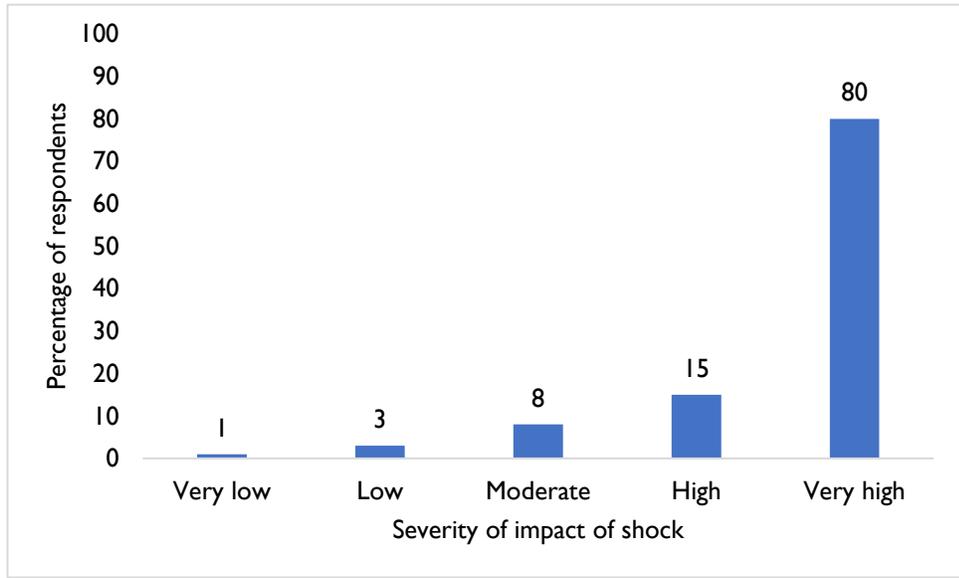


Figure 76. Severity of the impact of shocks on pastoralist households in Ethiopia

A sizeable proportion of the households (15%) did not implement any measures to cope with the shocks (Figure 77). However, several strategies are used by households to address shocks. Households mainly cope by selling their livestock, often at a lower price than usual. A considerable share cope through informal borrowing. Other important coping strategies used include diversification into non-livestock

activities, scaling back on consumption of food, reliance on aid from the government and NGO, migration, and use of savings.

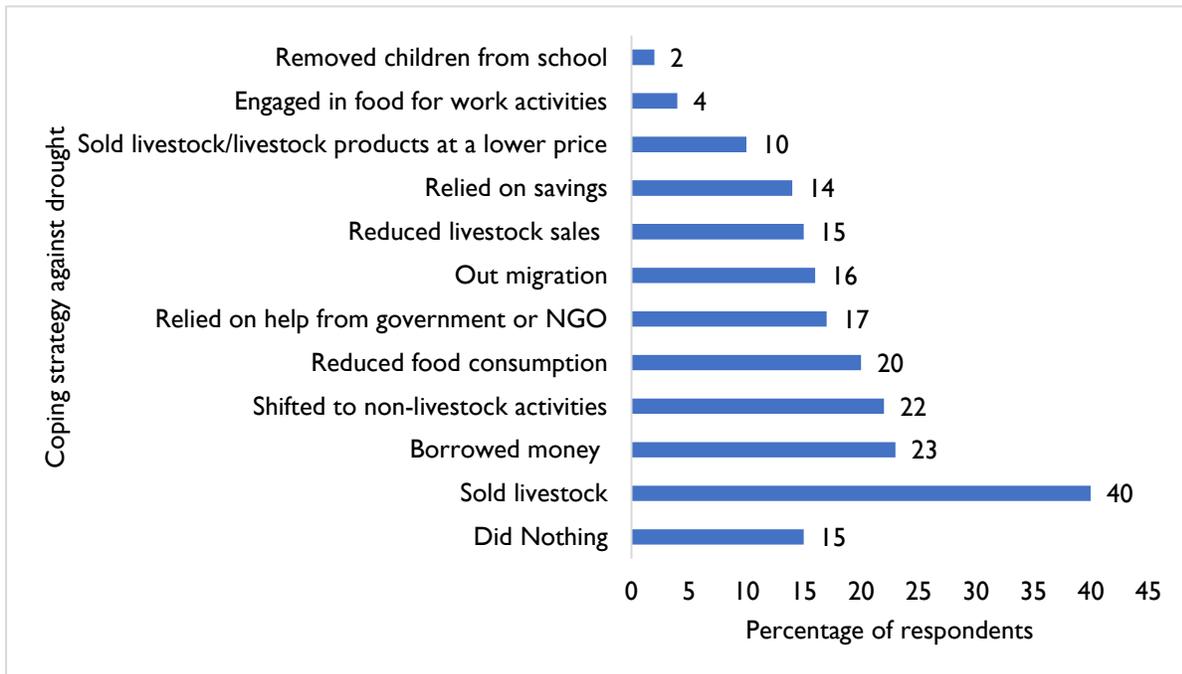


Figure 77. Coping strategies used by households to address shocks in Ethiopia

5.4 Climate change impacts

Most (92%) of the respondents indicated they had observed changes related to climate or weather. Consistent with information reported in section 3.4 about shocks, we find that most perceived changes related to the persistence and frequency of droughts. Specifically, 81% and 53% report that they have observed frequent droughts and prolonged droughts, respectively (Figure 78). A sizeable proportion (21%) report that rainfall is increasingly unpredictable while 33% indicated delays in rainfall. The proportion of households experiencing strong winds is also considerable (33%).

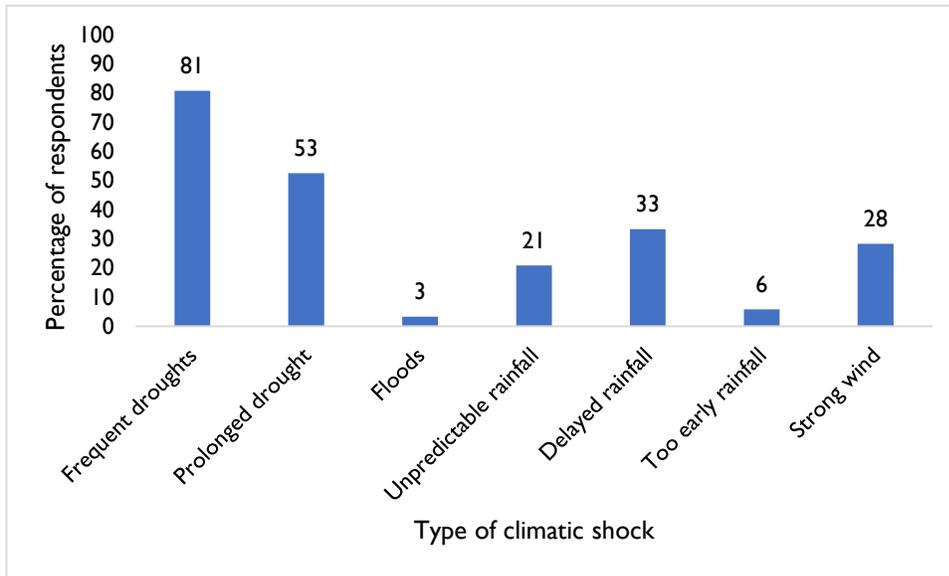


Figure 78. Pastoralists' perceptions about changes in climate/weather in Kenya

The survey further asked respondent to rate on a Likert scale ranging from 1 (extremely unlikely) to 5 (very likely), the extent to which the perceived that climate change would happen in the future. Results in Figure 79 show that 30% of the survey respondents perceive that climate change is extremely unlikely to happen in the future while 23% perceive it is very likely climate change will happen in the future.

