

# LOOKING AHEAD IN THE MIDST OF A CRISIS:

The role of Anticipatory Action  
in a protracted drought



### **Acknowledgements:**

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## Acronyms

AA	anticipatory action
CCA	climate change adaptation
DRR	disaster risk reduction
EW/EWS	early warning/early warning systems
FAO	Food and Agricultural Organization
FGD	focus group discussion
HH	household
IGA	income-generating activities
IPC	Integrated Phase Classification
IRM	integrated (disaster) risk management (and four strands)
KII	key informant interviews
LEGS	Livestock Emergency Guidelines and Standards
NDMA	National Drought Management Authority (Kenya)
NGO	non-governmental organisation
SC	Save the Children
SoDMA	Somalia's Disaster Management Agency
VSL	village savings and loans
WFP	World Food Programme

## Executive summary

### Introduction

Anticipatory action (AA) is a risk management approach. It entails acting ahead of a forecasted hazardous event or its impact to reduce humanitarian needs and protect lives and livelihoods.

Relying on risk data and forecasting, AA has had the most success with predictable, rapid-onset hazards such as flooding and hurricanes. The added value of AA is less clear for a prolonged crisis like a protracted drought. With the likely increase of slower-onset and recurrent climate-related events, humanitarian and development actors need to find ways to adapt AA initiatives to heighten their effectiveness in protracted crises. This research was commissioned to do just that.

Save the Children is a global humanitarian network that helps children across the world improve their lives. Since 2021, Save the Children has implemented an AA programme through the Jameel Observatory for Food Security Early Action – an entity that seeks to support the improved use of local knowledge and data to prepare for and act in anticipation of climate related shocks. The programme is being implemented in Kenya and Somaliland, where people often endure hunger exacerbated by prolonged drought. In both countries, pastoral communities that rely predominately on livestock are especially affected. Between late 2020 and early 2023, recurrent drought and flash floods across the region devastated livelihoods and depleted herds and harvests, with far-reaching social and economic consequences.

In response, federal government organisations – particularly Kenya’s National Drought Management Authority (NDMA) and Somaliland’s National Disaster Preparedness and Food Reserve Authority (NADFOR) – have worked with decentralised authorities to localise AA systems to make them more appropriate for communities via risk reports and early warning bulletins. Nevertheless, gaps remain with regards to knowing when to act and with what actions that will best help households to mitigate risk.

### Study purpose and key questions

This mixed-methods study builds on Save the Children work in Kenya and Somaliland to explore how and when development, humanitarian, and climate actors could better support households and communities facing protracted and worsening food crises. It captures the voices of people and families living through the 2021-2023 drought.

The overarching research question it asked those communities was: **How and when can development, climate change and humanitarian actors best support households to further protect their livelihoods and wellbeing in the face of repeated or ongoing food crises forecasted to worsen?**

With the **emphasis on anticipatory action**, it was supported by the following question sets:

- ✓ What actions did households engage in independently to cope with food crises?
- ✓ What other actions could households or communities engage in with additional support?
- ✓ For each of the above actions: How should they be triggered, timed, managed and monitored?
- ✓ How well do the key actions align with and contribute to the integrated risk management strands?

### Research details

**Key question: What can anticipatory action offer households confronting protracted food crises in East Africa?**

**Locations: Kenya and Somalia/Somaliland**

**Data collection dates: July and August 2023**

**Donor: Jameel Observatory for Food Security Early Action and the Hau’oli Mau Loa Foundation**

**Thematic areas: anticipatory action, integrated risk management, pastoral livelihoods, protracted crisis, drought**

## Methodology

In July and August 2023, a study team composed of Integrated Risk Management Associates (IRMA) and Save the Children field staff conducted 37 key informant interviews (KIIs), 20 focus group discussions (FGDs) and 33 household (HH) visits/interviews. The team collected qualitative data from people – who we’re calling ‘key informants’ – living in six pastoral/agro-pastoral communities – four in north-eastern Kenya and two in Somaliland. The communities’ key informants were recruited to represent different types of occupation. Community participants in FGDs were organised into three profiles: men only, women only and young people of mixed gender. Other informants included government authorities and humanitarian actors serving these communities.

The team anonymised, translated, transcribed and qualitatively coded the field data collected. Trends were examined across age, gender, location, and a household’s livelihood – categorised into what we call ‘pastoral pathways’, which groups households by their “success” in pastoralism (see p. 14). Our findings inform concrete recommendations on how anticipatory action can play a crucial and expanding role in protracted crises.

## Findings

**Sticking to the same strategies:** The actions households and communities in the study took during the 2021-2023 drought crisis were usually straightforward extensions of their usual livelihood strategies – they did more of what they always do. In both countries, for example, respondents reported migrating to search for pasture and water, as well as buying supplementary feed. In Somaliland, respondents said they grew fodder. All regular activity for the communities in question.

On the other hand, respondents rarely mentioned the use of climate-smart agriculture or storing agricultural production – measures that were not part of communities’ usual routine but could have made a significant difference in helping them cope with the impacts of drought. Crucially, the study found that risk proofing and strengthening preferred livelihoods – long-term disaster-prevention actions linked to climate change adaptation and disaster risk reduction – were missing from drought management support.

Agricultural initiatives were regularly reported as being ineffective during drought because of the absence of water resources and irrigation. Purchasing clean water, often via water trucks, was a common (though expensive) strategy to address water insecurity, especially in Somaliland.

**Negative coping strategies:** Households described negative strategies to help them cope with drought. They reported reducing nutritious meal options (more common in Kenya) or cutting adult food consumption in favour of children (more common in Somaliland). Numerous informants reported pulling their children out of school during drought. When conditions improved, some children return to the classroom, but many did not.

‘Household splitting’ during drought – where some family members move with the herd while others stay behind – was more commonly reported among Somali households than Kenyan.

**Income-generation strategies:** While the most common strategy to increase income was selling wood or charcoal, households reported that buying commercial feed, transporting water, selling livestock and petty trade were the most effective ways of mitigating the impact of drought on their livelihoods. Households who owned a shop to supplement their income were doing comparatively well.

There is evidence from the study that savings and loans schemes, income-generating activities, and entrepreneurial or vocational support are particularly valued by young people and women, who seek to find new sources of income and manage the risks of drought.

**External support:** Many respondents reported that humanitarian and development actors delivered livestock interventions, such as vaccination campaigns, and provided water resources. However, their overall inability to meet exceptional need in times of crisis was a recurring theme.

**Early-warning messages and a lack of trust:** In the study areas, decentralised drought early-warning messages rely primarily on word of mouth, social media and radio broadcasts. But the messages often do not reach households and when they do, they are not always understood or trusted – and therefore not acted upon – particularly by Muslim communities in Kenya. Flood warnings were more widely accepted.

**Types of actions:** the most promising actions suggested by households are typically humanitarian response options: the provision of fodder and water, emergency cash transfers, and food aid. This research also adds school feeding to the list. These activities could also be conducted in anticipation of a crisis if delivered in anticipation of the drought or its impacts.

**Timing of anticipatory action:** Although the unique value of anticipatory action lies in its name and its timeliness, the precise 'best moment' or window to take it is not easy to pinpoint, even for the simplest hazards. It is easier to identify the times that are not right for AA. This research found that the actions communities take to manage the risks of a protracted drought do not tend to vary across in the duration of the crisis, and may lose their effectiveness after multiple consecutive failed rainy seasons. Therefore, in a protracted drought, AA may have potentially greater value after the first failed season rather than after a second or subsequent failed season.

## Recommendations

Communities should be supported to adopt a comprehensive approach to disaster risk management (DRM) that includes anticipatory action. Without the wider components of early warning and disaster risk reduction, AA will not have the desired impact. This includes support for early warning and preparedness systems.

**The first step is to build deep community awareness about the need for such an approach** – without it anticipatory action will be built on sinking sand.

**In parallel, the agropastoral, water, education, and health systems serving these communities need strengthening.** If these systems are weak during non-crisis periods, they will not be able to flex and adapt to forecasted shocks. Reinforcing early warning, food storage and fodder management systems are crucial elements of effective DRM. Given communities do not systematically receive or believe early warning information, improved and locally relevant early-warning messaging is needed.

**Anticipatory action in protracted drought should be promoted.** AA initiatives to protect livelihoods are best suited for agropastoral households that still have livelihoods left to protect. Such initiatives could include the provision of supplementary livestock fodder, cash transfers or veterinary support; commercial or slaughter destocking; improved water access; and risk-informed school feeding. By definition, their timing is critical. AA initiatives to protect wellbeing, including keeping children in school, and food security are suitable for all households, even those who have few or no productive assets remaining.

**While AA has an important role in protracted crises, it is unlikely to be sufficient to mitigate the full impact of any crisis. Therefore, a portion of the population will need humanitarian aid as well as AA.** Humanitarian aid should prioritise households that are 'dropping out' of pastoralism, or those with minimal or no livelihood assets.

**The need for anticipatory action:** There are clear and convincing reasons to use anticipatory action during a protracted food crisis. It can help protect the livelihoods of households hanging on to pastoralism. It can protect the broader wellbeing and food security of all households, including those who have lost their livestock and livelihoods. In fact, once the wider system of support – veterinary, health, economic, nutritional, educational and social – is strengthened and primed, anticipatory action is a huge opportunity to protect and sustain communities' wellbeing and preferred livelihoods from drought shocks, both short-lived and protracted.



# 1. Overview of the research

This research aims to improve the design of anticipatory action by helping to better understand community needs and appropriate anticipatory interventions.

## 1.1. Background

### 1.1.1. Anticipatory action

Reducing the risks of hazards that communities face in both the long and short term can and should be a priority across development, humanitarian and peacebuilding work. That is why anticipatory action (AA) has gained traction over the past decade.

Save the Children defines anticipatory action as ‘acting ahead of a predicted hazard to prevent or reduce the impacts on communities before they fully unfold’.<sup>1</sup> AA is a tool to mitigate remaining risks that have not been attenuated or managed by longer-term development or disaster risk reduction (DRR) programmes. It relies on early warning and triggers an early response (see Figure 1). Although they vary across organisations, most AA programmes share three common characteristics:

- ✓ use of risk data and forecasts to predict impending crises and determine when and where to act
- ✓ the definition and planning of early action
- ✓ financing to enable preparedness, prepositioning and execution of early actions when forecasts indicate the need to act.

AA has grown, but open questions and knowledge gaps remain about its effective implementation and impact. As the approach is relatively new and impact studies are difficult to conduct in humanitarian contexts, few rigorous studies exist. However, evidence strongly suggests that AA is an effective tool for protecting lives and livelihoods. Some organisations have worked on anticipatory action for drought, but most AA programmes focus on sudden yet predictable hazards with a clear beginning and end, such as flooding and cyclones. More learning is needed on how to develop effective AA systems for slower-moving situations such as drought and other repeated or prolonged crises.

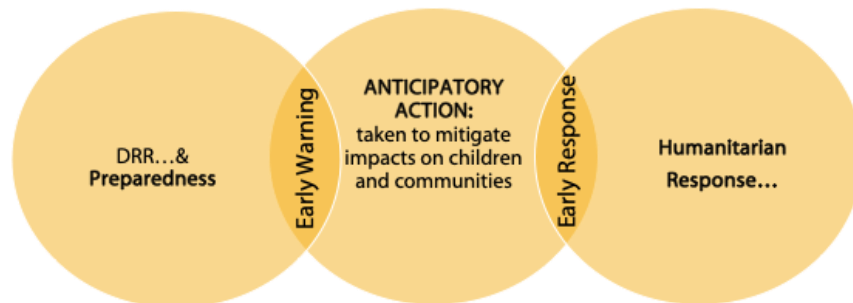


Figure 1. Anticipatory action in the disaster risk management continuum<sup>2</sup>

<sup>1</sup> Save the Children, 2022, [Save the Children Framework for Anticipatory Action | Save the Children's Resource Centre](#)

<sup>2</sup> Source: Simplified from Save the Children Framework for Anticipatory Action, 2022.

### 1.1.2. *Save the Children in Kenya and Somalia/Somaliland*

Save the Children is a global humanitarian network, comprising 30 national member organisations and Save the Children International. All member organisations share the same focus on improving the lives of children, particularly those exposed to poverty, violence, disease and hunger. They implement child-centred programmes, conduct advocacy and respond to emergencies across 116 countries. Save the Children has been working in Kenya since 1950 and in Somalia/Somaliland since 1951. Its programmes in these countries cover health and nutrition, food security and livelihoods, child protection, child rights governance, education and humanitarian response.

Since 2021, Save the Children with funding from Community Jameel has been implementing an AA programme with the Jameel Observatory in Kenya and Somaliland to generate evidence on the benefits of anticipatory action for predictable food crises. During that time, the region has experienced five consecutive failed rainy seasons. This has highlighted the practical and ethical considerations of implementing AA in existing or protracted crises, and presented an opportunity to investigate how AA can adapt to these challenges.

The Jameel Observatory for Food Security Early Action brokers science knowledge, and real-world action to develop inclusive solutions to the environmental shocks facing dryland communities. The Observatory convenes dialogue, generates evidence, catalyses collaboration, develops capacities and communicates for change to improve the lives and livelihoods of pastoral and agro-pastoral communities in East Africa. By leveraging the expertise of different partners, the Observatory's vision is that *vulnerable pastoral and agro-pastoral communities in target regions of East Africa are more prepared for and resilient to the effects of evolving environmental shocks and stresses on their food security and nutrition.*

### 1.1.3. *Study areas: Kenya and Somaliland*

#### Drought dynamics

East Africa regularly faces heightened hunger, exacerbated by severe drought and ominous fluctuations in food prices. The combined impact of consecutive poor rainy seasons, the COVID-19 pandemic, insecurity, pests and diseases precipitated a rapid escalation of humanitarian needs, especially among pastoral communities in many parts of Kenya and Somaliland. As early as September 2021, the Kenyan government officially declared the drought a national disaster. The short rains in October to December 2021 proved inadequate to alleviate the drought, and below-average rainfall persisted throughout 2022 and into early 2023. **The fourth consecutive below-average rainy season** led to crop near-failures and saw livestock production plunge. Localised resource conflicts, elevated food prices resulting from the war in Ukraine, higher-than-average temperatures and low domestic production all exacerbated the crisis.

The prolonged drought had severe consequences. Livelihoods were devastated, livestock herds depleted, and crop production fell and vegetation for animals to eat grew increasingly sparse. Water became scarce, household incomes fell, and rising numbers of people were displaced or forced to trek long distances in search of water and pastures. Children in the region faced significant food consumption gaps and increasingly began to suffer from malnutrition.<sup>3</sup>

The number of drought-affected people in crisis levels of acute food insecurity or worse (i.e. IPC Phase 3 or above) across Kenyan arid and semi-arid counties had risen from 4.4 million people in February 2023 to 5.4 million in June 2023, before finally falling to 2.8 million in September 2023. In Somalia/Somaliland, drought conditions were even more severe. The number of Somalians facing IPC Phase 3 food insecurity levels or worse between April and June 2023 was 6.5 million people, of which 1.9 million were facing emergency levels of acute food insecurity (i.e. IPC Phase 4). In August/September 2023, the numbers fell to 3.7 million.<sup>4</sup>

The drought had begun to ease by the time the fieldwork for this research was underway in August 2023, only to be replaced by destructive floods and localised conflicts.

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<sup>3</sup> Source: World Food Programme, Regional Bureau in Nairobi, RAM Unit, 2022.

<sup>4</sup> Source: [ipcinfo.org](https://ipcinfo.org) (December 2023).

## Drought early-warning and governance

The devastation caused by past crises – particularly the severe 2011-12 drought in the Somali region and northern Kenya – has seen substantial investment in drought early-warning systems.<sup>5</sup> Risk reports and early-warning bulletins are now routinely generated and disseminated across the region, and DRR, shock-responsive and anticipatory approaches, and contingency planning have been implemented, but their effectiveness in protecting at-risk communities is inconsistent.

Among the institutions created as part of this early-warning ecosystem is Kenya's National Drought Management Authority (NDMA), established in 2011. The NDMA operates across 23 arid and semi-arid counties, using a blend of satellite data and on-the-ground surveys that track various vulnerability indicators. These indicators include household food consumption patterns, market prices for essential commodities, water availability, livestock health, and vegetation status.

The NDMA monthly bulletins synthesise this data and disseminate it to a wide audience, including county governments, non-governmental organisations (NGOs) and local communities. Nevertheless, a critical gap remains between the receipt of early-warning information and the implementation of practical, on-the-ground action. Factors contributing to this gap include:

- lack of public trust in governmental messaging and warnings
- a tendency towards inertia in the face of impending crises
- deeply rooted distrust of the concept of forecasts in some branches of Islam
- the way in which such critical information is communicated.<sup>6</sup>

Somalia and Somaliland are responding to droughts and disasters, even though their recent past has been tumultuous and their institutions remain nascent. The Somali Disaster Management Agency (SoDMA), established in 2011 is a pivotal institution mandated by the federal government to coordinate and spearhead the government's response to diverse natural hazards. In Somaliland, the National Disasters Preparedness and Food Reserve Authority (NADFOR) was established in 2003 to create robust early-warning and information systems. It is responsible for managing national food reserves, developing disaster management strategies and policies, and emergency preparedness. As part of its multi-hazard early-warning systems plan, it produces food security assessments and some early-warning bulletins.

## Communities studied

Field research was conducted in six communities: **four pastoral communities in north-eastern Kenya** (Dabley and Lokongorio in Wajir County, and Warable and Lago and Bula Hodhan<sup>7</sup> in Garissa County) and **two in Somaliland's Northwest Agropastoral Livelihood Zone** (Bus and Dacarta).

Wajir and Garissa counties are both in north-eastern Kenya and share an arid to semi-arid climate. The region experiences high temperatures with relatively low and erratic rainfall. The climate is often harsh, contributing to water scarcity and desertification.<sup>8</sup>

The two Somaliland communities investigated lacked any prior intensive research, eliminating the possibility of research fatigue. They are agropastoral communities, heavily dependent on rain for cultivating crops such as maize and sorghum, primarily to feed their livestock. It's important to note that much of Somaliland is characterised as pastoral rather than agropastoral, so the findings may represent Somaliland's agropastoral communities rather than all of Somaliland.

Both communities in Somaliland have been consistently exposed to prolonged and recurring droughts, which have significantly impacted people's livelihoods. The communities' geographical remoteness makes it difficult for them to access markets. Save the Children has had a presence in the two communities through its anticipatory action initiatives.

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<sup>5</sup> UNDRR, 2023

<sup>6</sup> Author compilation.

<sup>7</sup> Bula Hodhan was the test site, not benefitting from a full set of data.

<sup>8</sup> Source: Kenya Meteorological Department, [www.meteo.go.ke](http://www.meteo.go.ke)

Deliberate efforts were made to identify communities featuring a variety of contexts, such as those:

- receiving long-term and recent Save the Children support
- far from urban centres, with limited access to modern services and infrastructure
- close to natural resources
- exposed to other hazards
- with different livelihoods and practices in pastoralism.

Data was collected while the communities were still recovering from the aftermath of a prolonged drought. Despite deliberate attempts to get participants to describe their experiences during specific seasons, some spoke of what happened as spanning the entire duration of the drought across numerous seasons. The gradual onset nature of the protracted drought probably accounts for this.

## 1.2. Study objectives

Building on Save the Children's work in Kenya Somalia/Somaliland, as well as on research on AA in protracted drought, this descriptive study lays the groundwork for future AA research and programmes. It explores the role and potential value of anticipatory action during protracted food crises. Its specific objectives were to:

- capture the voices of individuals, households and communities living through the current crises
- determine how households and communities have acted during (and before) the crises to protect themselves
- establish what, when and where additional action can be taken to protect food and livelihood security prior to the worst impacts of a prolonged drought
- shed light on the relationships between anticipatory action, longer-term climate change adaptation and disaster response.



## 2. Methodology and limitations

### 2.1. Research questions

The overarching research question was:

**How/when can anticipatory action best support households to further protect their livelihoods in the face of repeated or ongoing food crises forecasted to worsen?**

The specific research questions centred on ‘actions’ (actual or hypothetical) that a household took, considered taking, or would have liked to take had they had the resources during the 2020-2023 protracted drought. While the research focused on the protection of livelihoods, it also explored how AA could potentially support food security and broader wellbeing. The research questions included the following question sets:

- What **actions** did households or communities engage in without external support to cope with food crises?
- What other actions could households or communities engage in with **additional support**? What additional technical inputs, information, services, resources, forms of engagement, and/or resources does that support require?
- *For each of the above actions:* At what point in relation to the seasonal calendar does it occur/is it feasible? What triggers the action? Is there a way to signal the optimal moment for it to be triggered? How? What specific aims and which metrics could measure/monitor its implementation? How effective is/could it be for households engaged in specific livelihood pathways (see below) or individual profiles (children, elderly, differently abled, women, men, etc.)?
- Where are the actions above best situated across the **integrated risk management strands** (i.e., prevention/disaster risk reduction [DRR] or climate change adaptation [CCA]; preparedness or anticipatory or early action [AA]; humanitarian response or recovery)? If distinguishable, what value does each strand offer to the protection of livelihoods in Eastern Africa?

#### Definitions of terms in the research question:

*Households:* refers to those targeted to benefit from the AA programme that SC is implementing with the Jameel Observatory for Food Security Early Action. A household is defined by those who share meals together on a daily basis.

*Further:* term used explicitly as it assumes households are automatically doing their best to protect their livelihoods without waiting for any external support. The aim is to capitalise on, complement, and strengthen these actions, but not replace them.

*Livelihoods:* refers to how individuals and communities earn a living, including the resources, assets and activities that support their wellbeing. In this context, livelihoods are on a continuum from pastoral to fully sedentary or non-farming options. Pastoralism is expected to be a dominant but not exclusive theme. See the pastoral pathways framework (2.2.3) below for greater detail.

### 2.2. Analytical frameworks

#### 2.2.1. Integrated risk management

The concept of **disaster risk** is widely understood to be composed of three components:

- the hazard (one of four types of exogenous ‘events’ – natural, biological, technological, and social – most often conflict)
- those exposed to the hazard (e.g., people, livelihoods, and ecosystems)
- the vulnerability of those exposed (which includes their capacity to bounce back from the event).<sup>9</sup>

<sup>9</sup> Source: ECHO Preparedness Guidance Note, 2021.

**Disaster risk management** (also known as risk management) is made up of four main and overlapping strands (see Figure 2).

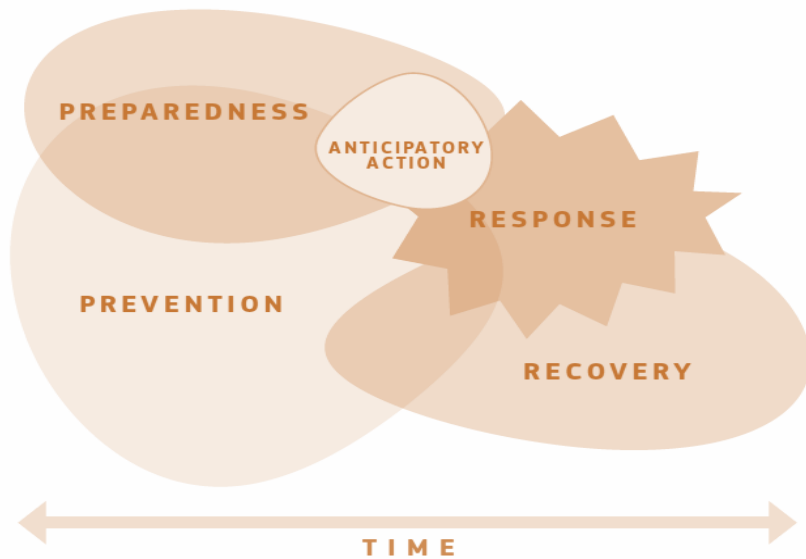


Figure 2. Four strands of disaster risk management (DRM)

The strands are not linear. There is no official starting time for one, nor an official handover to another. Sustainable development and risk reduction (including disaster risk reduction and climate change adaptation) aim to help **prevent** disasters, the first strand. **Preparedness**, the second strand, focuses on specific hazards before they occur. And humanitarian **response**, the third strand, aims to save lives immediately after a disaster hits. **Recovery** is a slightly slower process that starts during the response strand to restore livelihoods, and it typically lasts longer. By definition, **anticipatory action** needs to happen before a crisis' impact peaks (i.e., during the preparedness strand) so that the interventions are more effective and efficient at protecting lives and livelihoods.

### 2.2.2. Anticipatory action

Understanding local livelihoods, forecasts and forecasting skills, windows to act, organisational capacities and logistical constraints are essential to determine what can be done before, during and after a crisis – when, for whom and to prevent which impacts. Risk analysis informs decisions on where to act and whom to target. Skilled forecasting and updated risk information allow a community to develop triggers that accurately determine when they need to act. Early-warning systems monitor conditions to produce the forecasts, issue tailored messages, and ensure that the messages are received, understood and can be acted upon in a timely fashion. Combined with the pastoral pathways below, these elements identify the most useful and feasible actions.

Finally, to support the analysis, an inventory of household-reported actions were broken into the following thematic groups: mobility, livestock, agriculture, livelihood diversification and income, water, food security, nutrition and health, social and educational. These groups are also used to organise the findings section below.



### 2.2.3. Pastoral pathways

The **four pastoral pathways** (see figure 3), examined in Kirui et al, 2022, was another framework that informed this research. It was used to look at household wealth through a pastoral lens, grouping pastoral 'success' into four pathways. The **'Moving Up'** pathway (pathway A) describes households that are getting involved in commercialisation, livestock trade and high-return economic alternatives. **'Moving Out'** households (pathway C) are diversifying, gradually getting into other livelihoods with no direct link to pastoralism. These two groups are considered wealthier, as they are able to scale-up their stocks or options. **'Hanging In'** (pathway B) households practice traditional mobile and small-scale pastoralism – it is difficult for them to scale-up their efforts or set aside reserves for the next drought. **'Dropping Out'** households (pathway D) are the poorest group, typically pushed out of pastoralism due to local conditions and moving into the next best option: low-return economic activities.

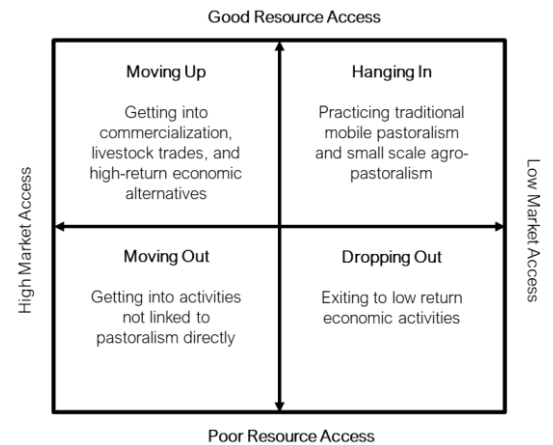


Figure 3. Pastoral pathways (Kirui, 2022)

## 2.3. Methods

### 2.3.1. Data collection and capture

Mainly qualitative data focused primarily on actions taken to manage drought was collected from six communities – four in Kenya and two in Somaliland – in July/August 2023.

A total of 104 qualitative and/or quantifiable data points were produced. A field team composed of IRMA and Save the Children Kenya and Save the Children Somalia/Somaliland staff received three days of training in Garissa, Kenya. The training included a field in one community of the key informant interviews (KII), focus group discussions (FGD), and household visits/interviews tools. The instruments were subsequently refined, and the team started the data collection the following day.

A total of 37 key informant interviews, 20 focus groups and 33 household visits were conducted across the two countries and six communities. Interviewees were either external or internal to those target communities, and from now on will be referred to as 'external' or 'internal' informants/interviewees. The external interviewees were selected purposively (and with 'snowball techniques'<sup>10</sup> supported by Save the Children) to represent the profiles most pertinent to this research: government authorities and humanitarian actors. No external interviewee had a singular focus on one community, but many could speak generally about the counties in which they are located. Interviewees living in the six communities were recruited purposively to represent profiles that could speak about the community as a whole: religious leaders, teachers, health workers, etc.



FGD participants were recruited with the help of community leaders and organised to represent three profiles: men only, women only and young people of mixed gender. The participants contributed directly to the communities' seasonal calendar and to the pastoral pathway ranking. They also proposed which households should fall into which pastoral pathway (see p 14 on pastoral pathways above). They were later visited to confirm they agreed with their categorisation for the purpose of a household discussion.

A short, closed-ended questionnaire was completed with all 33 households visited using a digital form in Kobo Collect – an open-source platform used by many humanitarian organisations for the electronic collection, management and analysis of data. Figure 4 shows the distribution of these households by country, gender of head, age, disability, household size, and pastoral pathway. The KII and FGD were recorded with consent, and the household visits produced both quantitative data collected using electronic surveys administered through the Kobo platform and qualitative data in written form, recorded

<sup>10</sup> Snowball sampling, also known as chain-referral sampling, is a sampling method where currently enrolled research participants help identify future subjects for the study.

form, or both. The government officials and NGO representatives were interviewed in Somali, except for 14 informants who preferred to speak in English and/or Kiswahili. A translator who was fluent in Kiswahili, Somali and English was used to translate recordings containing a mixture of English and Kiswahili.

Figure 4. Data points and households

	Kenya		Somaliland			Kenya	Somaliland
<b>KII</b>	Internal: <b>14</b> External: <b>12</b>	 <b>COMMUNITIES:</b> Garissa: 2 Wajir: 2	Internal: <b>6</b> External: <b>6</b>	 <b>COMMUNITIES:</b> 2	<b>Households</b>	<b>24</b>	<b>9</b>
<b>FGD</b>	<b>14</b>		<b>6</b>		Female Headed	8	2
<b>Households</b>	Kobo: <b>21</b> Transcription: <b>1</b>		Kobo: <b>8</b> Transcription: <b>8</b>		Male Headed	16	7
<b>DATA POINTS</b>	<b>61</b>		<b>34</b>		35 and younger	6	2
					36 to 49	8	4
					50 and older	10	3
					Disability in Hhld	5	4
					<b>Hhld size (avg)</b>	<b>12</b>	<b>8</b>
					Nb 0 to 5 (avg)	2	1
					Nb 6 to 17 (avg)	3	3
					A. Moving Up	6	2
					B. Hanging In	9	3
					C. Moving Out	4	2
					D. Dropping Out	5	2

### 2.3.2. Research ethics and accountability

Before data collection began, the research proposal was submitted to multiple ethics review processes: an internal Save the Children Institutional Review Board (IRB); the Kenyan Amref Health African Research and Ethics and Scientific Review Committee;<sup>11</sup> and the National Commission for Science, Technology, and Innovation (NACOSTI), as well as pertinent government authorities in Somaliland (the Department of Statistics and the Ministry of Planning and National Development). The research team strictly followed the protocols for protecting people’s time, interests and identities approved by these review panels. A full description of the ethics considerations is available upon request.

### 2.3.3. Data processing, coding and analysis

The field team sent audio recordings of each data collection ‘event’ to IRMA,<sup>12</sup> who de-identified the file names and sent to one of four transcribers/translators (referred to henceforth as ‘translators’ for simplicity). Three translators were Somali/English speakers and one English speaking transcriber worked on the English Only transcripts.

The core research team developed a glossary of key terms to ensure that essential concepts and themes were translated consistently across interviews. The translators transcribed the files verbatim in Somali, noting with a timestamp any parts that were difficult to understand or indecipherable. They then translated these into English. One file from each community was sent to Somali/English speaking Save the Children staff for quality assurance. They scored the transcripts according to terminology, punctuation, consistency and whether the English translation accurately captured the tone and meaning of the speaker(s). The transcriber for English-only interviews also inserted timestamps for any undecipherable speech so that the analysis team could listen to it while coding.

The English translations were then uploaded for coding and further analysis, using an iteratively refined coding tree. Trends were studied as surfacing from aggregation by data collection instrument, location (community and country), age, gender, and household pastoral pathway. Inter-coder agreement was tested iteratively and informed follow-on coding and analysis.

Following a preliminary analysis in October 2023, IRMA held a two-part data analysis meeting with Save the Children and partners to present and validate preliminary findings from the Kenya qualitative data and all household data sets. During this

<sup>11</sup> AMREF is a private ethics review organisation authorised to approve research protocols in Kenya.

<sup>12</sup> In Kenya, recordings were only made of the KII and FGD. In Somalia, the field team elected to also record the household interview process to ensure that they captured all the discussions while filling in the Kobo survey.



meeting, stakeholders were asked to identify surprises or gaps in the data, answer outstanding questions and prioritise actions based on their understanding of Save the Children's goals. This feedback was integrated into the analysis and narrative.

## 2.4. Limitations

The limitations of this research were all mitigated/managed as described below. They are not believed to have influenced the results in any important way.

**In preparation for the data collection:** multiple layers of the ethics reviews (i.e. organisational, national, county-level, etc) caused extreme unanticipated delays.

**During the data collection:** Save the Children staff were used to secure the community's permission to conduct the research and provided logistical support. Save the Children's visibility might have slightly influenced participants and informants, who may have expressed themselves in ways that would not disrupt the ongoing relationships between communities and the organisation. In Somaliland, the trained Save the Children enumerators collected data without direct supervision of the investigator to ensure quality. However, the Save the Children staff leading the work in Somalia had previously worked directly with the investigator to collect data in Kenya and replicated the same procedures in Somalia to ensure quality. The researchers who were non-Somali speakers also relied on the assistance of interpreters. However, the biases of interpreters and transcribers (from Somali into English for the transcripts) inevitably somewhat impact the accuracy and reliability of the research results. This was mitigated to the extent possible through quality control checks described above.. The volume of transcripts and the few skilled transcribers available with appropriate language skills caused delays.



## 3. Findings

The findings are broken down into the following sections. **Section 3.1** outlines the context in the studied communities, covering hazard exposure, seasonality and vulnerability/wealth, as described by the communities themselves. **Section 3.2** looks at early warning and anticipatory action in the target communities.

The following sections explore the actions households and communities took to manage the impacts of the drought. **Section 3.3** sets out the impacts by category: mobility, livestock, agriculture, income-generating activities, food security/nutrition/health, and social/education. **Section 3.4** synthesises the action-related information by country, age, gender and pathway. **Section 3.5** then describes how the community viewed the effectiveness of action. **Section 3.6** looks at the actions of actors external to communities to support the communities. Lastly, **Section 3.7** maps hypothetical actions – actions the communities considered potentially useful but out of their reach, as well as those that communities think external (non-community) actors could support. A deeper discussion of these actions is featured in Section 4.

### 3.1. Setting the scene at community level

#### 3.1.1. Hazards and exposure

**Drought:** Drought was mentioned by most respondents and identified as the biggest threat by all 31 key informants: 21 from Kenya, 10 from Somaliland.

**Flooding:** Flooding was also frequently mentioned (n=32). The discussions highlighted riverine flooding and floods interspersed between droughts, but generally conveyed that flooding was of lesser concern than drought.

**Conflict:** While infrequent, this hazard was described by many respondents from outside the communities (KII 2, 3, 6, S9, 12, 13, 14, 19, 21, 22, 23, and 24; and 1 FGD) in different from: along the Somalia-Kenya border, inter-county ethnic conflicts (i.e., between the herders of Somalian origin in Garissa County and the Borana from Isiolo County), and inter-community conflicts (KII 22, 25). One informant cited the intra-community conflict that arises when NGOs distribute water.

**Other hazards** cited include: wild animals, e.g. crocodiles, hippos, (KII 6; FGD 2, 12); locusts<sup>13</sup> (KII 2, 9, 10, 11, 12, S10, S11, S12; FGD 2, 6, 12, S2, S2, S5, S6); human epidemics (KII 10, 13, 17, 20, 21 and 23); animal pests (KII S3, S11, 6, 14, 21; FGD 13, 15, S1); storms (KII S9) and sandstorms (KII S10).



<sup>13</sup> The 'Deyr of the locusts' was repeatedly referred to by a community due to the strong presence of locusts during that season (FGD 6 and 12).

### 3.1.2. Seasonality

Four seasons are commonly recognised in this region of Kenya: the Hagua (cool, cloudy and dry), the Deyr (short rains), the Jilal (warm, sunny and dry) and the Gu (the longer rains when most annual rainfall occurs).