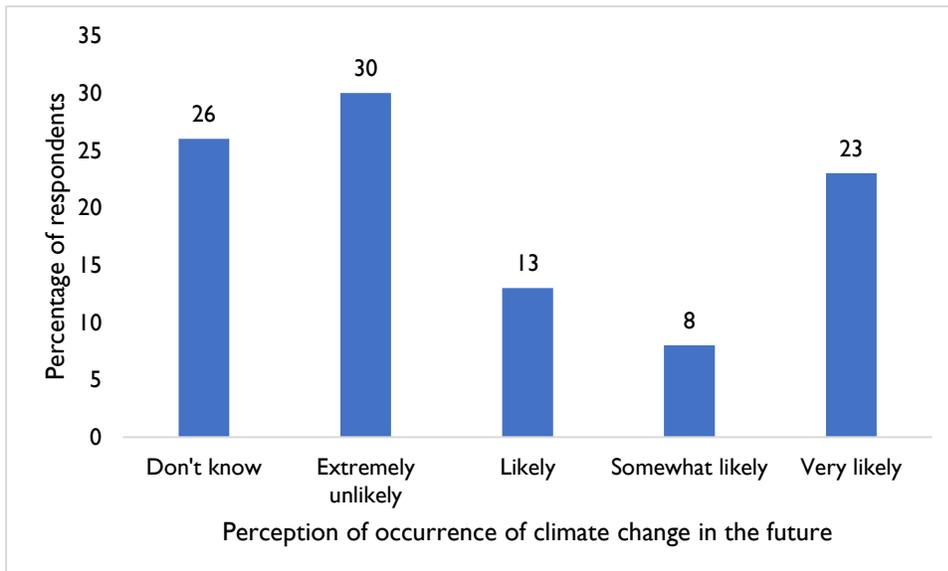


Figure 79. Pastoralist households' perceptions about the likelihood of climate change happening in the future

5.5 Access to mobile services

A considerable proportion of households (71%) own a mobile phone. More female-headed households (79%) than male-headed households (66%) owned a phone (Figure 80). In almost all cases, for both male-headed and female-headed households, the phones owned have mobile money. However, there are differences in other phone features between male-headed and female-headed households. Significantly less female-headed (27%) than male-headed households (50%) have phones with WhatsApp (Figure 81). Similarly, the proportion of female-headed households (23%) with access to Facebook is considerably lower than that of male-headed households (41%).

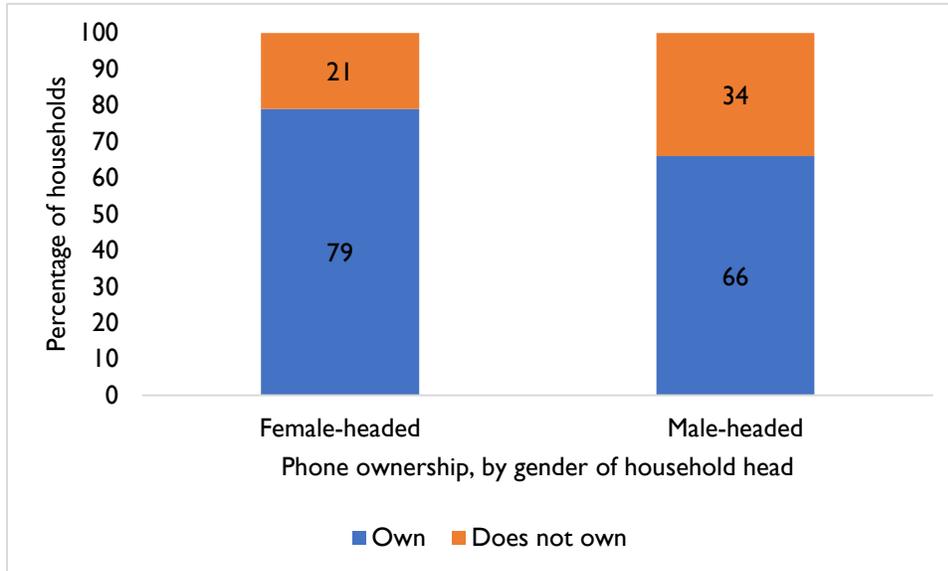


Figure 80. Ownership of mobile phone by male-headed and female-headed pastoralist households in Ethiopia

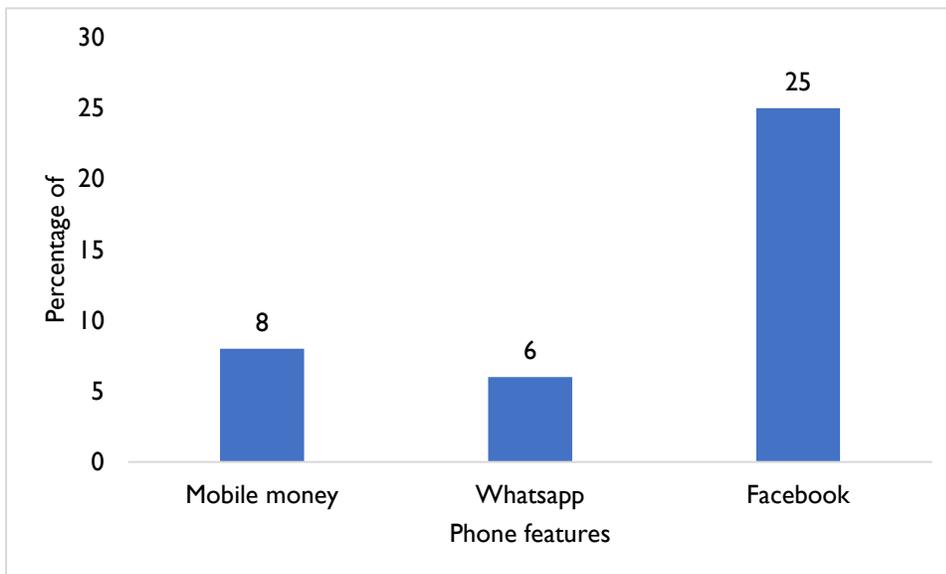


Figure 81. Features of the mobile phones owned by pastoralist households in Ethiopia

The average amount of money that a phone owner spends per week is 109 Birr (median=50 Birr). Phone expenses are mostly used on airtime only (67%). A sizeable share (14%) is spent on both airtime and internet bundles, and 8% is used on internet only. 65% of the household members owning a phone did not experience connectivity problems.

5.6 Access to financial services

5.6.1. Access to savings

The survey asked participants whether their households had any cash savings. Overall, 35% of the households have cash savings. Analysis by gender of the respondent (Figure 82) shows that the proportion of male-headed households (42%) with cash savings is higher than that of female-headed households (28%). When asked where they keep the largest part of their cash savings, most respondents reported informal savings scheme or group as their main channel for saving cash (Figure 83). Results show that more female-headed than male-headed households save cash via informal saving schemes or group. However, male-headed households tend to have more savings options than female-headed households.