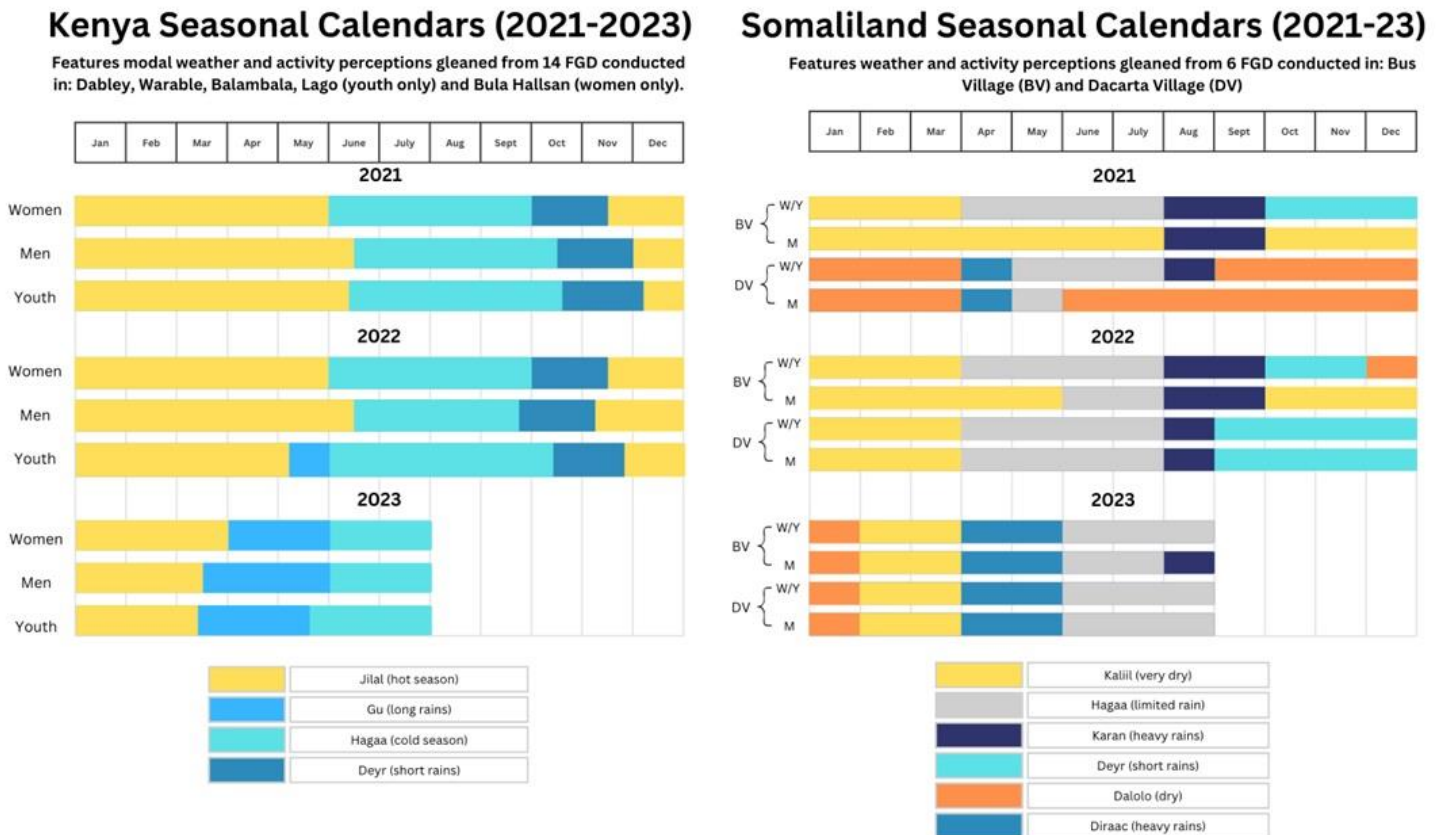


Figure 5 illustrates community perceptions of the seasons from 2021 to mid-2023 in all six communities.<sup>14</sup> The two communities in Somaliland are disaggregated because there were differences in how they experienced the seasons. In Kenya, the communities experienced the seasons similarly. They agree on a lengthened Jilal and the absence of Gu rains in 2021 and 2022 as compared to 2023, when drought conditions began to ease.

Although named differently, the seasons in this zone of Somaliland are similar to those experienced in Kenya. However, there was more variation in the seasonal calendars in Somaliland, both within and across the two communities. The village of Bus experienced two years without the Dirac heavy rains, whereas the village of Dacarta had a somewhat shortened (compared to 2023) Dirac, which is reflected as longer Kaliil seasons. The two villages are far away from each other, so these contrasts may reflect differences between the two locations, and point to the need for localised early-warning information.

### 3.1.3. Vulnerability and wealth

Close to half (46%) of the households in the study communities were considered by FGD participants to be in the ‘Hanging In’ pathway of pastoralism (see figure 4), while 23% fell into the ‘Moving Out’ category, demonstrating relatively moderate wealth. Households seen as ‘Moving Up’ and ‘Dropping Out’ constituted roughly the same proportion of households per community

<sup>14</sup> Source: FGD

(16 and 15%, respectively). Discussions revealed that ‘*those people who have a business, a lot of animals, and are prosperous with their lives moving up are few*’ (FGD 1). See Figure , left. More households fell into the ‘Moving Up’ category in Kenya than in Somaliland. FGD participants from all six communities (N=19) used proportional piling (stone-piling) to demonstrate how these four pathways manifest in their community dynamics.

Some difference in how many households were perceived to be in each pathway were noted between groups. Young people in both countries and more respondents in Somaliland believed high numbers of households are in the ‘Hanging In’ pathway. Women felt more households were in the ‘Dropping Out’ pathway.

The proportions of households per pathway appear to be informed by proximity/access to towns and services. The Kenyan community of Lago – the closest of the four in Kenya to its respective county HQ – features the highest proportion of households ‘Moving Up’, at 18%. Lago also has the highest proportion of households ‘Moving Out’ and ‘Dropping Out’, which conveys a pulling influence towards every pathway except traditional pastoralism. In Somaliland, however, this same proximity to towns and services conveys no visible impact. Kenyan community Lokongorio has the highest proportion of households ‘Hanging In’. Kenyan community Warable and Somaliland community Dacarta also have higher than average proportions. See figure 6, below.

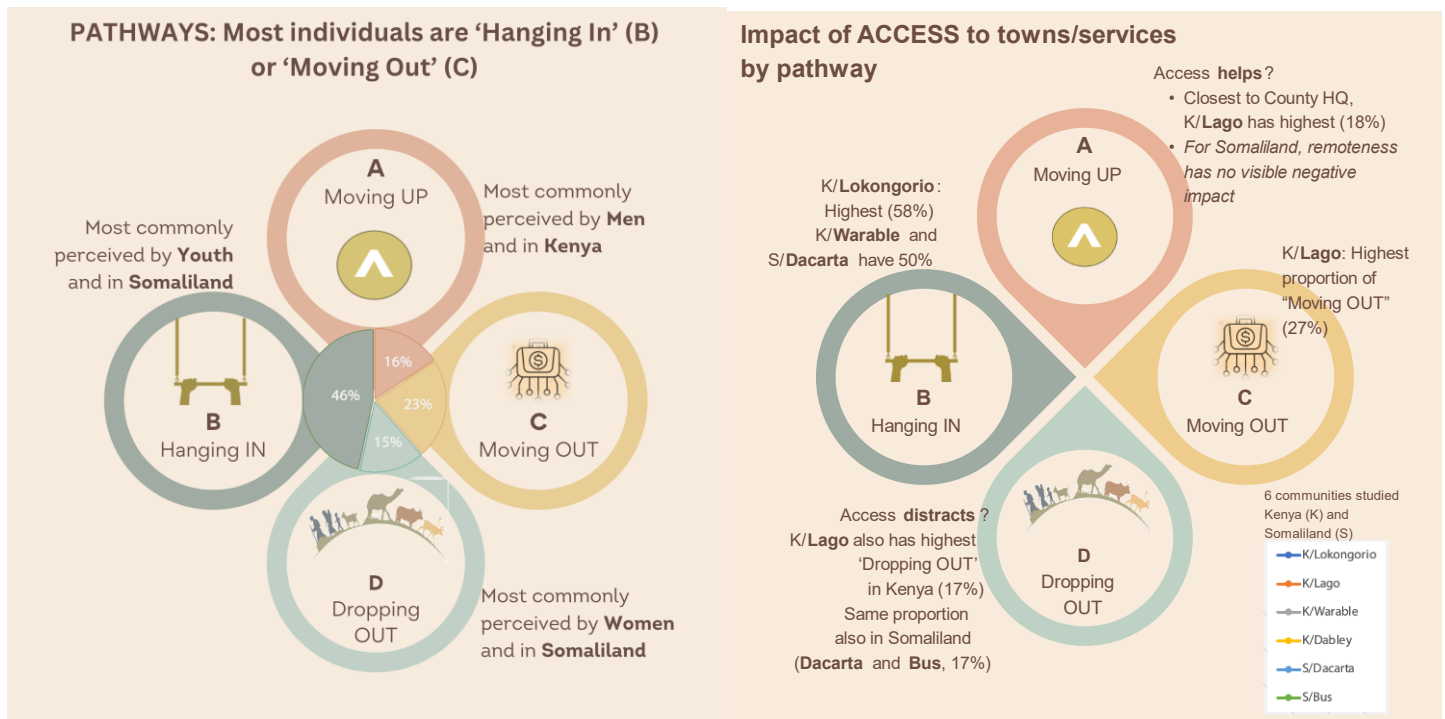


Figure 6. Pastoral pathway perceptions (Author analysis)

The above wealth-related community dynamics inevitably informed the actions they highlighted (described below).

### 3.2. Early warning and anticipation

As an important anchor for anticipatory action, early warning systems require four specific components, all of which help communities anticipate and prepare for protracted drought:

1. risk understanding
2. monitoring/forecasting
3. warning/alert communication

#### 4. response capacity.

All four must co-exist synergistically for early-warning systems (EWS) to be effective and reliable end-to-end (message emitter to end-user). Feedback loops from end-users of alerts back to risk analysts, monitors/forecasters and communicators are essential to continually strengthen the overall system.

This research suggests that even when communities are informed about imminent disasters, they struggle to take substantial action due to limited alternatives or capacity constraints, such as a shortage of feed stocks from suppliers.

##### **3.2.1. Risk understanding (first component of an EWS)**

No evidence was found that communities understand risk or the dynamics of drought and flooding in any concrete or consolidated manner. Their livelihoods and long exposure to the harsh conditions give them an intimate understanding of the ecology and environment. But it is not clear that a risk-management or participatory risk-assessment/mapping exercise has ever been used to build a stronger shared understanding of drought risk or drought preparedness inside these communities. However, one informant reported the early stages of a Red Cross ECHO-funded project focused on disaster preparedness in drought-risk communities (KII X13).

Informants outside of the studied communities described in detail the different levels of risks associated with varying weather patterns (KII XS9 NADFOR). Others in Kenya reported that the NDMA produces *'participatory disaster risk assessments'* among county or ward experts that they *'inject into the communities'* (KII X2). NDMA also produces regular food security assessments, which they work on *'with NDMA and the county government to disseminate to the communities, so by the time they hear something that's happening, they are prepared'* (KII X3a). What is less clear is what preparedness actions are taken as a direct result of the warnings received.

##### **3.2.2. Monitoring and forecasting (second component of an EWS)**

While monitoring and forecasting services exist in both countries, no community member reported formally contributing to the monitoring of drought or other conditions, or in being engaged in specific discussions about EWS.

The Kenya Meteorological Department is the key organisation that produces monitoring and forecasting information in Kenya, supplemented by NDMA data (see background above). While there is no Somali meteorological service, ICPAC supports the provision of weather services for the Somalia Disaster Management Agency (SoDMA).

Kenya NDMA has three drought analysts covering 10 sentinel sites (KII 2). The NDMA works through County Steering Groups, tasked with preparing monthly drought EW bulletins<sup>15</sup> and updating annual drought contingency plans. Each sentinel site has a team of drought monitors who compile key information and send it up through the NDMA architecture (KII 2).

The WFP and Save the Children work with county-level administrators on anticipatory-action efforts that include drought monitoring. A key informant mentioned community or ward-based *'anticipatory action plans'*, (KII 3) but the research team was not able to locate them.

There are reports of informal or indigenous knowledge being used by communities to make forecasts: *'The elders said it is going to rain this time; they were very categorical. I don't know how, but they look at the stars and all those things... they said it's going to rain heavily... and that's precisely what happened'* (KII 19). The behaviour of insects (falling, FGD 1) and animals (facial expressions, KII 5) was also cited as indicating certain likely weather patterns.

##### **3.2.3. Warning communication (third component of an EWS)**

This component covers translating a forecast into a message, the quality of that message (its content, wording, language, etc) and the way it is communicated, including the channels used to ensure that the message reaches the most at-risk individuals.

While there is some ad hoc sharing of early warning messages with communities, it is not systematic. Although reportedly shared widely with Kenyan county administrators and technicians, this research found that drought EW information does not regularly reach the pastoral communities that were part of the study. The monthly county-level EW bulletins are nonetheless

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<sup>15</sup> An example of the Garissa County EWS bulletin is available [here](#).

shared widely through various channels, for example at county steering group meetings, on websites for global consumption, and via radio (KII 19). *'During subcounty steering group meetings again, the same document is also shared and cascaded down... Many people in the pastoral line may not be able to access them; still, it's a gap'* (KII 2). The Kenya Meteorological Department also provides regular forecasts for the month ahead and the likely impacts on livestock, agriculture and health.

External (non-community) actors report sharing drought early warnings directly with communities through many channels, but mainly via word of mouth (KII 9, 10, 11, 13) when visiting communities. Informants stress the need to make sure community leaders receive the messages and share them widely. Multiple informants confirmed sharing drought messaging via social media (KII 9, 10) to appeal to the local young people. One informant mentioned receiving messages by phone. *'NGOs sometimes send us messages on the phone ... saying that there are going to be droughts... farmers should store food from the fields [and] plant good drought resistant crops'* (KII 6 internal).

Reports vary widely on whether drought warnings are received. Many community members report not receiving any notices; others report receiving drought-related messages, sometimes daily, in Somali or via radio broadcasts from the likes of the BBC or Voice of America (KII 1, 6, 7, 15, and 22, all internal; FGD 12). Community teachers report that students are encouraged to share the contents of the radio broadcasts with their parents (KII 7 internal). Communities are more familiar with EW messaging about flooding on the radio than about drought.

Messages are also shared about the condition of pastures, which are often produced by communities based on their own informal analysis. Households report using young people to search for green pastures and to call back on the phone when they find them (HH\_B, C). That information is then shared more widely via radio or telephone.

#### ***3.2.4. Response capacity (fourth component of an EWS)***

The ability of communities to respond to EW information relies on:

- detailed impact information in the messages received
- understanding the messages and believing their content
- having the plans and resources to act on them.

The NDMA monthly drought bulletin contains a wide range of information, including forage and pasture levels per county, livestock body conditions, water sources, and trekking distance between pasture and watering points. These elements are combined to generate the early warning messages (KII-X 19).

But evidence suggests that the receipt of messages is not evenly spread across or inside a given community. And in some communities, there is resistance to early warning information, particularly for drought.

To take action based on a warning, communities need to believe the warning is reliable. But trust in early warnings based on meteorological forecasts is low among numerous Muslim communities in the study areas. There are several reasons for this, including belief in destiny, an unwillingness to accept the 'unseen' or 'unknown', and the perception that such knowledge represents arrogance or blasphemy. The compelling quotes in Text Box 1 give a flavour of these beliefs and the lack of awareness about the messages.

Informants from outside the studied communities recognise the challenges of building the communities' trust in drought EW. *'Those who believe in these forecasts as compared to rest of the population, I can say, is 2-3% ... Experts explained to us that we had an unexpected cycle in the Indian Ocean that had put some sort of moisture in the atmosphere. Now, if you are tasked to go back to the community and explain this phenomenon, of course, nobody will believe you'* (KII-X 19).

The rejection of or distrust in warnings is highest in Kenya but is not universal, even there. One Kenyan community and other households both received and trusted the drought forecasts (FGD 12, 15; KII I, 5, 6, 15, 22). Clan elders in two separate communities indicated their willingness and capacity to act: *'When I receive these warnings and messages, I usually start selling some of my livestock and buy medications for the other livestock. I also started communicating with veterinarians whilst planning to store water for livestock'* (KII 15). However, other community members who trusted forecasts felt that they had limited capacity to respond beyond their typical livelihood activities: *'There's nothing else to do except migrating the animals to a park or where they can get pastures. You buy food and whatever else you can get, but the animals have to be taken to a place where they can get food'* (FGD 12).

There is greater acceptance of flood warnings, better understanding of what should be done (i.e., evacuate), and willingness to act (KII-I 4, 5, S6, 7, 8; FGD 12, 15). One village elder explained the contrast between flood and drought forecasts as the difference between flowing water that *'can be witnessed... people can warn each other and say the water is passing'* and *'knowledge of the unseen, which is in God's hands'* (KII-I 8). When asked, *'What do you do after receiving these flood warnings or advice?'*, one community member responded, *'I practise them. The people living near the riverine or river may believe in those messages. It is in their interest so that the children may not die'* (KII 4). A community teacher recounted, *'When we receive the [flood] warning, since it is something that is impending and we've been warned of it, we understand it and act upon it ... there are some people who are stubborn, but most of the people in the community follow the warnings'* (KII-I, 7). This indicates, as has been found elsewhere, that the resistance to forecasts is not absolute. Though resistance may be stronger for droughts than for floods for the reasons cited above.

### 3.3. Drought-related actions reported, by category

The types of action reported by the individuals and households to manage the region's most recent drought spanning three to four seasons are described below. They are grouped by mobility and migration, livestock, agriculture, livelihoods, water, food/nutrition and social/education. While these categories reflect the actions the community members took during the most recent sequence of drought that spanned four seasons between 2021-2023, it was impossible to distinguish one drought from another (see more on this in Section 4.2. on Timing). This section does not reflect actions taken by anyone external to the community.

The 33 households studied reported taking between one and nine actions for the most recent series of droughts, and there was an average of 3.7 actions taken per household. The average was higher for Kenya (3.9) than Somaliland (3.3). Households in the 'Moving Up' pathway had the largest average of actions (4.25) compared to only 3.0 for households in 'Dropping Out'. Male-led households reported more actions than female-led ones (3.8 and 3.6, respectively), and middle-aged household heads (36 to 50 years) reported a higher average (3.9 compared to 3.75 for younger and 3.6 for older). Larger households (eight or more members) also reported a greater number of actions.

#### Text Box 1: No messages

Q: *'What about warning messages for drought?'*

A: *'With regards to drought, we wait for God's decree.'*

Q: *'Are there notices?'*

A: *'There are no notices; we just see it when it happens to us.'*

Q: *'Where would drought notices come from – radio stations or the government?'*

A: *'No, I don't have any knowledge about that, but we are Muslims who have faith in God. We just see the drought as it happens to us. We don't know anything about the knowledge of the unseen,<sup>1</sup> and I have not seen the government come to us and give us warnings about impending things.'*

(KII 8)

### 3.3.1. Migration

Our evidence indicates that livestock migration is a constant activity in our study areas in Kenya, but is only considered in Somaliland study areas when families face extreme distress. Families in Kenya depend predominantly on pastoralism for their livelihoods, and people are always moving with their animals in search of pasture. Up to 67% of Kenyan household informants reported migrating further than normal, and 22% to new areas, during the 2020-2023 drought. In Kenya, these two actions were the most frequently mentioned migration strategies. Along with approaches such as hiring transport to search for suitable pasture, herd splitting, and household splitting,<sup>16</sup> they facilitated general migration and led to migration farther away from family. In herd splitting, some animals are taken in search of pasture, depending on their need for food and water, and whether they are strong enough to make the journey. For example, where forage is only enough for a small stock of goats, sheep and camels, these might be moved while cows remain behind. It is also common to leave a few lactating animals behind during migrations to support the nutritional needs of women, children and the elderly through milk production (KII 22).

When men migrate with livestock or go farther afield, they often leave women, children, the elderly and disabled people at home with a few animals to sustain them (KII-I S1, S2; KII-X S9; HH\_S3, S7, S8). When resources at home are particularly depleted, men often leave women and children with family members who can host them in urban areas, formal UN camps, or informal settlements along the road where they have better access to services (KII 10, 13, 19). When conditions improve and men return with their animals, families may be reunited and return to their typical locations (FGD 8). However, as noted by one FGD participant, many families in protracted crises lose all of their livestock – and hence their livelihoods – forcing them to drop out of pastoralism entirely and move to urban areas:

*'The recurring droughts have had a severe impact on pastoralists. In the first year of a drought, people would lose a few cattle, but as it persisted into the second and subsequent years, they experienced significant livestock losses. Over time, very few people were able to maintain their livestock as each drought took a toll on their herds. As a result, many individuals and families were displaced, choosing to move to cities seeking better opportunities. And this has increased the number of IDPs, since people don't have [a] place to go.'* (KII 10)

One drought-responsive action linked to mobility – household splitting – entails moving with the herds, but leaving some household members behind to tend other parts of the herd or weaker animals, to attend school, or because the trip would be too hard for them (e.g., the elderly, or pregnant women). While household splitting is now common, informants said pastoralists have always preferred to keep the full household together. This research found that household splitting was more commonly reported among Somali households (22% vs. 8% in Kenya). This action was often found to lead to other, mostly negative, consequences (see Text Box 2).

#### Text Box 2: Negative impacts of household splitting

*'Another issue that is really taking a toll is family separations, because drought has really been a serious hazard affecting the community where, definitely, the men in the community will have to go and look after their animals [and] go and get money ... but now, the women and the children maybe are left behind. The children drop out of school, because how do they attend school on empty stomachs at the end of the day? So, mothers are forced to forego some meals. Those [are] social issues that most of the time are overlooked whenever partners are having programmes or interventions along drought.'* (KII 18, external)

<sup>16</sup> Traditionally, 'herd splitting' is when herders take most of the animals to search for grazing but leave a small number of lactating females, weak animals, or work animals with family members who stay behind. There are, however, many variations that may change within an individual system each season. Modern transport has enabled households to stay together even if herds are at two different bases (i.e., if household members can travel back and forth). For this reason, herd splitting is not always coincident with household splitting. In this research, herd splitting is categorised as a livestock-centred action and household splitting is characterised as mobility. The two may be driven by different motives (prioritising animals, family members, or both at different times).



The communities studied in Somaliland are considered agropastoral (as opposed to purely pastoral), so their relationship to migration was different to that of communities in Kenya. Only 22% of households in Somaliland reported migrating farther than usual (and they appear to do so by splitting households).<sup>17</sup> None of the households reported migrating to new areas, but the qualitative data did reveal some instances of this (FGD S4, S5, S6). Somali households grow food for themselves and their animals, and hope to have enough to feed their animals for the dry season without migrating (KII-X S10; FGD S1, S3, S4, S5, S6). Unlike in Kenya, they only migrate when their reserves are exhausted and other strategies are failing (HH\_S1, S6; FGD S1, S3).

When faced with a prolonged drought – or a single dry season that surpasses a family’s capacity to cope – households attempt many other strategies before migrating. Those that have enough animals and can still fetch a good price will sell an animal to buy fodder for the others (HH\_S1\_A). Families also use animal and human food reserves before migrating (HH3\_C; FGD S1). If the reserves from their farms are exhausted, those with resources will buy food for their animals (FGD S1, S2, S3, S4, S5, S7; HH\_S7\_C, HH\_S1\_A, HH\_S2\_B). In households without the means to buy more fodder, *‘both the people and the animals converge on the human rations’* (FGD S1, S2), meaning that people begin to share stores of their own food with their livestock to keep them alive. This highlights the important role animal feed could play as an anticipatory action to protect both livelihoods and food security.

If families are eventually forced to migrate, they will call people in other areas or send people in cars to find out where there is pasture before deciding where to go (FGD S1, S2, S3, S6). However, there is still the risk that by the time families have moved their animals on foot, the pasture that was located earlier will have been depleted (FGD S2). See Text Box 3.

### Text Box 3. A preference to NOT migrate in Somaliland

Translator: *‘When does the person decide to take the animals somewhere else?’*

Participant: *‘He takes it when the situation is dire, and he doesn’t have something to give to the animals.’* (FGD S1)

and

Participant One: *‘Every year you must rely on...’*

Participant Two interrupts: *‘...that there is food available for them in the storage...’*

Participant One interrupts: *‘...that is what you must rely on, if you don’t have any food stored...’*

Participant Three interrupts: *‘...when that food storage is depleted...’*

Participant One interrupts: *‘...then you must migrate from there.’* (FGD S3)

### 3.3.2. Livestock

Informants described a wide array of organisations and government institutions that bolster the livestock sector with a range of supportive actions (KIIs-X 10, 18, 19). The Kenya Meteorological Department and the NDMA reportedly play a pivotal role in providing critical information about drought conditions and the availability of fodder, aiding timely and informed livestock-management decision-making. County governments spearhead crucial vaccination campaigns during outbreaks of livestock diseases. The construction and maintenance of water resources – such as dams, water pans, and boreholes – are vitally important in ensuring the availability of water, particularly in drought-prone areas. Government and NGOs support these efforts but they remain insufficient compared to needs. Both county governments and NGOs contribute to the provision of livestock feed. Such concerted efforts were presented as key to strengthening the resilience and sustainability of the livestock sector, especially in the face of mounting environmental threats (KII 18, 19, 20).

<sup>17</sup> In Kenya, a greater proportion migrated further but with less house splitting. This indicates that the households travelled together more often than in Somalia.

When the above activities were recognised or suggested directly by the communities and households studied, they are noted below in Section 3.6.

### **Importance of support to animal health**

In times of extended drought and animal migration, high-quality forage is scarce and the health of livestock suffers. Their immune systems are weakened, making them more susceptible to disease. Moreover, the mingling of herds from various regions increases the likelihood of disease transmission. Livestock epidemics also tend to be more prevalent during the wet season. (FGD 5, 8; KII S9, S7). In response, county governments and various NGOs were reported to initiate vaccination drives to combat common livestock diseases. The county governments generally supply the vaccines and the requisite technical staff, whereas NGOs often handle logistics and coordinate mobilisation (KII S7).

A significant number of livestock were lost during the drought because of the quality and quantity of water resources (HH\_D; KII 22; FGD 5). Numerous NGOs are actively involved in making clean water more available by drilling and maintaining boreholes, constructing reservoirs or dams, and water trucking (KII 2; FGD 5). Some services also supplied livestock owners with feed (KII 2; FGD 4).

Although communal actions are rare, some community members formed groups to purchase animal feeds and organise water trucking too. The primary motivation for this joint effort was to distribute the costs, particularly those associated with transportation (HH\_D; FGD 8).

Individually, pastoralists in Wajir County have begun enclosing small plots of land to conserve grass. This reserved grass is then used to sustain their livestock during periods of drought. Further investigation is required to know how effective this strategy would be during a protracted drought.

### **3.3.3. Agriculture**

While some key informants in Kenya reported considering moving into agriculture to provide food for their families (FGD 2, 6, 10, 12, 13, 14; KII-I 7) and fodder for their animals (FGD 2, 12), none of the households interviewed there mentioned agricultural activities. Informants in one community described attempting to expand into agriculture after losing all their livestock (FGD 13).

Organisations provide drought-resistant seeds to help people expand into agriculture (KII-X18), and drought advisories warn families to plant crops and store fodder for their animals (KII-I 6).

Despite these attempts, informants reported highly variable outcomes. When families move with their livestock, they are unable to tend their crops (FGD 2). Most conversations (FGD 2, 6, 10, 11, 12, 13, 14, 15; KII-C 17, 24) described agriculture as an ineffective strategy during drought because the communities do not have access to irrigation, and *'the crops will not grow without water. The earth here is dry. When it rains, you can't plant enough to fulfil your needs'* (FGD 10). Even when they tried to cultivate crops, water proved inadequate and *'farms withered'* (KII-C 17). In the absence of irrigation projects, agriculture is not seen as an effective solution, particularly during drought.

As indicated in the seasonal calendars (see above), agriculture is a more common activity in the communities studied in Somaliland, especially for *'those living on the western side of the study area'* (KII-S10). Indeed, many discussions featured agriculture (FGD-S2-W, FGD S3-Y; HH\_2, 3, 4; KII-S1, S3, S10-X). As already noted, unlike in Kenya, the communities consulted in Somaliland are agropastoral, with maize and sorghum being the main crops they grow to feed their livestock and sustain their families. Somali farming relies heavily on rainfall, and men, women, and young people mentioned agricultural activities during the Hagua (limited rains), Karan (heavy rains) and Dirac (heavy rains). In contrast to Kenya, three households explicitly reported storing crop residues for livestock. A Somali household also reported day wages on less drought-affected farms as one action to mitigate the impact of drought (HH\_S4).

### **3.3.4. Livelihood diversification and income**

Seeking income-generating opportunities away from pastoralism and beyond petty trade or selling wood or charcoal is uncommon in Kenya, despite some recognition that droughts are impacting their pastoral livelihoods. *'Some of these communities are turning into alternative livelihoods, away from pastoralism, especially after events of drought'* (KII 9).

A few owned shops, and most of those appeared to be doing comparatively well ('Moving Up' pathway) (HH\_A in two villages). The most common income-generating activity was selling wood or charcoal (FGD 2, 3, 5, 7, 8, 11; KII-C 25; HH\_D), but the practice is prohibited in some areas, (FGD 10) while in others there is little income to be made because *'everyone has it'* (FGD 13). People expressed the desire to diversify by establishing small businesses or shops (FGD 3, 7, 8), but most lacked the resources to do so, particularly once the drought had depleted their livestock (HH\_B, HH\_A). Petty trade was also a frequent strategy used in Kenya by all household pathways (FGD 3, 7, 8, 12; KII 25). No Somaliland household noted petty trade.

Livelihoods were more diverse in Somaliland than in Kenya, because of the Somaliland communities' reliance on both agriculture and livestock, but activities outside of this agropastoral domain were uncommon. A few more prosperous households mentioned storing agricultural surplus in good years (HH\_S2\_B; KII-I S1), but none mentioned selling reserves or using forecasts to produce extra reserves. Women in Dacarta mentioned selling milk in the cities, but this is only possible during years with enough rain for their livestock to produce a surplus (FGD S5). Men from a few families migrated temporarily to urban areas in search of work so they could bring money home to their families (HH\_S6\_B, HH\_S4\_D), but this was considered rare (FGD S2), and they were not always successful in finding work in the city.

In *'moments of scarcity'*, (FGD 1) *'anyone forced by the situation'* (FGD 2) will resort to making and selling charcoal to provide for themselves and their animals. Charcoal production *'has no time'* (i.e., it is conducted only as necessary, FGD S2), but it was always discussed in negative terms and as an activity of last resort (HH\_S4\_D). Some communities have *'decided to preserve the trees'* and prevent erosion by making charcoal illegal (FGD S4). In 2022, searching for *'gold completely replaced charcoal'* (FGD S3) following the discovery of gold deposits near the village of Bus (FGD S2, S3).

### Remittances and the need for cash/social protection:

**Remittances** were an uncommon source of cash in Kenya. They were only mentioned in three conversations (FGD 10, 14; KII-C 17), and informants agreed that the number of households benefiting because their young people *'have gone to work for the government'* (KII 17) or are in *'other places'* (FGD 14) are few.

Remittances were mentioned more frequently in Somaliland than in Kenya (FGD S2, S3, S4, S5, S6; HH\_S2\_A, HH\_S3\_C, HH\_S5\_A, HH\_S6\_B), but families benefiting from them were considered the lucky exception rather than the rule: *'There are some people whom their people have left and are in the cities... they expect them to send something to them [but] most people were engaged in selling livestock to feed the rest because these people don't have relatives that are living in the cities, or diaspora who would send them something'* (FGD S3). Some family members sent food in addition to money (HH\_S2\_A). The families who receive remittances use them to buy food or *'provide food and fodder for their livestock'* (HH\_S5\_A).

Informants in Kenya mentioned a few sources of **social protection** or humanitarian **cash transfers**. The Government of Wajir has a small-scale social protection programme for disabled people (KII-X 19). Humanitarian organisations such as Save the Children provided cash to women (FGD 10, 13) or families (KII-X 18) during the drought. This money can be essential to family members who stay behind (FGD 13) during household splitting.

According to one informant, the Government of Wajir supports the idea of anticipatory cash transfers and is working with an anticipatory action working group to develop programmes for drought (KII-X 19). Only two conversations in Somaliland mentioned any kind of cash assistance: during the drought, Save the Children provided US\$70 to families in Dacarta (HH\_S5\_A) and the WFP provided US\$20 per month for three months to women in the village of Bus (FGD S2). This cash was not anticipatory but in response to the ongoing humanitarian situation.

Those in both countries who do not have access to government assistance or alternative sources of income to meet their basic needs or care for their animals must rely on other strategies. Many families borrow food or money from each other in the hopes of paying it back when their situation improves (FGD S1, S2, 6, S6, 8, 12 14; HH\_A, HH\_S1\_A, HH\_S3\_C). However, such loans are not available to those who *'don't have anyone'* or no longer have any livestock or other collateral to help them pay back what they have borrowed (FGD S1).

Although income- and cash-generating opportunities are rare, the interest in cash assistance and mentions of its possible uses were widespread in both countries (KII-C 4, 5, 8, 24, 25; KII-X 18; FGD S2, 11, 14; HH\_C, D; WB-A; HH\_S1\_A, HH\_S2\_B, HH\_S3\_C, HH\_S8\_D, HH\_S7\_C). Key informants indicated that cash is necessary to cover all their expenses, including paying for and/or transporting water, buying food for their families or animals, paying school fees (KII 7, HH\_S3\_C), or transporting weak animals. See Text Box 4.

#### Text Box 4. Making the case for cash

*'Money is number one. When they are given money, they would have used that money to buy stuff... When they are helped with money, they can buy the necessary fodder. They'll pay for everything they need'* (HH\_S1\_A)

*'When you are given the money, you'll buy the things you might need later on to survive'* (HH\_S2\_B)

*'Cash is best... The only thing that can cover a person's needs is money'* (HH\_S8\_D)

*'We need to be given money to work with and to work for the needs of our children'* (FGD S2)

*'If I would have been given money, helped with money, it would also have been another victory that would have made me happy... and one for the children going to school. The children who were attending school were being chased away [because they did not pay their school fees]. And there were no goats to drive to the market and sell. So, I would have spent that money on the children's education'* (HH\_S3\_C)

### 3.3.5. Water

During periods of drought, already scarce water sources can disappear entirely. The households studied in Kenya reported abandoning normal water sources due to salinity or insecurity (25%), water being transported to their communities (17%), and having to travel farther to seek water (8%). The most common actions to cope with water shortages surfacing from discussions include buying water for human and animal consumption (FGD 3, 4, 5, 13-15; KII-X 10; KII-C 16, 22) and organising trucks or other forms of transport to bring it to the community (FGD 3, 5, 6, 7, 8, 10, 11, 12, 14, 18, 19; KII-X 2, 3, 9-11, 13; KII-C 16). Several communities mentioned rationing water or *'using it wisely'*, both during wet and dry seasons, to make it last as long as possible (FGD 6, 8, 12). There were some references to longer-term projects, such as drilling boreholes and building reservoirs, dams, or other storage facilities. But even those communities with boreholes said that they were salty (FGD 3, 13; KII 5, 21, 22, 25), broken (KII 18) or inadequate to meet people's needs (FGD 3, 6, 7, 12, 14; KII-X 21), especially during prolonged drought. Government officials in Wajir and Garissa said they have programmes to build or repair water infrastructure, such as boreholes, resources permitting (KII-X 9, 18).

No individual households in Somaliland reported abandoning water sources due to salinity, but 22% relied on water transport and 11% reported travelling farther than normal to reach water. By far the most common strategy for ensuring access to water in the Somaliland communities was water trucking (FGD S4, S5, S6; KII-X S10; HH\_S6\_B, HH\_S7\_C), which *'is very expensive'* (FGD S5). Several communities mentioned constructing pools (some with liners to prevent the water from draining into the ground) or other water containers to store rainwater for the dry period (FGD S1, S4; KII-I S4; HH\_S7\_C, HH\_S8\_D). Although women in Dacarta mentioned that *'the government sometimes provides free water trucking'* (FGD S5), the consensus among our informants was that *'water is where we spend most of our money... Sometimes, families join forces to hire water trucks and share the cost. Other times, individuals may hire water trucks independently'* (FGD S4).

### 3.3.6. Food security, nutrition and health-related actions

Actions related to food security and nutrition were not frequently reported. This may be because food consumption and nutrition had already decreased as the drought progressed (i.e., they could not reduce their consumption much further), but it

could also reflect a sense of shame about reporting such actions or simply the pastoral reflex to think first about their animals (including sharing the family's food with the livestock).