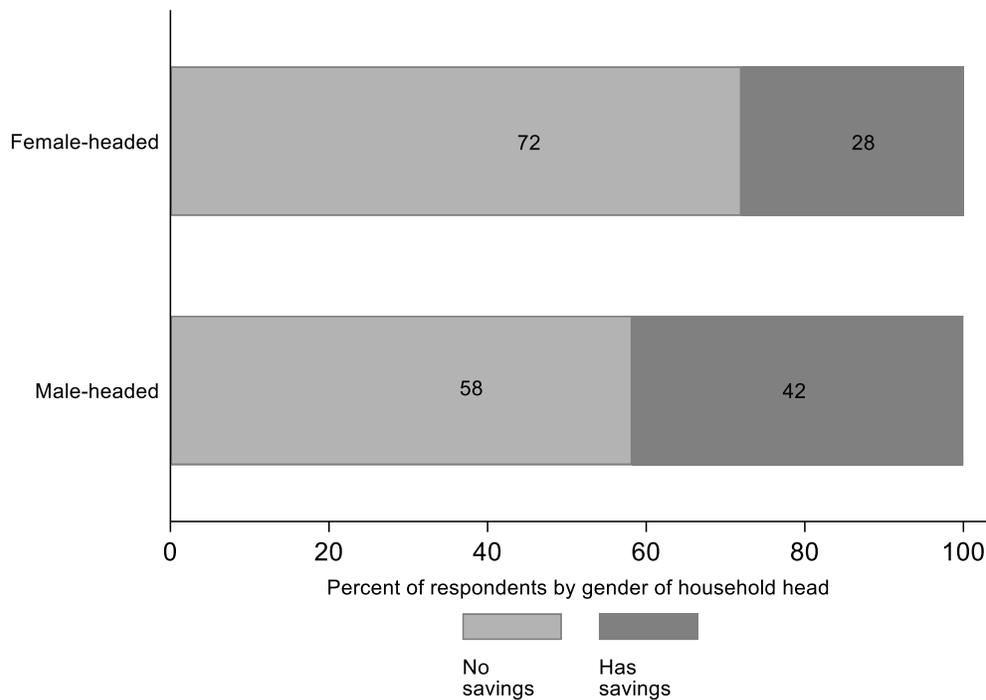


Figure 82. Access to cash savings by male-headed and female-headed pastoralist households in Ethiopia

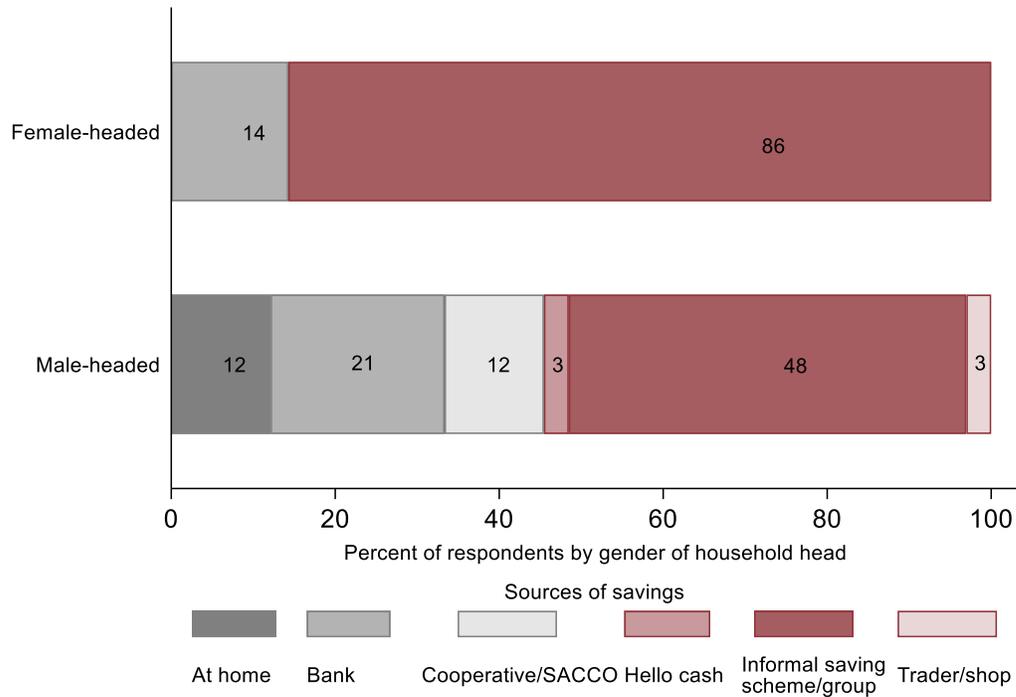


Figure 83. Sources of cash savings for male-headed and female-headed households in Ethiopia

Overall, 44% of the households have a bank account. There is no statistical difference in ownership of bank account between male-headed and female-headed households, although the proportion is slightly higher for female-headed households (Figure 84). Among households that reported they had cash savings the average amount of savings was 3,404 Birr. The median savings amount was 1,000 Birr.

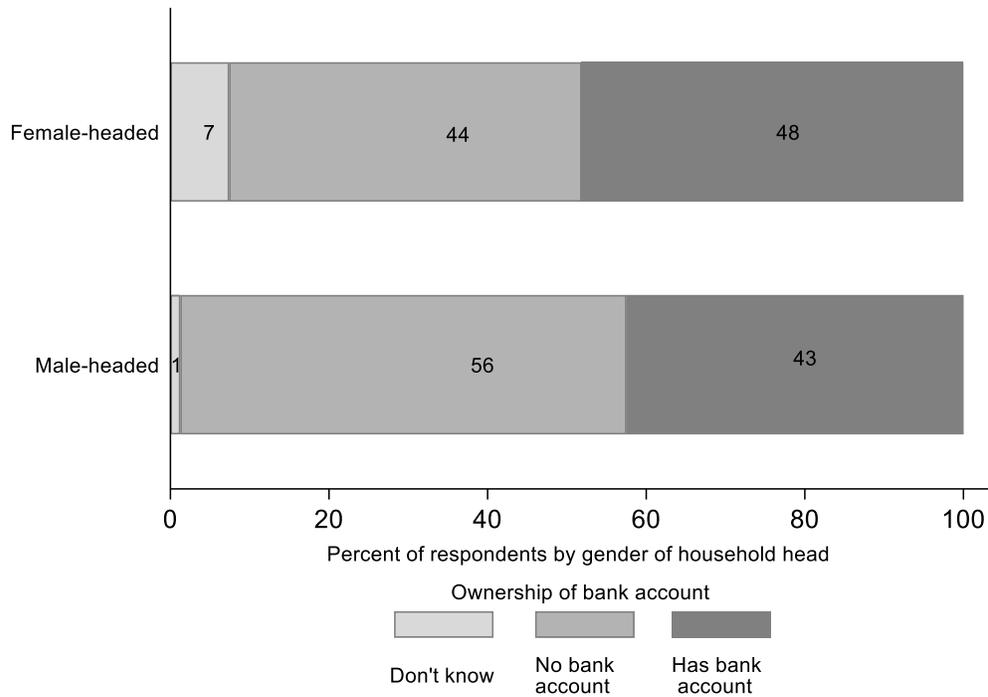


Figure 84. Ownership of bank account by male-headed and female-headed households in Ethiopia

5.6.2. Demand, availability, and affordability of livestock insurance

Turning to livestock insurance, the study began by assessing awareness exposure of pastoralists. The survey asked respondents whether they had heard about livestock insurance. Results show that 83% of the male-headed households and 74% of the female-headed households have heard about livestock insurance (Figure 85). The main sources of information about livestock insurance include involvement in a project that introduced IBLI in the area (Figure 86). Social learning from relatives, friends, and neighbors is an important source of information for female-headed households. Other important sources of information for female-headed households include community barazas and interaction with NGO staff. Contact with NGO and government staff are important sources of information for male-headed households, in addition to involvement in the introduction of IBLI.