Food security-related actions coincide strongly with mobility-related actions (Pearson correlation coefficient,  $r=.44$ ) and are contrary to livelihood diversification actions<sup>18</sup> ( $r=-.25$ ).

Households reported only two actions – or what are commonly referred to as 'negative coping strategies' – in this category: reducing nutritious meal options and abandoning/lessening meals for adults in favour of children. The first was more commonly reported in Kenya and the second more frequently in Somaliland. 'Moving Up' (pathway A) households engaged most frequently in reducing meal options, and 'Dropping Out' (pathway D) households in abandoning adult meals to benefit their children. Female-headed households engaged less in both actions than men. Older household heads reduced meal options more frequently, and the younger household heads abandoned meals more frequently.

Somali discussions revealed very few households resorting to eating wild foods or seeds, though '*other/the people*' (i.e., '*not my household*') were referred to as doing this (FGD S5-W, S6-M; HH\_S-D), including by one household from Kenya (FGD 11-W).

Many KIIs and FGDs also highlighted the reduction of meal quantity or quality (in Kenya, 11 FGD and three KII – especially FGD 8; KII 18; and HH\_B\_D; and in Somaliland, all FGD, four HH, and one KII): '*Most of the time with the drought, my wife and I have been lessening our food rations so that our children would be healthy and doing well; during the drought, we were taking only two meals a day*' (HH\_B).

One community informant reported lessening their own meals both to '*fatten the elderly as a defence*' or to provide more for pregnant mothers (KII 6). Meal portions were also shared with livestock. Only one discussion revealed that children's meals were neglected in favour of keeping the animals alive (FGD 13), but another discussion revealed that '*the animals were feeding on the children's food*' (FGD 6). Another reported, '*I saw a household here that cooked one kilo of wheat and they divided it into half, [and] used one half for human consumption and gave the other half for the animals to eat*' (KII 6 internal). When the animals weakened, '*they were fed like children*' (FGD 2).

### 3.3.7. Social- and education-related actions

Five actions in the social/education category were included in the questionnaires as possible options. They include taking children out of school, sending them to school, proposing daughters for early marriage, seeking help from neighbours or other community members, and allowing boys to be initiated into cattle rustling. In Kenya, households only cited the first two options, but others surfaced from the KII/FGD discussions.

**Education:** Household actions related to schooling during drought are varied. While most informants reported pulling their children out of school during the rough periods, three household interview informants (HH\_A, HH\_B, HH\_C) noted that school helped them to feed their children during difficult times: '*Our children get to have one meal for a day at the school and this has really been helpful, though it has not achieved fully what we would want. Like maybe two meals or three meals would be a better option*' (HH\_C).

Data indicate that there are several reasons **children are absent from or drop out of school**, leading to great variation in school attendance between drought and non-drought periods (KII-C 7, 16). Explanations include:

- families using their boys to tend the herds during herd migration
- children being sent to live elsewhere
- the inability to pay for school fees
- children losing their motivation for education after they are left behind when their household splits or who are too hungry to concentrate in class.

When drought conditions improved, some students returned to school, but many did not (KII-C 14, 17).

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<sup>18</sup> The Pearson correlation coefficient between food security- and mobility-related actions is relatively high ( $r=.44$ ); the same between food security and livelihood diversification has a less strong, inverse relationship ( $r=-.25$ ).

Although households in Somaliland do not migrate as frequently as those in Kenya, droughts still affect school enrolment there. As one woman explained, *'We are farmers, and our children go to school. This is the school. So, because of the children and the farm, we can't migrate unless it's because of a drought'* (HH\_S3\_C). As in Kenya, students in Somaliland have difficulty concentrating when they're hungry and have *'reduced strength'* (KII-I S3). Declines in agricultural productivity, as well as herd health and size, affect family incomes, contributing to the inability to pay school fees and buy uniforms (FGD S2; KII-I S6; HH\_S3\_C). Then, when drought reduces family reserves and forces them to migrate, they pull children out of school (KII-I S1, S6; HH\_S6\_B, HH\_S1\_A) to *'look after the animals and take care of them. And they also depend on the livestock for their sustenance'* (HH\_S1\_A). At least one organisation, the WFP, provides school feeding programmes in the region during drought, which encourages children to stay in school (KII-X S11).

### Seeking help from neighbours and collective actions

Community members in both countries infrequently shared ways in which they help each other. Only one household highlighted the action 'Request/seek help from neighbours or other community members' (pathway C in Somalia). People most frequently ask relatives living in urban areas or abroad for assistance (see remittances). However, one mentioned *'borrowing money and food from each other to sustain life, and people pay them back during good times'* (FGD 5). Members of another community alluded to intra-community aid: *'If someone lets you graze your livestock and you don't have the money to buy something... it is just surviving together amongst the people... We help each other in this area'* (FGD S2).

Social **interaction or collaboration** was not a key theme in the discussions in either country (or is entirely absent, as reported in FGD 11, 14). When asked about common-interest activities, many say that there are few: *'It hasn't happened yet... everyone struggles with his own'*, or they remember them as a distant memory: *'If during the drought the family is in need... we once held a fundraising'* (FGD 10). Another one reports that *'there is nothing [of general interest to us]; we only come together in religion'* (FGD 2). When asked about what is done as a community, coming together to pool resources or make plans to help those affected by the drought, FGD participants responded, *'That one, no. It hasn't happened yet'* (FGD 12).

People living in the village of Bus in Somaliland mentioned the intention of setting up pasture reserves or *'parks'* that would remain ungrazed during good times and available to the community in times of drought. But they had been unable to identify appropriate land or agree on a plan to put this in place (FGD S1, S2, S3; HH\_S2\_B).

Among reported household actions, only eight were conducted as a group (see Table 1) – the most common related to water, livestock and mobility. As noted above, discussions highlighted common activities related to water pumps (FGD 4, 5) and organising water tanks/trucks: *'A number of people form a group, fill the truck with water, and take it to their animals'* (FGD 10), and *'When somebody buys water like that, he will share it with the rest of the community. That water must be sold; it must be turned into a business so that when it's finished, we may be able to buy another tank of water'* (FGD 3).



Table 1. Actions conducted as a group (numbers of households out of 33)

CATEGORY	ACTION TAKEN IN RESPONSE TO DROUGHT	Total households reporting action	Households reported conducted as a group	Proportion done as a group
MOBILITY	Migrate with livestock further than normal for given season (i.e. same direction)	18	5	0.28
MOBILITY	Migrate with livestock to new areas	5	2	0.40
MOBILITY	Household splitting (leave some members at home without livestock)	1	0	0.00
LIVESTOCK	Engage in herd splitting (by migration routes)	10	5	0.50
LIVESTOCK	Engage in commercial sale/slaughter of livestock (off-take from herd)	7	1	0.14
LIVESTOCK	Buy commercial feed to supplement livestock	13	1	0.08
LIVESTOCK	Increase sale of livestock products	2	0	0.00
LIVESTOCK	Produce livestock feed	3	0	0.00
AGRICULTURE	Store crop residues for livestock	3	0	0.00
AGRICULTURE	Store grain as coping strategy	1	0	0.00
LIVELIHOOD/INCOME	Diversify or seek alternative sources of income	4	1	0.25
LIVELIHOOD/INCOME	Labour migration to urban areas	1	0	0.00
LIVELIHOOD/INCOME	Engage in charcoal/wood selling	5	0	0.00
LIVELIHOOD/INCOME	Engage in petty trade	8	0	0.00
WATER	Travel further to seek/reach water sources (human needs)	3	0	0.00
WATER	Abandon normal water source (due to salinity or insecurity)	6	4	0.67
WATER	Engage in water-transport (bring water to livestock)	6	2	0.33

### Early marriage

Considering or actively organising the marriage of young girls was cited as a drought-responsive action in more than one discussion in Kenya, but it was never mentioned in Somaliland. Although not mentioned in Kenyan FGDs, perhaps because of the subject's sensitive nature, a representative of a Kenyan NGO focusing on women and girls noted that during the recent drought series, '*Marrying off young girls became a financial resource for families as they would receive dowries. This led to a significant number of girls leaving school to get married*' (KII 10). A female household head in Kenya also reported this action and suggested it was linked to school attendance: '*I wanted to reduce the burden of school fees, even if I wasn't happy withdrawing my daughter from school*' (HH\_D). So removing girls from school to marry is seen as producing a double financial boost: reducing school fees while increasing dowry income.

### 3.3.8. Intersection of actions

All the actions described above are conducted by individuals and households in varying combinations. Reviewing these combinations is helpful to explore the differences between pastoral pathways. Migration and food security/nutrition/health actions frequently occur together. This indicates that as food security-related actions increase, so do social-/education-related actions. They tend to co-occur because they are often both negative coping strategies.

### 3.4. Drought-related actions by country, age, gender and pathway

#### 3.4.1. Actions by country

Large differences surface when comparing reported drought-related actions by country. The actions most reported by Kenyan households (n=24) include migrating further than normal, buying feed, and herd splitting. Somaliland households (n=9) are less homogenous; the most frequently reported actions are producing feed and storing crop residues, neither of which were reported in Kenya. See Table 2.

Table 2. Proportion of households that reported practicing each drought-related action by country (N=33)

CATEGORY	ACTION TAKEN IN RESPONSE TO DROUGHT	Total HHs practicing action		Proportion of HH practicing action by country	
		# of households	Proportion	Kenya	Somaliland
MOBILITY	Migrate with livestock further than normal for given season (i.e. same direction)	18	0.55	0.67	0.22
MOBILITY	Migrate with livestock to new areas	5	0.15	0.21	0.00
MOBILITY	Household splitting (leave some members at home without livestock)	4	0.12	0.08	0.22
LIVESTOCK	Buy commercial feed to supplement livestock	13	0.39	0.46	0.22
LIVESTOCK	Engage in herd splitting (by migration routes)	10	0.30	0.38	0.11
LIVESTOCK	Engage in commercial sale/slaughter of livestock (off-take from herd)	7	0.21	0.25	0.11
LIVESTOCK	Produce livestock feed	3	0.09	0.00	0.33
AGRICULTURE	Store crop residues for livestock	3	0.09	0.00	0.33
LIVELIHOOD/ INCOME	Engage in petty trade	8	0.24	0.33	0.00
LIVELIHOOD/ INCOME	Engage in charcoal/wood selling	5	0.15	0.13	0.22
LIVELIHOOD/ INCOME	Diversify or seek alternative sources of income, excluding agro-pastoral	4	0.12	0.13	0.11
WATER	Abandon normal water source (due to salinity or insecurity)	6	0.18	0.25	0.00
WATER	Water-transport (bring water to livestock)	6	0.18	0.17	0.22
WATER	Travel further to seek/reach water sources (human needs)	3	0.09	0.08	0.11
FOOD/NUTRITION/ HEALTH	Reduce nutritious meal options/reduce diet diversity	6	0.18	0.21	0.11
FOOD/NUTRITION/ HEALTH	Abandon/lessen meals of adults in favour of children	4	0.12	0.08	0.22
EDUCATION/SOCIAL	Remove children from school (dropouts)	6	0.18	0.17	0.22
EDUCATION/SOCIAL	Send children to school (e.g., to benefit from meals served there)	3	0.09	0.13	0.00



### 3.4.3. Actions taken during drought by pastoral pathway

Differences in reported drought-related actions between the four household pathways help to reinforce the characteristics of each pathway. See Table 3.

- **A/'Moving Up'** (N=8 households) most frequently engage in herd splitting, livestock selling and petty trade. They are generally among the wealthiest households in any given community. In Somaliland, households from pastoral pathway B ('Hanging In'), C ('Moving Out') and D ('Dropping Out') feature some agriculture, but pathway A ('Moving Up') does not.
- **B/'Hanging In'** (N=12 households) most frequently engage in migrating further, buying feed and diversifying livelihoods.
- **C/'Moving Out'** (N=6 households) most frequently engage in buying feed, some petty trade and engaging in water transport.
- **D/'Dropping Out'** (N=7 households) are understood to be the poorest households, and they most frequently engage in charcoal/wood selling, household splitting, abandoning meals and removing children from school. Indeed, actions relating to this pathway were the most frequently stressed in external key informant interviews (KII 12, 19, 21). For example, *'We have pastoral dropout. So, those people drop out of pastoralism and engage in maybe formal employment or come to town to establish some kiosks to sell something... [and] families disintegrate'* (KII 21). A few suggested that *'The drought also made some people think otherwise. They started diversification because they realised that they can no longer remain a pastoral community. This made them to come to the urban centres... to seek manual labour, like working with mechanics; you work, you change the charcoal burning, so many things – which also leads to, you know, deforestation'* (KII12). Another noted that *'The major factor is that they don't even have that capacity to come to an urban town, maybe a big town or try to join another village, because they lose livestock where they are, and they just try to come near the road'* (KII 19).



Table 3. Most frequent actions taken during drought by pastoral pathway

CATEGORY	ACTION TAKEN IN RESPONSE TO DROUGHT	Total HH practicing action		Proportion of HH practicing action by pastoralist pathway			
		#	Proportion	A/Moving Up	B/Hanging In	C/Moving Out	D/Dropping Out
MOBILITY	Migrate with livestock further than normal for given season (i.e. same direction)	18	0.55	0.63	0.67	0.50	0.29
MOBILITY	Migrate with livestock to new areas	5	0.15	0.13	0.17	0.33	0.00
MOBILITY	Household splitting (leave some members at home without livestock)	4	0.12	0.13	0.00	0.17	0.29
LIVESTOCK	Buy commercial feed to supplement livestock	13	0.39	0.38	0.50	0.50	0.14
LIVESTOCK	Engage in herd splitting (by migration routes)	10	0.30	0.63	0.33	0.17	0.00
LIVESTOCK	Engage in commercial sale/slaughter of livestock (off-take from herd)	7	0.21	0.50	0.17	0.17	0.00
LIVESTOCK	Produce livestock feed	3	0.09	0.13	0.08	0.00	0.14
AGRICULTURE	Store crop residues for livestock	3	0.09	0.13	0.17	0.00	0.00
LIVELIHOOD/ INCOME	Engage in petty trade	8	0.24	0.50	0.08	0.50	0.00
LIVELIHOOD/ INCOME	Engage in charcoal/wood selling	5	0.15	0.00	0.08	0.00	0.57
LIVELIHOOD/ INCOME	Diversify or seek alternative sources of income	4	0.12	0.00	0.25	0.00	0.14
WATER	Abandon normal water source (due to salinity or insecurity)	6	0.18	0.25	0.25	0.00	0.14
WATER	Water-transport (bring water to livestock)	6	0.18	0.13	0.17	0.33	0.14
WATER	Travel further to seek/reach water sources (human needs)	3	0.09	0.00	0.17	0.00	0.14
FOOD/NUTRITION / HEALTH	Reduce nutritious meal options/reduce diet diversity	6	0.18	0.25	0.17	0.17	0.14
FOOD/NUTRITION / HEALTH	Abandon/lessen meals of adults in favour of children	4	0.12	0.13	0.08	0.00	0.29
EDUCATION/ SOCIAL	Remove children from school (dropouts)	6	0.18	0.13	0.17	0.17	0.29
EDUCATION/ SOCIAL	Send children to school (e.g., to benefit from meals served there)	3	0.09	0.13	0.08	0.17	0.00

### 3.5. Effectiveness of actions (according to households)

Although informants in both countries engage in a variety of actions, only a few of the actions were reported as reliably effective by the households themselves. For instance, migration, herd splitting and household splitting have mixed results. One informant who migrated stated, '*I expected my flock to survive the drought. Instead, more than 50% died because of the quality of water in the new pastureland* (HH\_C). Although migration is a way of life and an essential livelihood strategy for pastoralists, it only works if families can find pasture and water for their animals. Families '*take [their] livestock to other regions so [that the animals] can get water and food. And that impacts the growth, health and the development of our children*' (KII 23). These families '*nutritional and food security is threatened because milk is not readily available to these families, because even the*

*milking animals migrate*' (KII 21). Migration and household-splitting strategies therefore have significant downsides (see also Mobility above).

According to households, buying commercial feed for livestock, transporting water to livestock, selling livestock and petty trade were the most effective actions. See Table 44. This makes intuitive sense, as some results are relatively immediate: providing food and water to livestock will keep them alive and selling livestock and petty trade will produce an income. Discussions also reiterate that the provision of animal fodder and help procuring water are the two most requested forms of additional support. Although reducing meals and removing children from school were often cited as effective in helping households survive, they are considered negative coping strategies that humanitarian actors seek to prevent rather than encourage.

Table 4. Effectiveness of actions according to households

CATEGORY	ACTION TAKEN IN RESPONSE TO DROUGHT	Total HH practicing action	EFFECTIVE	SOMEWHAT	NOT EFFECTIVE
MOBILITY	Migrate with livestock further than normal for given season (ie same direction)	18	6	6	6
MOBILITY	Migrate with livestock to new areas	5	4	1	0
MOBILITY	Household splitting (leave some members at home without livestock)	4	2	1	1
LIVESTOCK	Buy commercial feed to supplement livestock	13	7	6	0
LIVESTOCK	Engage in herd splitting (by migration routes)	10	2	5	2
LIVESTOCK	Engage in commercial sale/slaughter of livestock (off-take from herd)	7	5	2	0
LIVESTOCK	Produce livestock feed	3	1	1	1
AGRICULTURE	Store crop residues for livestock	3	2	1	0
LIVELIHOOD/INCOME	Engage in petty trade	8	5	3	0
LIVELIHOOD/INCOME	Engage in charcoal/wood selling	5	3	1	1
LIVELIHOOD/INCOME	Diversify OR seek alternative sources of income ex-agro-pastoral	4	1	3	0
WATER	Abandon normal water source (due to salinity or insecurity)	6	0	5	1
WATER	Water-transport (bring water to livestock)	6	3	3	0
WATER	Travel further to seek/reach water sources (human needs)	3	2	1	0
FOOD/NUT/HEALTH	Reduce nutritious meal options/reduce diet diversity	6	3	3	0
FOOD/NUT/HEALTH	Abandon/lessen meals of adults in favor of children	4	1	1	0
EDUCATION/SOCIAL	Remove children from school (dropouts)	6	4	1	1
EDUCATION/SOCIAL	Send children to school (e.g., to benefit from meals served there)	3	1	2	0

### 3.6. Actions by external (non-community) actors for communities during the drought

In Kenya there is reportedly an existing network of government agencies and NGOs in both counties that provide various types of aid, ranging from health services to agricultural and livestock support to human food rations (KII-I 6; HH\_WB\_B). Informants mentioned actors including Save the Children, UNICEF, Mercy Corps, Islamic Relief Kenya, and the Kenya Red Cross. In partnership with the WFP and Save the Children, the Kenya Red Cross is exploring possibilities for forecast-based financing (i.e. pre-agreed financing for pre-agreed anticipatory actions).