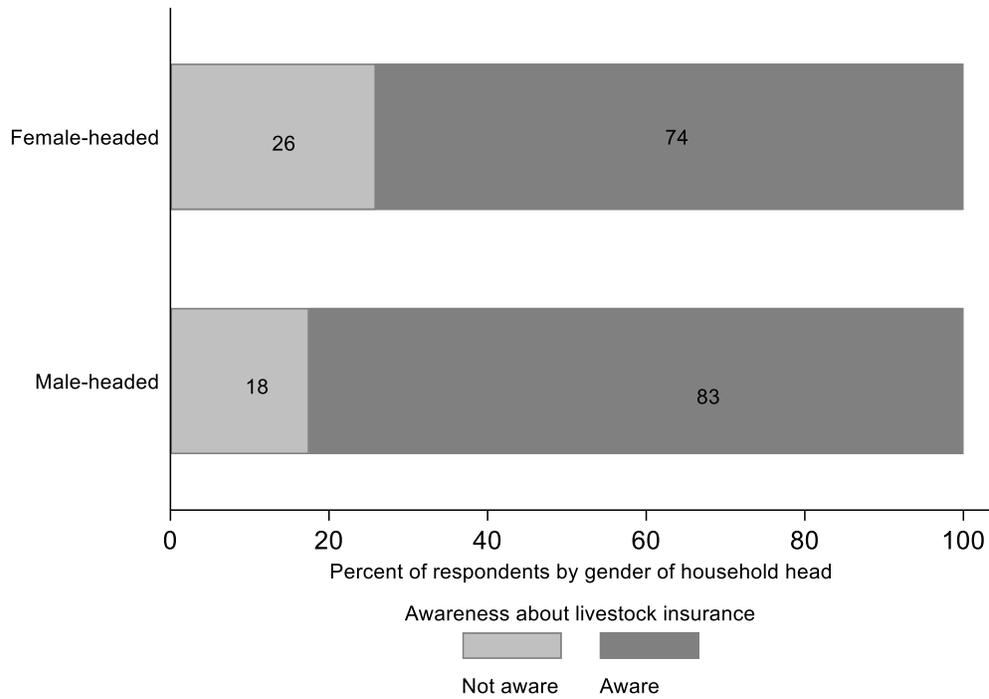


Figure 85. Pastoralist households' awareness of livestock insurance in Ethiopia, by gender of the household head

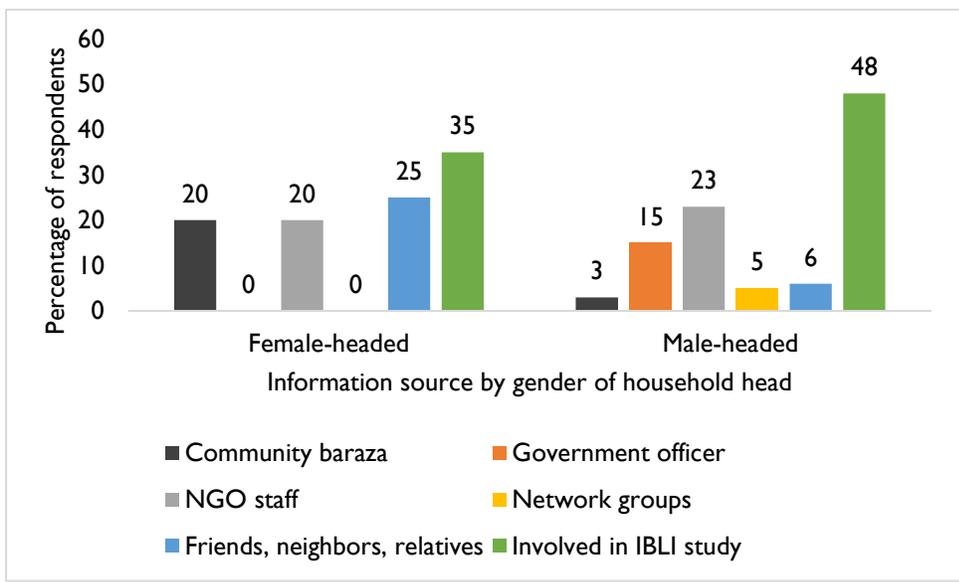


Figure 86. Sources of information about livestock insurance in Ethiopia, by gender of the household head

The survey probed for awareness of the respondents about the existence of livestock insurance in their area. Results show that 73% are aware that livestock insurance is available in their area (Table 26). A significant proportion (55%) indicated they knew how IBLI works. 47% of the households had purchased livestock insurance. A considerable share (61%) indicated they knew other people in their area who has purchased livestock insurance. Together, these results suggest a high exposure to livestock insurance.

Table 26. Awareness and purchase of livestock insurance by pastoralist households in Ethiopia

Variable	Yes (%)	No (%)
Household is aware of existing livestock insurance in the area	73	27
Household knows how livestock insurance works	55	45
Household has purchased livestock insurance	47	53
Household knows people in the area who have purchased livestock insurance	61	39

The average willingness to pay for livestock insurance was 277 Birr for cattle, 351 Birr for camel, and 46 Birr for shoats (Table 27). At these premiums, pastoralists would be willing to insure six cattle, five camels, and 16 shoats. Results further show that 64% of the respondents would be willing to make contributions to a savings account as payment for livestock insurance (Figure 87). Among those indicating willingness to contribute to savings account, 70% are willing to buy livestock insurance every year if offered for purchase (Figure 88). The survey also asked about other types of insurance including health and motor vehicle insurance. A sizeable proportion (63) of households indicated they have public health insurance (Table 28). The proportion of households using private health insurance, funeral insurance, and motor vehicle insurance was 19%, 14%, and 16%, respectively.

Table 27. Willingness to pay for livestock insurance by pastoralist households in Ethiopia

Variable	Mean	Standard deviation
WTP cattle (Birr)	277	74
Number of mature cattle willing to insure	6.3	3.6
WTP camel (Birr)	351	227
Number of camels willing to insure	5.3	6.6
WTP shoats (Birr)	46	12
Number of shoats willing to insure	16	14

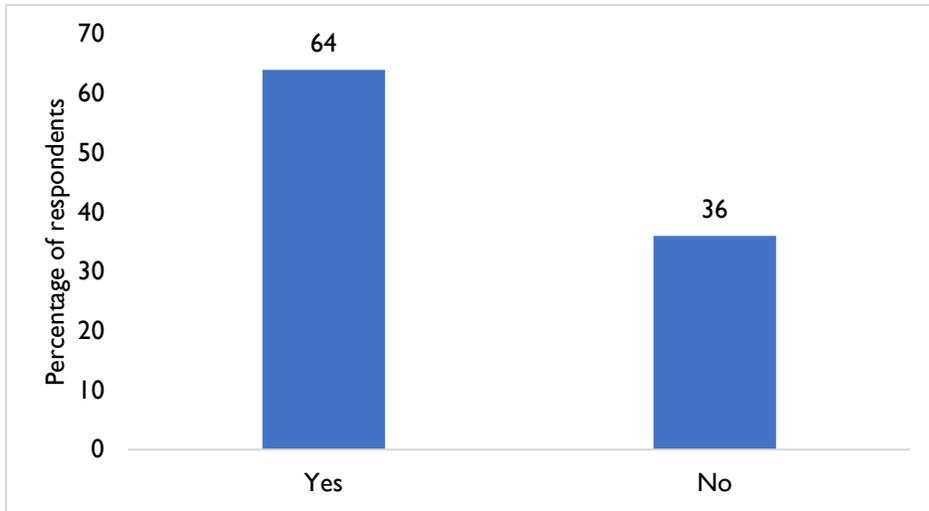


Figure 87. Willingness to contribute to a savings account as payment for livestock insurance

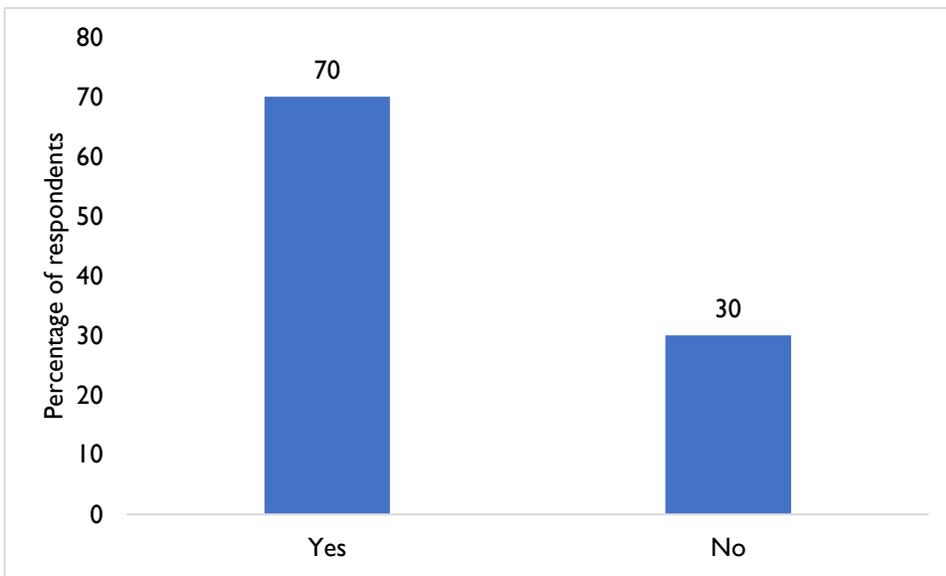


Figure 88. Willingness to buy livestock insurance every year if offered for purchase

Table 28. Use of health, funeral, and motor vehicle insurance by pastoralists in Ethiopia

Variable	Yes (%)	No (%)
Household has health insurance (Public)	62.5	37.5
Household has health insurance (Private)	19.2	80.8
Household has funeral insurance	14.2	85.8
Household has motor vehicle insurance	15.8	84.2

5.6.3. Demand, availability, and affordability of credit

The survey asked respondents whether their households borrowed money in the one year before the survey. There was no statistically significant difference in the percentage of households borrowing money between men and women headed households, although the proportion was slightly higher for male-headed (61%) than female-headed households (56%) (Figure 89). The main source of credit was microfinance institution or savings association for male-headed households and traders for female headed households (Figure 90).

Results in Table 29 show that the average frequency for borrowing is 2.9 times in a year. The median amount borrowed is 11,000 Birr per year. The average amount received (17,077 Birr) is statistically equal to the average amount pastoralists ask for (17,920 Birr). Similarly, the median amount received (10,350 Birr) is equal to that that asked for (11,000 Birr). The average loan duration is 10 months, and the interest rate is 7.5, on average.

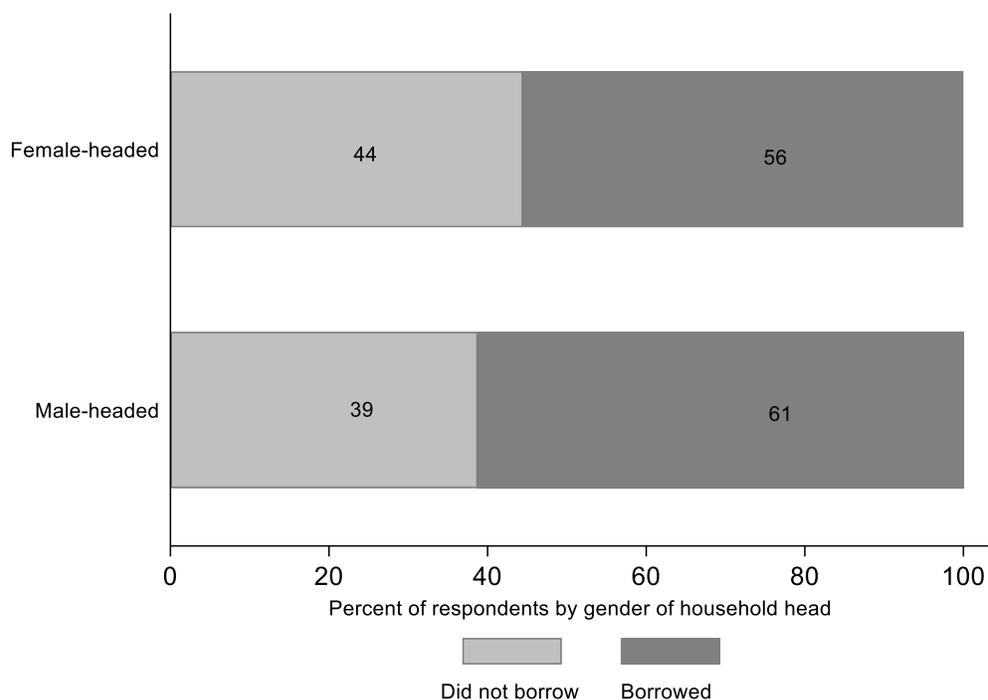


Figure 89. Access to credit by male-headed and female-headed pastoralist households in Ethiopia

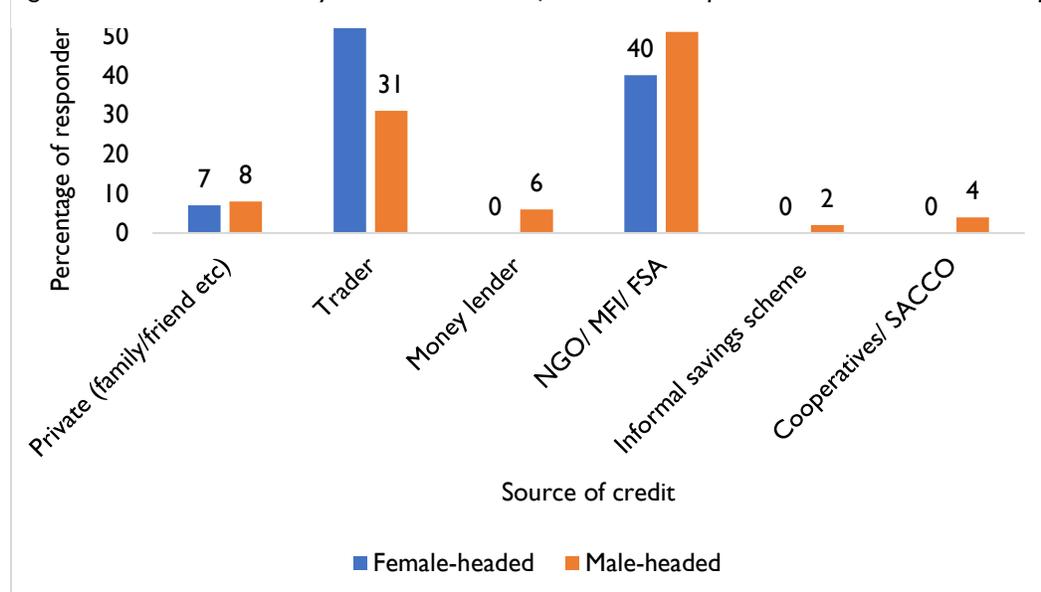


Figure 90. Sources of credit for male-headed and female-headed pastoralist households in Ethiopia

	Female-headed	Male-headed	Overall
Number of times household borrowed money	2.9	2.8	2.0
Amount of money borrowed (Birr)	17,920	13,545	11,000
Amount of money received (Birr)	17,077	13,566	10,350
Duration of the loan (months)	10.0	6.0	12.0
Interest (Birr)	7.5	4.0	10.0

Table 29. Summary statistics about access to credit by pastoralist households in Ethiopia

5.7 Information access and use

Access to information by pastoralists is crucial for improved decision making. The survey collected data on access to production, marketing, and weather-related information. Results are presented in Figure 91. Generally, access to information is very low. The study finds that only three percent of the households have access to short-term weather forecast. Similarly, the proportion receiving medium-term and long-term forecasts is only three percent. Close to one-quarter of the households have access to livestock marketing information and only four percent access livestock production information. These results call for the need to promote awareness and knowledge creation about livestock production and marketing.