There appear to have been some efforts to distribute unconditional cash in response to food insecurity, but none in Kenya were anticipatory. In both Wajir and Garissa counties, the government, Save the Children, the Kenya Red Cross and the WFP

provided cash assistance (FGD 10,13; KII-X 10, 13, 18). This was corroborated by a Wajir county official, who said that they have a standing cash transfer programme on a 'very low scale' (KII-X 19).

Several organisations focus on nutrition programmes. Wajir county conducts food security assessments twice per year, and UNICEF had a programme in Garissa providing nutritional support for 85 sites across the county (KII-X 10, 13). The WFP also provides nutrition and health services (FGD 2; KII-X 3). Only one actor in Warable explicitly mentioned the existence of a school feeding programme (KII-I 7).

Not surprisingly, many external (non-community) actors focus on livestock interventions. Community leaders identified NGOs that have provided fodder during the drought (KII-I 22). During the recent drought crisis, the government also provided animal feed, but community members described it as 'not enough' (FGD 13). The Wajir county Ministry of Livestock conducts disease surveillance programmes through community-based reporting systems and provides pest-control measures to livestock farmers to prevent the spread of pests and diseases (KII-X 21). However, vaccines are 'very expensive', and so the government must rely on partners (Save the Children, Mercy Corps, Islamic Relief Kenya, and the NDMA) to provide them.

NGO animal-vaccination campaigns are reported to be conducted irregularly, in response to specific outbreaks (KII-X 18). NGOs also encourage farmers to produce more fodder by protecting certain grazing areas, allowing the crop to grow. During the drought, NGOs partnered with the Food and Agriculture Organization (FAO) of the United Nations to provide supplemental fodder for pastoralists, especially for milk-producing animals left at home (KII-X 21). Fewer organisations mentioned providing agricultural support, though Islamic Relief distributes seeds for agriculture. While this may be justified in the most arid areas and where pastoralism is disinterested in agriculture, the evolving context and movement through pathways may point to the need for a fresh look at more agricultural, resilience or development aid.

Several other programmes centre on water resources. In Wajir county, the Islamic Relief network has programmes to install solar-powered boreholes, repair existing boreholes, and install other kinds of water storage. It conducts most of the work on water projects during dry seasons in time for rainwater to be captured during the rainy season (KII-X 18).

The inability to meet needs in times of prolonged crises was a recurring theme: despite distributing cash transfers and animal feed, conducting livestock vaccination campaigns, and providing schools and businesses with solar panels, Islamic Relief, for example, noted that it is unable to meet 'overwhelming need': 'When we are doing selection of beneficiaries, we will see large turnout' (KII-X 18). A representative of Wajir county noted the strain that prolonged droughts put on their resources. People settle 'where there is nothing', forcing the government to attempt to provide water, medical attention and other services in areas where there was previously 'nothing' (KII-X 19). See Text Box 5.

#### Text Box 5: Services overloaded in times of protracted crisis

*'You know, as the drought severity increases, the support by partners and governments are scaled-up. So, when these pastoral dropouts or these pastoral communities lose their livestock, they are motivated by two things:*

*'One, they don't even have the capacity to move their small belongings and kids to the nearby towns. That forces them to try and settle somewhere.*

*'Number two, since the targeting is done based on settlements, they try to have a settlement of their own so that they get the aid independently. Because they believe once the aid comes through, people who have already settled before them, that means it will be micromanaged to some extent. So, they try to establish their settlements so that they are no intermediaries when it comes to support.*

*'But the major factor is that they don't even have that capacity to come to an urban town, maybe a big town or, you know, try to join another village, and they just try to come near the road, just along the road [to try to attract aid].'* (KII-X 19)

### 3.7. Drought-related actions considered useful but out of reach

#### 3.7.1. Actions preferred by communities to conduct themselves

As well as the actions they actually took, each household also proposed between one and four actions they would like to have pursued but did not or could not. Only four actions surfaced frequently from the quantitative data: buying feed, engaging in petty trade, animal trading and diversifying income. See Tables 5 and 6. While petty trade is understood as a very specific commerce-based activity, income diversification is more general, entailing a move away from agropastoral livelihoods to any other activity. Differences across the groups surfaced as follows:

- By country: While Kenya proposed seven such activities, Somaliland proposed only four: buying feed, diversifying livelihoods, and sale and transport of water.
- By pathway: 'Moving Up' and 'Hanging In' households are most interested in petty trade; 'Moving Out' in animal trading; and 'Dropping Out' in petty trade and livelihood diversification.
- By gender: Women-headed households are most interested in petty trade, and male heads in buying feed.
- By age group: Young people are most interested in diversifying their livelihoods, and middle-aged households in petty trade.

Table 5. Most frequent actions: What would you liked to have done? By pastoralist pathway

CATEGORY	HYPOTHETICAL ACTIONS IN RESPONSE TO DROUGHT	Total HH wanting to do action		Proportion by Country		Proportion by pastoralist pathway			
		#	Proportion	Kenya	Somaliland	A/Moving Up	B/Hanging In	C/Moving Out	D/Dropping Out
LIVESTOCK	Buy commercial feed to supplement livestock	7	0.21	0.21	0.22	0.13	0.25	0.17	0.29
LIVESTOCK	Engage in petty trade	7	0.21	0.29	0.00	0.25	0.25	0.00	0.29
LIVESTOCK	Engage in animal trading	5	0.15	0.21	0.00	0.13	0.17	0.33	0.00
LIVELIHOOD/ INCOME	Diversify, seek alternative sources of income ex-agro-pastoral	4	0.12	0.13	0.11	0.13	0.08	0.00	0.29
LIVESTOCK	Engage in commercial sale/slaughter of livestock (off-take from herd)	3	0.09	0.08	0.11	0.00	0.17	0.00	0.14
LIVELIHOOD/ INCOME	Other, specified in report	3	0.09	0.13	0.00	0.13	0.08	0.17	0.00
WATER	Benefit from water-transport	3	0.09	0.08	0.11	0.13	0.17	0.00	0.00

Table 6. Most frequent actions: What would you liked to have done? By gender and age of HH head

CATEGORY	HYPOTHETICAL ACTIONS IN RESPONSE TO DROUGHT	Total HH wanting to do action		Proportion by gender of HH head		Proportion by age of HH head		
		#	Proportion	Women	Men	35 and younger	36 to 49	50 and older
LIVESTOCK	Buy commercial feed to supplement livestock	7	0.21	0.20	0.22	0.25	0.17	0.23
LIVESTOCK	Engage in petty trade	7	0.21	0.30	0.17	0.13	0.25	0.23
LIVESTOCK	Engage in animal trading	5	0.15	0.10	0.17	0.00	0.17	0.15
LIVELIHOOD/ INCOME	Diversify, seek alternative sources of income ex-agro-pastoral	4	0.12	0.10	0.13	0.25	0.00	0.15
LIVESTOCK	Engage in commercial sale/slaughter of livestock (off-take from herd)	3	0.09	0.10	0.09	0.13	0.00	0.15
LIVELIHOOD/ INCOME	Other, specified in report	3	0.09	0.20	0.04	0.13	0.00	0.15
WATER	Benefit from water-transport	3	0.09	0.30	0.00	0.13	0.08	0.08

Supplemental feeding for livestock, water storage and water transport are the top three actions preferred by the communities. Evidence from the FGD, KII and qualitative excerpts from the household discussions are varied. Table 7 shows the number of participants, informants and households who deemed various types of external support to be the useful. The total 'Community Interest Score' provides a relative sense of action frequency according to the individuals studied. The actions are ordered by frequency from highest to lowest.

**Table 7. External support that could help prepare for drought**

Action Category	Supporting action	FGD	KII Internal to the community	KII External to the community	HHLs (qual)	Community Interest Score [total] <sup>19</sup>
LIVESTOCK	Supplementary feed <sup>20</sup>	3	4	5	9	18.5
WATER	Support with water storage	5	6	1	5	16.5
WATER	Support for water transport/trucking	5	1	1	8	14.5
ED/SOCIAL	Cash/social protection	2	6	3	3	12.5
HEALTH	Food assistance	4	4	2	3	12
LIVESTOCK	Veterinary support	5	5	3	0	11.5
WATER	Boreholes (drilling or rehabilitation)	5	5	1	1	11.5
AG/LLH	Petty/trade small business support	1	1	0	5	7
HEALTH	(Mobile) health centres	2	4	1	0	6.5
ED/SOCIAL	School feeding	0	6	0	0	6
WATER	Dams/canals/catchment	4	0	0	2	6
WATER	Desalinisation	1	2	0	2	5
LIVESTOCK	Destocking assistance <sup>21</sup>	1	1	0	2	4
AG/LLH	Food storage	1	2	0	0	3
MOBILITY	Transporting animals to pasture (migration and herd splitting)	2	0	0	1	3
AG/LLH	Livelihood diversification	0	0	2	2	3
WATER	Irrigation	1	1	0	0	2
HEALTH	Human medicines	0	1	1	0	1.5

AG/LLH: Agriculture, Livelihood; ED/SOCIAL: education/ social

### 3.7.2. Support requested by communities

Despite the support of various stakeholders for livestock feeding and alternative livelihoods, evidence suggests that these efforts are insufficient.

When asked what additional assistance they needed or wanted from external (non-community) actors, communities repeatedly requested assistance in drilling, motorising or desalinating boreholes (FGD 3, 11; KII-I 23), in de-silting water sources (HH\_LG\_B), or in constructing more permanent water projects ('dams' or storage tanks) (FGD 3, 4, 5 10, 11; KII-I 7, 22; HH\_LG\_A, HH\_LG\_B). They also regularly said that the construction of such projects before a drought would have helped them to cope.

As noted by one household, 'If we got feed from NGOs and the government before the drought was severe, the [positive] impact would have been greater' (HH\_LK\_C). One participant requested assistance storing pasture or livestock fodder so that the communities would have reserves in times of drought or emergency (HH\_LK\_A). There is a strong request to expand

<sup>19</sup> Numbers represent individual data-collection events. The total adds up the previous four columns from external key informant interviews (KIIs), given a weight of 0.5 (as they came from outside the community, key informant interviews and focus group discussions directly).

<sup>20</sup> Informants spoke of the need to buy feed or get assistance with supplementary feed in general, and therefore we do not specify whether the programme should specifically seek to reduce livestock mortality and/or to improve milk consumption by children.

<sup>21</sup> Informants spoke of assistance selling their animals (not destocking by name). They did not specify to whom, hence the use of destocking generally rather than commercial vs. slaughter destocking.

these initiatives and other support appropriate to the unique requirements of pastoralist communities.

## 4. Discussion

This section explores the links between the actions above and pertinent literature about proven actions to support pastoralist communities, adding researcher perspectives on relevance for anticipatory action and protracted crises in general (Section 4.1). Section 4.2 combines evidence with researcher expertise to explore timing, triggers and metrics linked to the most promising actions to inform future anticipatory action efforts.

### 4.1. Actions aligned to the literature

In this section, the actions described above are compared to secondary literature relevant to the context. For example, the Livestock Emergency Guidelines and Standards<sup>22</sup> provide a list of relevant, tested actions that can support pastoralist communities. Table 8 lists the most common interventions during drought, **along with a discussion about their relevance to anticipatory action.**

Table 8. Key actions from the literature and relevance to anticipatory action and evidence in this research

Action (source)	Explanation	Relevance for anticipatory action (in general and in protracted crises)
<b>Commercial destocking</b> (LEGS, FAO)	Organisations act as intermediaries between households and buyers to promote livestock sale. Prices are based on market conditions (e.g., livestock condition, demand, etc.).	According to the LEGS guidance, this intervention provides the best outcomes and cost-benefit ratio if conducted in the early stages of a drought or based on forecasts of failed rains. Commercial destocking might therefore be feasible as an action before the drought begins while animals are still in good, marketable condition. However, research suggests some social resistance to destocking in general and, in Kenya, based on drought forecasts. And if commercial destocking is based on forecasts but the drought does not materialise as predicted, questions on its relevance as a ‘no regrets’ action arises. The social acceptability of commercial destocking needs to be explored further. It is less relevant once animal conditions have declined, unless restoring animal health is also feasible.
<b>Slaughter destocking</b> (LEGS, FAO)	Organisations purchase livestock with project funds when animals have limited commercial value or demand is weak. Prices are determined in consultation with the communities, and meat is provided back to the community (targeted to specific populations or generally) to support nutrition outcomes.	Slaughter destocking is probably more palatable to the communities (some informants expressed regret at not having sold when conditions were better) and <b>it is well suited to AA in protracted crises.</b> Once drought impacts are being felt and animal health is declining, people want to sell their livestock but have difficulty doing so because their value has declined. Providing communities with an option to sell their animals, based on forecasts of poor rains, to raise money for their other needs would fill this void (and meat provided back to communities would help with nutrition, making it an action with double value and low regrets).
<b>Supplementary feed to reduce livestock mortality and/or to improve milk consumption by children</b> (LEGS, FAO)	Animal rations are provided to keep essential livestock alive (often adult females for breeding). Households choose which animals will benefit and they are fed in a community feeding centre. A variant provides feed to milking animals kept with women/children when the herd migrates.	The need for supplementary animal feed came through strongly from community data and <b>would therefore be widely accepted.</b> It would also be feasible to provide such aid based on <b>continued drought forecasts</b> including those by the KMD to NDMA on pasture forecasts. The provision of feed (rather than cash) would overcome limitations in the local availability of feed. Providing food for livestock where the communities are would prevent families from having to migrate longer distances in search of pasture, allowing them to stay together (lessening household splitting); supporting the health of women, children and animals; keeping children in school; and ultimately protecting households’ livelihoods and savings.

<sup>22</sup> LEGS, Vetwork, 2018.

Action (source)	Explanation	Relevance for anticipatory action (in general and in protracted crises)
<b>Veterinary care using vouchers</b> (LEGS)	LEGS recommends providing households with fixed-value vouchers for pre-existing private service providers.	The need for veterinary care (vaccines, medicines, vitamins, etc.) came through strongly from this research. Providing such care by means of fixed-value vouchers rather than specific vaccination or treatment campaigns may be more efficient for an NGO. It would also allow households to determine when, where and how this service should be provided (with suppliers available locally) given their herd health, size and priorities. And providing vouchers automatically based on drought or vegetation forecasts would lessen the need to track specific animal diseases.
<b>Water provision</b> (FAO)	Water is provided through drilling or rehabilitating boreholes.	This is another action that came up frequently in the studied communities. There is emerging evidence to support groundwater systems, and solar-powered water points with hand-drilled boreholes. These could be provided based on forecasts predicting drought, if there is enough time to complete rehabilitation and drilling, but is likely more appropriate during non-shock periods, to ensure the boreholes will function during drought periods.
<b>Restocking</b> (LEGS, FAO)	Organisations provide communities with livestock to rebuild their herds after losses due to drought. The number and species of animals are determined through community consultation.	Assistance restoring livelihoods lost due to drought was also mentioned by our informants, but this action is more appropriate during the recovery phase after a drought has ended. Households will have difficulty maintaining new animals in the absence of water or pasture. It would probably be more efficient to give people who have lost everything during a drought the food, water or cash aid they need during the drought and focus on restocking once drought conditions ease.





## 4.2. Timing, triggers and metrics

Patterns were identified from the evidence above to determine the timing of actions below. Overall, evidence suggests that households engaged in the reported actions for a few months and repeated their strategies each year, season, or on a regular/ongoing basis during the drought. See Table 9. There are several actions informants believed could have been undertaken earlier in the year or season. They include engaging in petty trade, buying seed, off-take/sale of animals, producing feed, storing crop residues, and diversifying livelihoods and water transport. Many of them are not suitable for anticipatory action.

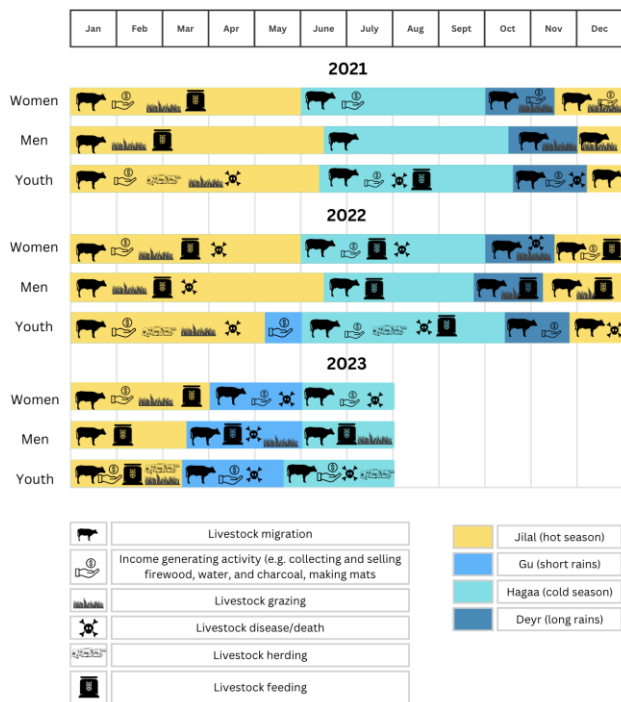
Table 9. Timing of actions taken by households during drought (general)

CATEGORY	ACTION TAKEN IN RESPONSE TO DROUGHT	Total HH practicing action	Earliest action started	Frequency: continued for...	Possible earlier?
MOBILITY	Migrate with livestock further than normal for given season (i.e. same direction)	18	Jan 2021 (5)	A few months (9) repeated each year (8)	No (16) Yes (2)
MOBILITY	Migrate with livestock to new areas	5	Jan 2021 (1)	A few months (3) repeated each year (1)	No (5) Yes (0)
MOBILITY	Household splitting (leave some members at home without livestock)	4	May 2021 (1)	A few months (4)	No (4) Yes (0)
LIVESTOCK	Buy commercial feed to supplement livestock	13	Jan 2021 (3)	A few months (9) years (2) weeks (1)	No (12) Yes (1)
LIVESTOCK	Engage in herd splitting (by migration routes)	10	Jan 2021 (3)	A few months (6) years (4)	No (7) Yes (0)
LIVESTOCK	Engage in commercial sale/slaughter of livestock (off-take from herd)	7	May 2021 (2)	A few weeks (5) days (2)	No (6) Yes (1)
LIVESTOCK	Produce livestock feed	3	March 2020 (3)	A few months (3)	No (2) Yes (1)
AGRICULTURE	Store crop residues for livestock	3	Nov 2021 (1)	A few months (3)	No (2) Yes (1)
LIVELIHOOD/ INCOME	Engage in petty trade	8	Jan 2021 (4)	A few months (2) years (6)	No (2) Yes (5)
LIVELIHOOD/ INCOME	Engage in charcoal/wood selling	5	Jan 2021 (2)	A few months (2) regularly each year (3)	No (5) Yes (0)
LIVELIHOOD/ INCOME	Diversify OR seek alternative sources of income excluding agro-pastoral	4	Jan 2021 (2)	A few months (3) regularly each year (1)	No (1) Yes (1)
WATER	Abandon normal water source (due to salinity or insecurity)	6	Jan 2021 (6)	Regularly each year (6)	NA
WATER	Water-transport (bring water to livestock)	6	Jan 2021 (1)	A few months (4) days (1) regularly each year (1)	No (5) Yes (1)
WATER	Travel further to seek/reach water sources (human needs)	3	Jan 2021 (1)	A few months (2) regularly each year (1)	No (3) Yes (0)
FOOD/NUT/ HEALTH	Reduce nutritious meal options/reduce diet diversity	6	Jan 2021 (3)	A few months (2) days (1) regularly each year (3)	No (4) Yes (1)
FOOD/NUT/ HEALTH	Abandon/lessen meals of adults in favour of children	4	Jan 2021 (2)	A few months (2) years (2)	NA
EDUCATION/ SOCIAL	Remove children from school (dropouts)	6	Jan 2021 (1)	A few years (3) months (2) days (1)	NA
EDUCATION/ SOCIAL	Send children to school (e.g., to benefit from meals served there)	3	Jan 2021 (2)	Regularly each year (3)	NA

In Kenya, livestock migration is constant (see Figure 7: seasonal activities in 2021-2023), so men do not have other income-generating activities, as they are tending livestock. Women and young people, however, engage in income-generating activities outside of pastoralism nearly year-round. Most households were already buying feed, herd splitting, and attempting to engage in petty trade and selling charcoal in January 2021. By the middle of the crisis (2022), households were supplementing with purchased feed year-round, as they do not usually rely on agriculture for fodder production. Not surprisingly, more drastic actions, such as household splitting and the sale of animals, were delayed (both until May 2021).

### Kenya Seasonal/Activity Calendars (2021-2023)

Features modal weather and activity perceptions gleaned from 14 FGD conducted in: Dabley, Warable, Balambala, Lago (youth only) and Bula Hallsan (women only).



### Somaliland Seasonal/Activity Calendars (2021-23)

Features weather and activity perceptions gleaned from 6 FGD conducted in: Bus Village (BV) and Dacarta Village (DV)

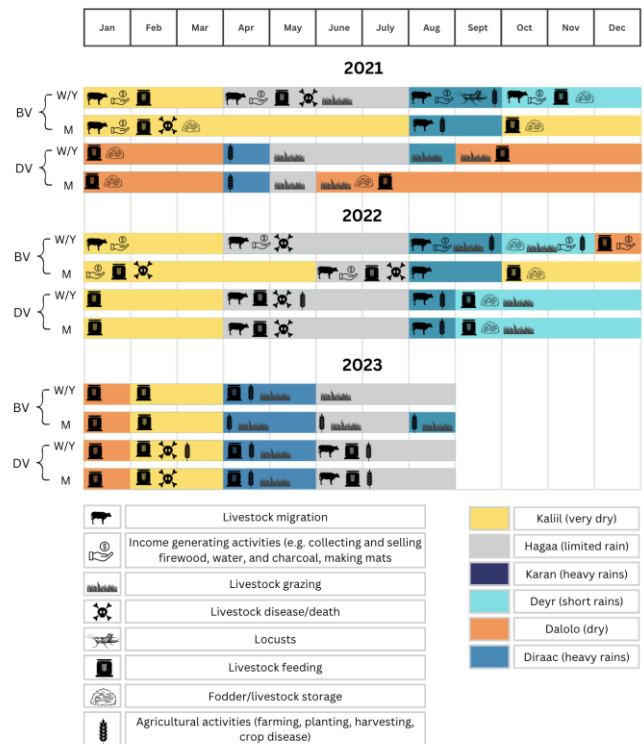


Figure 7. Seasonal activities in 2021-2023 for Kenya (left) and Somaliland (right)

The pattern and timing of actions in Somaliland reflect different livelihoods strategies (Figure 7, right). In Somaliland, migration is less constant and there is more of an emphasis on agricultural activities, including crop production during the Karan and Diraac heavy rains. The production of livestock feed began as early as March 2020, though storing crop residues only started in November 2021. Supplementing their livestock's forage with other feed also began earlier than in Kenya. These differences are consistent with agropastoral livelihoods and the regular production of fodder for animals, which does not take place in Kenya.

### *Timing and triggers*

To turn the reported drought-responsive actions into anticipatory actions, it is necessary to determine the best when the actions need to occur, what could trigger the action, and what metrics could be used to monitor its implementation and effectiveness. Below, we summarise what we could deduce about the possible timings and metrics.

When asked about the necessary timing of anticipatory actions, most informants spoke in generalities. For example:

- *'Mostly we need [cash transfer programmes] in drought and during the rain.'*
- *'I could not have sold livestock earlier since there were no signs of drought.'*
- *'Distribution of seeds is needed before the rainy season so that those who are engaging in farming can take advantage of the rains.'*

When pressed for more specifics, participants repeated that their decisions cannot be reduced to calendar months or precise periods of time with or without rain. Instead, individual households decide when to sell an animal, buy fodder, migrate, etc based upon the resources available to them, as exemplified in following exchange with an informant in Somalia:

Interviewer: *'When did you buy those rations?'*

Participant: *'When the previous reserves were depleted...'*

Interviewer: *'Mmm...'*

Participant: *'Or when the rations were running low...?'*

Interviewer: *'Mmm...'*

Participant: *'They are bought then by the person who can afford it or has help from a certain party.'*

Interviewer: *'Is there a specific month for this?'*

Participant: *'No, there are no specific months. Mmm... It is just the time when you have run out of your old reserves'*(HH\_S2\_B).

The same is true of what might be considered negative coping strategies. Given the range of resources available to households, informants found it impossible to generalise how many months during a drought they can get by before resorting to actions they would rather not take. Precisely when households will begin pulling children out of school, for example, will depend on the size and health of a household's herd (and farm, where applicable), their other sources of income/remittances, and their financial and agricultural reserves, among other factors. This finding is corroborated by experts in pastoral livelihoods.<sup>23</sup> These factors will not only vary among households but also for individual households across years and droughts as their health, agricultural production, and other life circumstances change. However, grouping the households by pathway provides a more operational way for humanitarian/development actors to organise support (e.g. for targeting).

Similarly, evidence reveals that households do not differentiate between the kinds of actions they take or consider appropriate to respond to a first season of drought, compared to a second, or a third. In fact, most of the actions they take to cope with drought are simply extensions of the strategies they would normally take to survive a typical dry season (migrating, selling animals, buying fodder and food, etc.). As a drought wears on, the reserves and income sources (i.e., agricultural reserves, herd size, and animal condition) they need to survive gradually decline, making recovery during the rains difficult or impossible. Those who have more to begin with fare better and can maintain their agropastoral livelihoods for longer, but eventually, even those who were better off will suffer. An informant summed this up succinctly: *'If [the drought] is for one year, its effect is less, but in a successive year, it will be much worse'* (HH\_S2\_B).

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<sup>23</sup> LEGS, 2018, [LEGS-Briefing-Paper-Livestock-and-Livelihoods-in-Pastoral-Drought-1.pdf \(livestock-emergency.net\)](#)

In summary, protracted drought is not on/off – rather, it moves from bad to worse. Additional evidence of this gradual decline is provided in Text Box 6.

**Text Box 6: Protracted drought is not a precisely timed on/off but rather it moves from bad to worse**

**From community members:**

‘There was nothing else we could do other than move with them and search for places we believed might have better pastures’ (FGD S4).

‘A single drought can be recovered from, but if they are successive droughts, it’ll be impossible. The animals are disappearing. So, when it is a single drought, the child recovers during the time of, say Gu, when the rain falls and there’s prosperity. The young child gets milk. But when there are consecutive droughts, the young child must be taken to a health centre. It’ll have to be seen by a doctor’ (KII\_S2).

‘During droughts, people here sell their livestock to continue living, and if that is not an option for them, they come to the cities and join internally displaced persons (IDPs) camps. ... when droughts happen consecutively, people lose their livestock, farms, and so on. And this caused people and youth to lose their livelihood, which led many youths to migrate to Europe. Others became drug dealers and joined wars, and others lost their sense of living. Thus, consecutive drought threatens people’s livelihood, and youth’s purpose became [that] many of them end up uneducated because of drought. Additionally, the social support within the community decreases because everyone is struggling’ (KII\_S11).

**From informants external to communities:**

‘When there are multiple droughts, everyone is struggling. Even people who are wealthier struggle during droughts. And poor families and regions struggle the most’ (KII-X S10).

‘Of course, the severity worsens. If, for instance, we only had one season that failed and this farmer did not lose any livestock, a second season comes [and] it also fails. This situation gets worse. So, the impact cumulatively is felt as the failed seasons increase. That’s exactly what we’ve experienced, because [for] five consecutive seasons in our county we had depressed rain. So, the number of people who are coming back to settlements [and] villages are increasing, [the] number of livestock lost increases, [and] conflict increases. So, the more seasons that fail, the more severe the impact’ (KII-X 19).

‘You know, somebody that had 50 head of cattle at the start and they started dying, and [they] see now the drought is moving from bad to worse. So, definitely his options become limited, [as] much as we are giving support – interventions in terms of cash transfers, water trucking, and the like – but it is still not enough. But we’ve seen it as a trend moving from bad to worse’ (KII-X 18).

#### **4.2.2. Metrics**

Actions drawn from the strategies practiced or suggested by the research, as well as secondary literature, all require metrics of success (to determine if they have been implemented effectively). Table 0 lists actions that communities already take in response to drought or that could be taken by external (non-community) actors to support them further. The table also contains general suggestions for trigger data and evaluation metrics. Triggers for anticipatory action should be grounded in the historical impact data and the relevant forecasts available for a specific context. An analysis of historical data and all available forecasts is beyond the scope of this research.

The table also portrays trigger data that requires further analysis and/or monitoring; likewise, only general evaluation metrics are provided. The table contains only actions that are both desirable by communities and feasible for humanitarian actors to support (i.e., not negative coping strategies or potentially harmful actions, such as removing kids from school or skipping meals). Many of the actions in Table 10 require long-term support during non-drought periods (i.e. through longer-term

development projects) to ensure efficient and timely action once triggered (e.g., water storage needs to be in place before the previous rains to store water for times of shortage).

Table 10. Potential support actions, their data sources, and metrics

Category	Support actions	TIMINGS (expressed by informants)	DATA SOURCES: to inform triggers, to monitor	METRICS (of success)
<b>EDUCATION/ SOCIAL</b>	School feeding	Before students drop out (which is often linked to migration or inability to pay school expenses)	Drought or subsequent drought forecasts monitoring school enrolment. Alignment between school calendars and seasons should be explored	Dropout rate as compared to other communities or to pre-drought rates in the same communities, or during previous droughts
<b>EDUCATION/ SOCIAL</b>	Cash/social protection	Before failed rains, before animal condition deteriorates	Drought or subsequent drought forecasts	To be determined based on the outcomes being targeted with the cash (e.g., food security, school dropout rates)
<b>MOBILITY (migration and herd splitting)</b>	Assistance transporting animals to pasture	When pastures are depleted but before animal body condition deteriorates	Forecast of Normalized Difference Vegetation Index (NDVI) and Standardized Precipitation Index (SPI); vegetation monitoring	Livestock condition, morbidity and mortality
<b>LIVESTOCK</b>	Commercial destocking	Before animal/market conditions deteriorate	First drought forecast	Use of household income derived from destocking (FAO, 2016). Livestock mortality, and other outcomes to be determined based on targeted outcomes (e.g., food security, livestock condition/mortality, school dropout rates)
<b>LIVESTOCK</b>	Slaughter destocking	Before animals die or deteriorate further	Subsequent drought forecasts (second failed season or later), market prices, and animal body condition	Livestock mortality and nutrition/food security indicators to be determined based on targeted outcomes (e.g., food security, livestock condition/mortality, school dropout rates)
<b>LIVESTOCK</b>	Veterinary care (medicines and vaccines)	Before disease outbreaks	Drought forecasts, epidemiological/veterinary health numbers	Livestock condition, morbidity, and mortality
<b>LIVESTOCK</b>	Veterinary care using vouchers (if the pertinent systems are primed)	Before disease outbreaks	Drought forecasts	Livestock condition, morbidity, and mortality
<b>LIVESTOCK</b>	Supplementary feed	Before migration farther afield to look for pasture (as an alternative to migration); before milk production dries	Drought forecasts, vegetation indices, and satellite data	Mortality in supplemented vs. un-supplemented animals (FAO, 2016), livestock condition, morbidity, and mortality, milk production
<b>WATER</b>	Dam/canals/catchment rehabilitation/construction	During dry seasons (in time to catch rainy season water)	Not necessary, as this is a longer-term project	N/A

Category	Support actions	TIMINGS (expressed by informants)	DATA SOURCES: to inform triggers, to monitor	METRICS (of success)
<b>WATER</b>	Drilling or rehabilitating boreholes	Given water scarcity, households will benefit anytime; should take place before other water resources are depleted	Select rehabilitation could be done based on first vs. subsequent drought forecasts, and could benefit from groundwater EWS	Number of households with access to water, incidence of waterborne diseases, and proportion/number of people (WHO, 2013) and/or livestock (FAO, 2016) with access to minimum recommended intake of water
<b>WATER</b>	Water trucking	When water sources are depleted	Monitor well or water-storage levels	Number of households with access to water, incidence of waterborne diseases, and proportion/number of people (WHO, 2013) and/or livestock (FAO, 2016) with access to minimum recommended intake of water
<b>WATER</b>	Water storage	During dry seasons (in time to catch rainy season water)	Not necessary, as this is a longer-term project	N/A
<b>WATER</b>	Desalination	Anytime	Not necessary, as this is a longer-term project	N/A
<b>FOOD/NUTRITION/HEALTH</b>	Food storage	After harvest	Difficult as an early action, as it would require aid during a good harvest for households to have something to store	N/A
<b>FOOD/NUTRITION/HEALTH</b>	Provision of medicines or support for human health	Before disease outbreaks	Monitor health centre or government disease statistics	Incidence of diseases in question
<b>LIVELIHOODS</b>	Small business support to existing businesses (prioritising businesses providing essential goods and services)	Anytime, but especially before rains fail	Not logical as an early action, as new businesses are unlikely to thrive if launched during crisis (community has no resources to make additional purchases)	Targeted businesses' sales levels, households' income levels
<b>AGRICULTURE</b>	Irrigation systems for agriculture	Before/during the agricultural season	Not necessary, as this is a longer-term project	N/A
<b>AGRICULTURE</b>	Drought-resistant seeds	Before planting/onset of rains	Drought forecasts	Agricultural yields
<b>ALL</b>	Information sharing and early warning messaging	When forecasts are available, when new information is available	Drought forecasts	Number of households with access to early-warning information

Notes: 'Timings' indicates when the action needs to happen, as expressed by informants. Triggers indicates what to monitor or why monitoring is likely not the best approach.

Table 11 below contains greater detail on the metrics to inform the selection of anticipatory actions.

Table 11. Expanded metrics for Save the Children-preferred anticipatory actions

Support action	Purpose (as informed by this research and other considerations)	Metric	Possible sources to measure success
<b>Livestock support</b> (vaccinations/treatment)	To improve animal health/condition and prevent livestock death	Livestock morbidity/mortality/body condition	Impact survey questions asking about animal mortality and health (with comparison community)
	Without also providing animal fodder, medicine may not have the intended effects	Proportion of livestock recovering from diseases treated through the programme	Ministry animal health and mortality data (if kept in sufficient detail)
		Mortality in treated vs. untreated animals (FAO, 2016)	
<b>Water provision</b> (borehole drilling or rehabilitation)	To provide water for animals (to prevent livestock disease outbreak and death) and people (to prevent disease outbreak)	Livestock morbidity/mortality/body condition	Impact survey questions asking about human and animal water consumption and health (with comparison community)
		Human health data: rates of diarrheal/ water-borne disease	Ministry animal and human health data (if kept in sufficient detail)
		Proportion/number of people (WHO, 2013) and/or livestock (FAO, 2016) with access to minimum recommended intake of water	Groundwater EWS (see UNICEF, 2019 for an example)
<b>Cash transfer programming</b> (including vouchers)	Will depend on programme objectives. Our research suggests that cash is most likely to be spent on water, food, and animal fodder (and, to a lesser extent, school fees)	Proportion/number of people (WHO, 2013) and/or livestock (FAO, 2016) with access to minimum recommended intake of water	See livestock support and water provision for related indicators
		Food security indicators, e.g. food consumption and dietary diversity scores	Impact survey questions asking about food security
		Livestock morbidity/mortality/body condition	School attendance records
		School attendance rates	

## 5. Conclusions and Recommendations

This section presents a concise summary of the answers to the research questions (Section 5.1). It then describes the most promising anticipatory actions (5.2) and to what extent anticipatory action adds unique value to disaster risk management (5.3) in a protracted crisis.

### 5.1. Overarching conclusions

Table 12 below provides a succinct answer to the first three (of four) key research questions. Section 5.3 answers question 4.