The results further indicate the urgent need to promote the diffusion of climate information services to ensure pastoralists have access to both short-term and long-term forecasts.

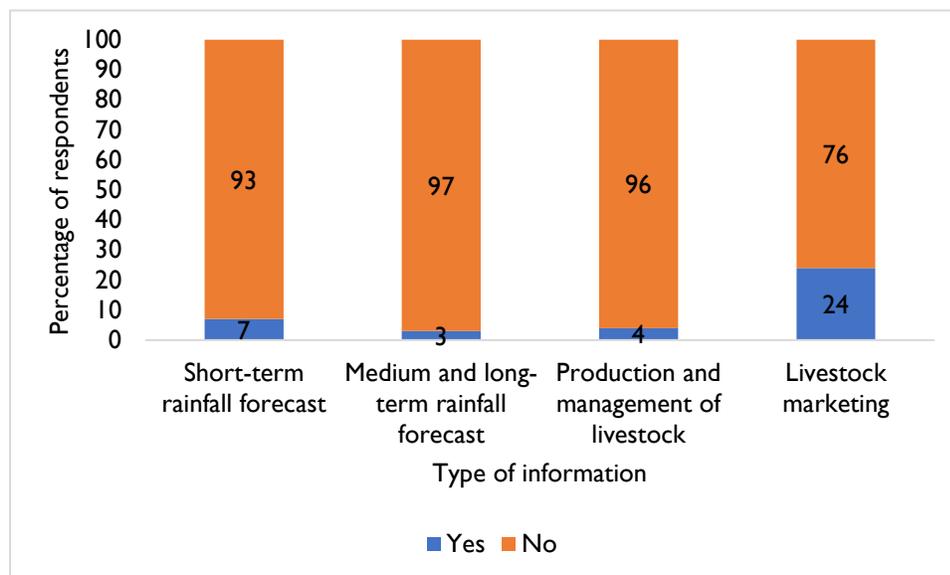


Figure 91. Access to information by pastoralist households in Ethiopia

5.8 Migration patterns of groups and group members

Survey respondents were asked to indicate the number of months their households had been located on the current spot where they were staying. On average, households had stayed for 2 years (Table 30). When asked whether their household had migrated during October 2020 to September 2021, 60% of the household had migrated. On average, migrating households moved to two satellite camps.

Table 30. Summary statistics on migration by pastoralist households in Ethiopia

Variable	Mean/ proportion	Standard deviation	Minimum	Maximum	N
Length of time a household has stayed in current location (months)	23.6	11.6	1	1	48
Has migrated the household or herd since October 2020 to September 2021	0.6	0.5	0	1	120
Number of areas/locations where the household set satellite camp from October 2020 to September 2021	2.1	0.8	1	3	71

5.9 Livestock diversification and management

Households mostly keep goats and cattle. The proportion of male-headed households keeping livestock was considerably higher than that of female-headed households for all types of livestock (Figure 92).

While only a few female-headed households keep sheep, a sizeable share of male-headed households keep sheep. Similarly, very few female-headed households keep male camels. The proportion of female-headed households keeping female camels is considerable.

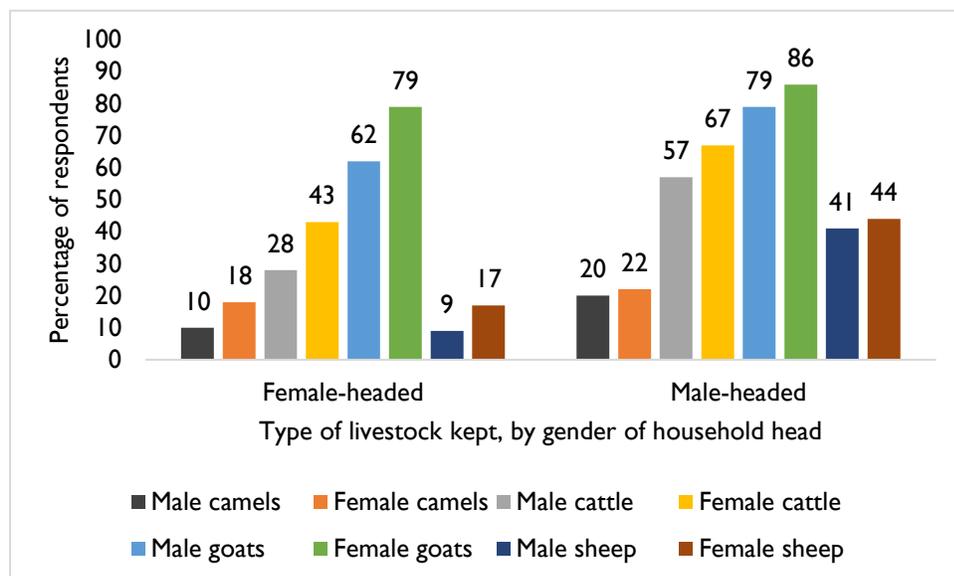


Figure 92. Types of livestock kept by male-headed and female-headed households in Ethiopia

Table 31 presents the numbers of the different livestock types currently owned by the households. On average, the households kept two male camels, five female camels, three male cattle, four female cattle, five male goats, 14 female goats, four male sheep, and 7 female sheep. The average age at which livestock are sold is 15 months for male camels, 22 months for female camels, 24 months for male cattle, 25 months for female cattle, 18 months for male goats, 22 months for female goats, and 12 months for both male and female sheep. Table 32 shows the age at which livestock are sold while Table 33 presents the prices at which the livestock are sold.

Table 31. Number of livestock currently owned by pastoralist households in Ethiopia

Livestock type	Mean	Standard deviation	Median	Observations
Male camels	2.1	2.4	1.5	24
Female camels	5.0	6.1	3.0	35
Male cattle	3.2	2.4	3.0	63
Female cattle	5.6	7.3	4.0	96
Male goat	5.1	4.6	4.0	118
Female goat	14.1	11.4	10.0	148
Male sheep	3.6	4.7	2.0	47
Female sheep	6.8	6.9	5.0	59

Table 32. Age at which livestock are sold by pastoralist households in Ethiopia

Livestock type	Mean	Standard deviation	Median
Male camels	14.8	25.4	4.0
Female camels	22.3	20.0	18.0
Male cattle	23.8	21.8	7.0
Female cattle	25.1	21.6	22.0
Male goat	17.7	13.2	22.0
Female goat	21.7	13.7	24.0
Male sheep	11.6	11.5	12.0
Female sheep	12.5	13.5	7.5

Table 33. Prices at which livestock are sold by pastoralist households in Ethiopia

Livestock type	Mean	Standard deviation	Median
Male camels	16,858	9,873	15,000
Female camels	14,667	6,055	12,500
Male cattle	13,060	8,096	12,000
Female cattle	7,742	4,883	7,000
Male goat	1,873	1,210	1,500
Female goat	1,394	651	1,500
Male sheep	1,560	570	1,500
Female sheep	1,194	435	1,200

5.10 Access to inputs

This section presents results of the different inputs used by pastoralists in their livestock production activities. Analysis is conducted by season. The study further assessed the amount of money spent for the main livestock expenditure categories. Results show that across all seasons, households mostly spend money on buying livestock feed (Figure 93). As expected, expenditure on feed is higher during the dry seasons than wet seasons. However, even in the rainy seasons, the proportion of households spending money on livestock feed is considerable. This indicates that forage availability has reduced both in the rainy and dry seasons. A sizeable share of the households incurs costs related to livestock medicine, especially during the January-February short rains season. Other important types of expenditures include water for livestock and livestock veterinary services. Table 34 reveals variation in livestock expenditure across seasons with the largest burden experienced during the June-September long dry season.

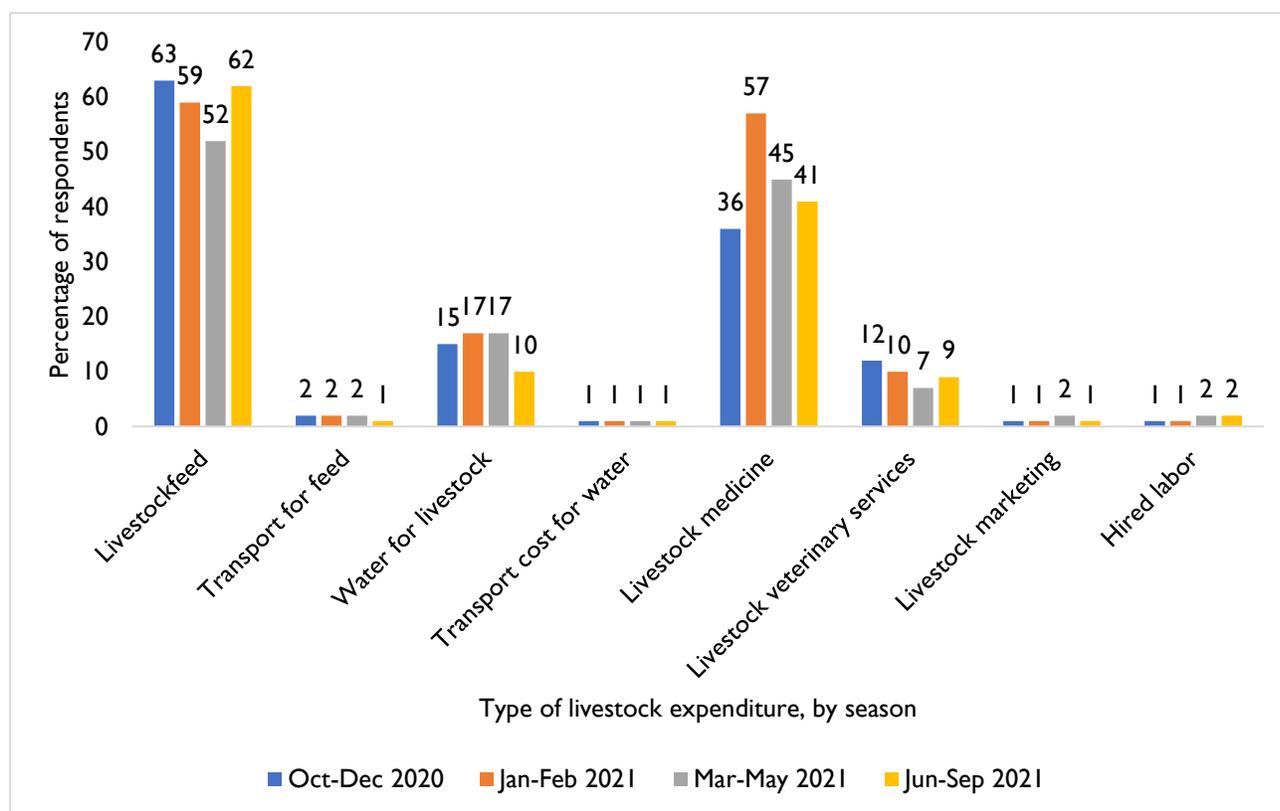


Figure 93. Types of livestock expenses incurred by pastoralist households in Ethiopia

Table 34. Variability in livestock expenditure across seasons and spatially in Ethiopia

Expense type	October-December 2020	January-February 2021	March-May 2021	June-September 2021
Livestock feed	4,374	3,144	4,116	3,976
Water for livestock	2,223	1,333	1,012	2,053
Livestock medicine	1,682	1,267	1,587	1,164
Veterinary services	1,475	1,294	1,270	2,095

5.11 Natural resource management

Pastoralist livelihoods are under threat from a variety of challenges, including the fragmentation and loss of grazing land to other uses, unplanned settlement, expansion of cropping into rangelands, drought and bush encroachment (Schmidt and Pearson, 2016). These challenges can disrupt traditional grazing patterns and undermine productivity and increase vulnerability to drought and other shocks and stresses (Abebe et al., 2012; Greiner et al., 2013; Senda et al., 2020; Wario et al., 2016).

In strictly legal terms, all pastoral lands are now owned by the state on behalf of the peoples of Ethiopia (Lavers, 2018). The FDRE Constitution guarantees access to land for all Ethiopian pastoralists to have the right to free land for grazing and cultivation as well as the right not to be displaced from their own lands. However, it leaves it for regional states to specify the terms and conditions under which land is made available to users. Proclamation No. 1161/2019 gives definition for communal holding as, a rural land which is given by the government to residents for common grazing, forestry and other social services. Thus, the land is under the custody of the community bestowed from the government for common use. A communal land allows access of use to everybody who is a residing member of the community in question. Communal holding is designated usually from the customary use rights of the community, yet it is subject to conversion to private holding at the prerogative of the state (Behailu, 2015).

A study by Abebe and Flintan (2021) found that Afar society in general is patriarchal, both customarily and religiously. In Afar, three systems govern land rights: customary, religious and formal state. In Afar, the majority of land is held communally, and women can use grazing lands without limitation and discrimination. Customary and religious systems are applicable more than state laws, even in conflict resolution. Women have started obtaining their own private holdings from the government in villagization areas but still they have lower decision-making powers than men. Women do not actively participate in land administration committees even though the law enshrines it. Even though private holdings can be given to women, this is not being implemented. Women cannot inherit property either from their husband or families through the customary system. Land registration and certification is being conducted in the region considering the rights of women.

In Borana, Oromia, the state formal law and the customary system govern the land use rights. Women have relatively equal status to their male counterparts. They have their own clear responsibilities according to custom. It is not possible to make transactions with matrimonial properties without the consent of the wife. Women have their own private land. There is another source of governance present in the area. The Gada is a generation-based, customary governance system that is recognized by many of the Oromo speaking ethnic groups (Oba, 2013). The Guji also relies on a gada system for governance and ritual (Debus, 2008). There are considerable overlaps and tensions between different responsibilities of the customary institutions and those of the formal government structures (Kamara et al., 2004).

Gada leadership and its different political offices graduate every eight years, and a subsequent generational group takes over leadership. The head of the gada generation in power is referred to as the abba gada. Every eight years, an assembly called gumi gayo is organized by the gada leadership, and it is at this meeting that ethnic-wide proclamations and customary laws are reviewed and made (Bassi, 2005). Rules regarding land use, property rights, and settlement are made at this meeting, including rules about farming and private and communal rangeland enclosures (called kalo). It is the gada leadership that is responsible for customary laws and rules and for the wider community (Bassi, 2010). In Guji culture, the governance aspect of the gada system has generally eroded in recent years vis-à-vis formal government institutions. In contrast to the Borana system, where there is one gada system for the entire ethnic group, there are multiple gada systems operating in Guji (Bassi, 2010). Below the gada, there are other institutions and leadership structures that deal with local grazing rights and rules and for resolving local

resource-based conflicts. These include committees of elders and leaders organized at the level of customary grazing units, water points, and settlements.

In Oromia, a few herders (usually young men) move with the animals to satellite camps. The smallest unit of land and livestock management in the Borana grazing system is the *ola*—a collection of multiple households (*warra*) that represents a sometimes seasonal home camp or settlement. These household clusters are led by an *ola* leader. The *ola* make independent decisions on herd management and share access to resources, such as water and fuel wood. Women in Borana participate directly and indirectly in the management of communal lands. There is land enclosure, which is conducted mostly by men. Land transactions are conducted with the consent of the property owner's wife. According to customary law, all Boran have the right to water and to use land for grazing. The right to water is the right to life, and it is forbidden to deny someone water or to ask him or her to pay for it. Access is usually determined through the clan, with women accessing resources through their husbands, fathers, brothers and sons. In principle, all Boran and even members of other groups are welcome to graze their livestock anywhere, and to take water subject only to requesting permission from the elders at any given site.

Land enclosures are increasingly common in Ethiopia, motivated by three main factors including ecological changes, increasing market value of enclosure through time, and the importance of rangeland enclosures as dry season feed reserve (Beyene, 2009). In terms of changes in ecological conditions, Beyene (2009) provides an example of emergence of new browsing species and disappearance of a few grass species consequently creating a favorable environment for production of browsers rather than grazers. Land enclosures were, therefore, established as herders' response to gradual ecological change characterized by a decline in quantity of grass species on communal land. Because herders still tend to maintain grazers in their herd for economic and socio-cultural reasons, they do fence potential grassland (Beyene, 2009). As a second motivation, selling grass from enclosed land becomes widespread in connection with increasing severity of feed shortage. For example, relatively better off households revert to such market whenever the livestock feed on common pasture becomes inadequate. In this particular context, the "owner" of the enclosure arranges contractual grazing with livestock owner who can graze on the enclosed land for some time. The third motivation for rangeland enclosure is that private pasture serves as dry season feed reserve. Therefore, one of the main drivers of land use change is the growth of private and communal grazing enclosures (McPeak and Little, 2019). The average size of community enclosures is about 61 hectares, while the less common private enclosures are considerably smaller with an average of about two hectares (McPeak and Little, 2019). In some locations, the use of communal grazing enclosures appears to be evolving into *de facto* private grazing and/or farming land, raising questions about the private appropriation of communal land (McPeak and Little, 2019). Expansion of private enclosures has been reported to reduce sufficiency of communal grazing land and limitation on livestock mobility. The growth of communal grazing enclosures appears to be an elevation of community members' right to exclude non-community members from access to rangeland resources. Female-headed households do not show differential access to community enclosure but are less likely to indicate access to private enclosures and report a smaller size of private enclosures when they do have access (McPeak and Little, 2019). Age of the head does not impact community enclosure but is negatively related to private enclosure, where access and extent decreases with age, suggesting that private enclosure expansion is more prominent for younger heads of households (McPeak and Little, 2019).

In eastern Ethiopia, Beyene (2009) found that fencing of land around cisterns was common. Those households who afford to invest will enclose land to claim that the intention is to protect the water point. There is a close link between expansion of enclosure and an increase in water points. Households fence communal land around private cisterns and ponds where they use these water points to legitimize their action (and subsequent claims) to the rest of the community members. This shows the systematic impact

of an increase in water points on property rights to grazing land where the rising water scarcity and water prices can motivate pastoral herders to establish enclosure around water points. Thus, investment in water points precludes competing claims to land around the water points. The mechanisms by which customary property rights institutions operate indicate how one rule is nested within the other. The right to establish water points paves the way for the right to enclose land. Though it leads to disputes, pastoralists sometimes initially invest in water points without the knowledge of the customary authorities and then later claim for private access to land around it. This situation indicates that prior investment in water points serves to lay a claim for private use of land.

Livestock feeds are derived mainly from annual foraging over large areas of grazing lands (Mekasha et al., 2014). Largely irreversible human activities overland surfaces including the clearing of forest, cultivation, overgrazing, settlements, industrialization, urbanization, and other forms of land management are causing changes in land use and land cover patterns with resultant change in livestock feed resource composition, feed deficits and feeding management strategies (Mekasha et al., 2014). In the past mobility was a major means of overcoming shortages of feed in the pastoral and agro-pastoral areas because of free access to large tracts of land. The observed decline in grazing resources coupled with land fragmentation due to increased crop encroachment (Desta, 2000; Reidet al., 2004), privatization of communal grazing lands and fencing of the most important grazing lands (Angassa and Oba, 2008; Napier and Desta, 2011), increase in bush density (Angassa and Oba, 2008) and inter- and intra-ethnic conflicts (Beyene, 2009; Udessa, 2001) has reduced land area available for the free movement of livestock. Likewise, the contribution of transhumant movements of the herd to overcome seasonal shortage of feed in mixed crop-livestock has significantly declined due to expansion of largescale commercial crop farms in the 1970s and 1980s.

In recent years there has been a dramatic increase in land allocated for crops and pastures being “privatized” or given to small sub-groups of people. Today, individuals can gain private access to land for cultivation or to grazing areas through the kebele without having to go through customary institutions, which will not guarantee such private rights (Flintan et al., 2010). Pastoral elites might also promote their own individual interests through affiliation with heads of kebele and the annexing of land for private use. Local governments allow the fencing of land for agricultural purposes, but not for grazing, so individual herders or “pretenders” worried about losing all claims to land if they themselves do not fence have registered claims to “cultivated” land but in many cases use it for pasture (Flintan et al., 2010).

6. Summary

Climate shocks are increasingly threatening livelihoods of pastoralists in the horn of Africa. Increasing access to financial services and improving the functioning of value chains can help in addressing climate shocks, reducing vulnerability, and strengthening the resilience of livelihoods. This study was conducted in Kenya, Somalia, and Ethiopia and sought to: (1) identify groups that are sufficiently structured around productive activities and could be supported under the project with insurance, financial services, and other services to fully participate in the livestock value chain; (2) understand the social and economic characteristics of the project’s beneficiaries; (3) assess the suite of financial services for which there is demand and could form an affordable financial protection and resilience scheme; (4) assess the modes of delivery of financial services that meet the needs of the project’s intended beneficiaries.

This report presents and discusses the study findings. Results of the descriptive analysis show that there exist many pastoralist groups in the three countries. The groups are diverse, play multiple functions, and all are involved in livestock production. In Somalia, the groups are new while in both Kenya and Ethiopia, the groups have existed for a considerable period of time. There seems to be active participation by group

members in the activities of the groups as revealed by the frequency of meetings. By and large, group members are satisfied with the leadership and decision making within groups.

The study shows that across the three countries, pastoralists are increasingly vulnerable to climatic shocks, particularly drought. Households perceived that droughts are not only more frequent but also prolonged. Most shocks facing households are covariate in nature. This means that most people in the community are affected making it difficult to assist each other via informal networks when a shock happens. The study finds that financial services such as savings play a crucial role in coping with shocks. There is considerable access to savings by both men and women across the three countries. There are also differences in the sources of savings chosen by men and women. However, the amounts saved are generally low suggesting the need for interventions to incentivize savings. Access to credit is generally low. Pastoralists tend to borrow from informal savings schemes or groups and by relying on social networks. A considerable proportion of households in Kenya and Ethiopia have heard about index-based livestock insurance (IBLI). However, awareness of IBLI in Somalia is very low. Furthermore, a sizable share of pastoralists in all three countries seem not to know how IBLI works. This finding indicates the important need for promotional and knowledge creation strategies. Pastoralists, especially in Kenya and Ethiopia, are willing to pay for livestock insurance. However, in Ethiopia, willingness to pay for camel was slightly lower than the current premiums charged in the market. Households are willing to contribute to savings to have the money required for purchase of livestock insurance when the sales window opens. Furthermore, there is an opportunity to improve pastoralists participation in livestock markets and value chains. Households indicated willingness to commercialize their production.

The findings of this study are useful for informing the preparation and design of the De-Risking, Inclusion, and Value Enhancement of pastoral economies In the Horn of Africa project (DRIVE). Specifically, the findings confirm that through its two components, namely (a) de-risking and financing and (b) value chains and trade facilitation, the DRIVE project stands to benefit pastoralists directly and the economies of the countries in the Horn of Africa.

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