Table 12. Research questions and succinct answers

Question	Answer
1. What actions do/did individuals, households, or communities engage in without external support to manage drought (or food crises more generally)?	The actions households engage in to survive during protracted drought are largely a heightened extension of their normal livelihood strategies. The most prominent of these are purchasing supplementary feed and water when supplies are gone (both countries), growing crops to provide fodder for animals and food for household members in the dry season (Somaliland), and migrating in search of pasture and water (both countries). Drought-tolerant cropping (i.e., climate-smart agriculture) and storage of agricultural production did not surface visibly from the evidence. Details of these actions are found above.
2. What other actions could individuals/households or communities engage in with additional support? What additional technical inputs, information, services, resources, forms of engagement, and/or resources does that support require?	Additional support would enable households and communities to do more of what they already do in a protracted drought, or to do it more effectively. This includes the actions outlined in Answer 1. The need for water and animal feed featured prominently in responses, so strengthening these systems – for example, fodder management and storage, water management including dam construction, catchment and desalination – should be prioritised. Existing small businesses could also be supported to ensure they can continue providing essential goods and services during the drought.
3. For each identified action: At what point in relation to the seasonal calendar does it occur/is it feasible? What triggers the action? Is there a way to signal the optimal moment for it to be triggered? How? What specific aims and which metrics could measure/monitor its implementation? How effective is it/could it be for households engaged in specific livelihood pathways or individual profiles?	Tables 10 and 11 provide timings, topline data sources for triggers, and some initial metrics for the actions that lend themselves most to anticipation. The research shows communities struggle to recognise precise moments during a crisis when anticipatory action is needed. But there are still clear and convincing reasons to use anticipatory action to protect the livelihoods of households that are ‘Hanging In’, and to safeguard food security and broader wellbeing for all households, including those that are ‘Dropping Out’.  Women and young people would like to diversify livelihoods to help manage drought risk. This means savings, skills building, and/or entrepreneur support may be of value, although this goes beyond anticipatory action.



## 5.2. What are the most promising anticipatory actions that could be supported?

The evidence above suggests that there is a role for anticipatory action during protracted droughts. The most promising anticipatory actions are highlighted below in Section 5.2.2. But first, AA requires strong preparedness and early warning systems.

### 5.2.1. Prepare anticipatory action

Community-based preparedness and early warning systems should be supported. These systems should employ the four components of an early warning system. See Table .

Table 13. Proposed support for community-based preparedness and early warning systems

EWS component +	Save the Children project details
<b>Risk Knowledge</b>	<ul style="list-style-type: none"> <li>• Conduct community-based risk mapping, built on national level knowledge</li> <li>• Bring NDMA/NADFOR drought monitoring to the community to explore the dynamics of drought</li> </ul>
<b>Monitoring and Forecasting</b>	<ul style="list-style-type: none"> <li>• Build on indigenous knowledge in the communities</li> <li>• Strengthen relationships with NDMA, NADFOR and forecasters closest to the communities; external (non-community) actors should serve as a temporary liaison between forecasters and the community</li> </ul>
<b>Warning Communication</b>	<ul style="list-style-type: none"> <li>• Support forecasting authorities to make the warning messages as actionable, locally-relevant and comprehensible as possible for the community</li> <li>• Identify the most appropriate transmission channels (schools, etc.)</li> <li>• Work with religious leaders to reduce any distrust of warnings</li> <li>• With the community, organise how messages will be received and how to make sure that they reach the most vulnerable members</li> <li>• Again working with the community, review how the warnings issued were received and understood, and feed this back to the emitters</li> </ul>
<b>Community Response Capability</b>	<ul style="list-style-type: none"> <li>• Set up AA activation protocols</li> <li>• Use this research to inform a map of the actions that communities want and believe they can take when they hear a warning message</li> <li>• Strengthen the communities' ability to take these actions</li> <li>• Review in a participatory manner how the actions worked (or did not) and why</li> </ul>
<b>Forecast-based Financing (FbF)</b>	<ul style="list-style-type: none"> <li>• Advocate for national and local partners to provide funding based on warnings</li> <li>• Advocate for donors to provide FbF for national and local partners</li> <li>• Organise the communities to consider saving and revolving funds for their own FbF</li> <li>• Evaluate all activations and revise triggers, thresholds, and protocols</li> </ul>

**Strong systems enable strong anticipatory action.** Whole systems – veterinary, health, markets, nutrition, education, social, governance – must be primed for AA to function effectively. They must be supported and strengthening during non-drought periods – including creating and enhancing early warning systems – to ensure they can adapt and flex in anticipation of drought. This is normally considered a feature of disaster prevention or disaster-risk reduction (see also Figure 8, below). Given this type of support is typically found within development programmes, development donors should acknowledge their role in AA for protracted crises and continue investing in its required systems strengthening.

Anticipatory actions can sometimes support or temporarily replace existing systems, but this again is usually considered as part of disaster prevention or risk reduction.

### 5.2.2. Engage in anticipatory action

Communities experience consecutive droughts as a gradual decline in their resilience and capacity to sustain their livelihoods. There is no precise on/off switch that can signal an alarm. Therefore the anticipatory actions agropastoralists will need to take to protect their livelihoods and wellbeing during consecutive droughts are likely to be largely the same as for a single drought.

Commercial destocking is the only valid exception – an action that is only appropriate in anticipation of the onset of the first drought, as commercial buyers are unlikely to purchase sick and/or malnourished animals. Conversely, slaughter destocking would be more appropriate in anticipation of subsequent consecutive droughts, once animals are no longer suitable for sale. Slaughter destocking must happen while the animals can still provide meat for the communities – before they have fallen extremely ill or have perished in the drought.

The most promising actions *proposed by households* are the provision of:

- ✓ feed and water (through expensive purchase and trucking) to help support livestock
- ✓ cash transfers
- ✓ food assistance for families
- ✓ veterinary medicines and vaccinations.

These interventions are typically part of a humanitarian response, but if they are provided in anticipation of a drought – after an early trigger (prior to animals dying or meals being reduced) – they could be considered anticipatory actions.

**Anticipatory food and water assistance** for both animals and people would allow households to maintain their animals and keep their families in one place until conditions improve, and pastoral movements resume.

**Anticipatory veterinary care** could also help people maintain or boost animal health so they're better able to endure the coming drought.

**Anticipatory cash assistance** based on drought forecasts is a highly promising AA for protracted crises. Prior to any anticipatory cash programming, a market assessment would be critical to ensure food and water for both people and animals would be available to buy locally after several seasons of drought. Communities are likely to spend cash on food and water for their animals, but it may also be spent on transporting animals to find pastures, which will tend to have more mixed results than guaranteeing food. So an assessment should look to identify fodder sources in neighbouring counties and establish key terms of trade prior to the rainy season.

**Risk reduction and preparedness** actions should also be supported to build a stronger platform for drought anticipation. Communities should be engaged more directly in risk assessments, monitoring drought conditions in ways they understand.

**Community access to and trust in early warning information** is critical. Authorities should be supported to convert expert drought forecasts and messages into actionable, digestible, and credible alerts for communities. Schools and religious authorities should be used as channels through which messages are disseminated. Channelling messages through schools that explain the dangers of drought and provide drought warnings will help build a new risk-informed generation of pastoralists. Building close relationships with local faith leaders and disseminating messages through them will help build community trust in those messages.

**School feeding** is another promising AA to prevent the deterioration of children's nutrition and education during prolonged droughts. School meals could be expanded or scaled up in anticipation of drought. Additional community consultations would help to determine if school feeding programmes alone would be enough to keep students and their caregivers near schools during droughts, as opposed to migrating. School feeding programmes may need to be accompanied with cash assistance if school-related expenses are a barrier to children attending school during prolonged drought periods.

### 5.3. What unique value does anticipatory action add?

*Research question 4: Where are the actions above best-situated across the integrated risk management strands, and what value does each strand offer to the protection of livelihoods in East Africa?*

The increasing prevalence of slow-moving protracted crises has inarguable implications for the place and role of anticipatory action. Forecasts indicating an impending crisis should trigger anticipatory action before the impacts peak. Therefore, every time there is a forecast that a rainy season will fail – and that conditions will deteriorate further – there is an opportunity to intervene to protect livelihoods and prevent more families falling further into poverty.

AA is therefore an opportunity to provide households with short-term assistance that prevents them from abandoning their way of life or engaging in actions that could be harmful to children's wellbeing. Upstream of a full-fledged drought, **climate change adaptation** is an important feature of disaster prevention. See Figure 8.

Anticipatory action to protect livelihoods should focus on identifying households that still have livelihoods to protect. Pastoral households in 'Hanging In' (pathway B) or 'Moving Out' (pathway C), even those that may have been relatively well-off at earlier stages of the crisis, are strong candidates for such support. Anticipatory action can also target households in 'Dropping Out' (pathway D) to help mitigate a rise in food insecurity and malnutrition.

This research underlined the immense needs that emerge during a protracted drought. It is unlikely AA alone will be sufficient to mitigate these needs, and humanitarian assistance will be required to complement AA efforts. 'Dropping Out' households should be the main, but not necessarily the only, focus of humanitarian action. Resources permitting, a layered approach to assistance could be adopted, in which 'Dropping Out' households receive humanitarian assistance to address immediate consumption gaps as well as anticipatory action assistance ahead of a forecasted worsening situation.

One clear benefit of triggering anticipatory action based on forecasts rather than real-time needs assessment, is that AA anticipates the continued decline of livelihood security and provides proactive assistance in advance of households falling completely out of pastoralism. Waiting for households to become destitute before providing additional aid is inhumane.

Pulling together the wide set of actions discussed in this research, Figure 8 maps the actions most salient to the different strands of disaster risk management (more details are provided in Annex B). While not exhaustive nor detailed, this map illustrates the unique value of anticipatory action in managing successive bouts of drought.



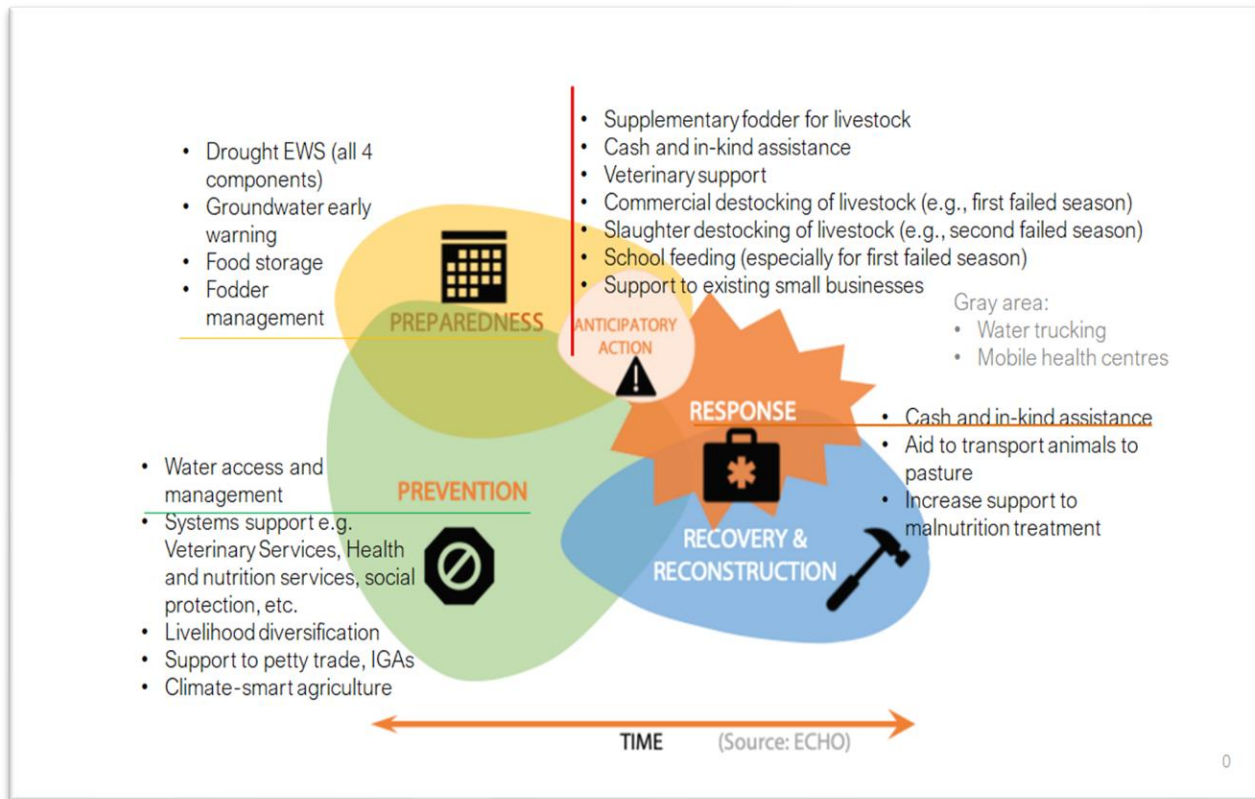


Figure 8. Actions distributed across the DRM strands (Source: author analysis)

Although the unique value of anticipatory action lies in its name and its timeliness, the precise ‘best moment’ to take AA is not easy to pinpoint, even for the simplest hazards. It is easier to say which times are *not* right for AA. This research found that actions taken by communities to manage the risk of a protracted drought do not tend to vary across time during the crisis, and may lose their effectiveness after multiple consecutive failed rainy seasons. Therefore, during a protracted drought, AA may have potentially greater value after the first failed season rather than after a second or subsequent failed season.

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# Appendices

## Appendix I: Study area descriptions

Garissa and Wajir – where the Kenyan communities in this study live – are severely drought-affected counties. These areas were classified in IPC acute food insecurity Phase 3 (Crisis).<sup>24</sup> These two counties predominantly rely on pastoral livelihoods (IPC, 2022). All four communities visited in the two Kenyan counties confront recurrent drought. The nomadic and semi-nomadic communities engage in livestock rearing, with cattle, goats, and camels being key assets.<sup>25</sup> However, recurrent droughts and insufficient infrastructure pose challenges to sustainable pastoral practices.

The arid climate of these communities also creates economic vulnerabilities. Efforts are being made to diversify the economy through initiatives in sectors such as trade and small-scale enterprises.<sup>26</sup> Because Warable is located several kilometres from the River Tana, thereby allowing locals to practice some limited agriculture through irrigation, and Dabley is located where locals practice limited irrigation of sorghum, millet, and maize during flooding periods, the other communities – Lokongorio and Lago – are purely pastoralist.

Ethnically, all four Kenyan communities identify as Somalis, but they are further divided along clan lines. Most of the population in these communities adhere to the Muslim faith and, consequently, both clan elders and religious leaders play pivotal roles in governance, awareness creation, and general transmission of key messages to the communities. The influence of clan elders and religious leaders extends to shaping local opinions and decision-making processes within the communities.

Strong sedentarisation is underway in Dabley and Warable. Dabley is a long-settled community compared to the other three (Lago, Warable, Lokongorio). It has more semi-permanent houses amid the temporary grass-thatched structures (manyattas) and a primary school, albeit lacking senior classrooms. All four communities are far from county and sub-county governments, as well as from markets. Within a one-hour drive, Lago was the nearest to the county government headquarters and Dabley was a 2.5-hour drive on a dirt road. Dabley and Lokongorio were accessible via dirt roads that could only be used during the dry season. The communities are usually cut off from markets and other essential services (e.g., hospitals) during rainy seasons. Lago and Warable are accessible via murram roads.

Dabley and Warable communities each had a health centre, whilst Lokongorio and Lago had none. But even where health centres existed, they lacked medicines and skilled personnel. To cope with this challenge, the communities – especially children, pregnant and lactating mothers, and the elderly – depend on health and medical outreach activities supported by NGO partners such as Save the Children.

Each community had a borehole, but only the one in Warable was operational. Those in Lago and Lokongorio had long been abandoned because of extremely high levels of water salinity. Dabley relies on a dam where surface water is collected. Income levels have fallen following loss of livestock during the recent 2020-2023 drought, against a backdrop of limited economic opportunity. In Warable, locals fell trees to burn charcoal, which they send to urban centres for sale. The practice has had a profound negative effect on vegetation cover in the community. In the four communities, there are very few small businesses (e.g., retail kiosks, cafes, etc.).

**Wajir County**, characterised by arid and semi-arid conditions, faces heightened vulnerability to climate-related disasters such as droughts and floods. The majority of the population relies on pastoral livelihoods, which are significantly affected by recurrent hazards, leading to the loss of livelihoods, and exacerbating poverty levels. The agricultural sector, predominantly focused on livestock, contributes to 85% of household income. Nomadic pastoralism is a defining feature of the county's

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<sup>24</sup> <https://reliefweb.int/report/kenya/kenya-ipc-acute-food-insecurity-and-acute-malnutrition-analysis-july-2023-january-2024-published-1-september-2023>

<sup>25</sup> Garissa County Government, [www.garissa.go.ke](http://www.garissa.go.ke)

<sup>26</sup> An example of the Garissa County EWS bulletin is available [here](#).

lifestyle. Although the county has 1,024.06 km<sup>2</sup> of arable land, only 3.73% is used for food crop production in higher altitude regions. The available data highlights a food poverty rate of 72%, with a significant dependence on food aid due to minimal crop cultivation. Adaptation strategies to climate hazards encompass various approaches, including water harvesting through the construction of water pans, shallow wells, boreholes, and dams, as well as conservation agriculture, planting drought-tolerant and early-maturing crops, agro-forestry, livestock migration, fodder production, disease control and surveillance, destocking, and the promotion of drought-resistant livestock breeds.<sup>27</sup>

According to the 2009 National Population Census,<sup>28</sup> Wajir County in Kenya is characterised by a predominantly rural population (96.2%), with a small urban population (3.8%) concentrated mainly in major urban or peri-urban centres such as Wajir and Habaswein. The county's households rely on five primary livelihood sources, including various pastoral categories and informal employment. Poverty is extremely severe in Wajir, and the majority of people are heavily dependent on relief food from the government and other organisations. Only 24.5% of people have had a primary school education, and this figure plummets to just 3% for those with a secondary school education, contributing to the county's low literacy levels. Livestock plays a pivotal role in Wajir's economy, supporting 80% of the population. However, the livestock sector faces numerous challenges, including drought, flooding, poor infrastructure, insecurity, high illiteracy rates, and limited access to market information. These constraints negatively impact the county's economy, leading to reduced agricultural productivity, high livestock mortality, income loss, malnutrition and famine.

**Garissa County** is a hot, arid county with a high concentration of pastoral animal farming. There is some irrigated and rainfed agro-pastoral farming along the Tana River. More than 88% of the working population depends on agricultural and pastoral sources of income, which account for 87% of household income in the county. A staggering 40% of the county's population lives in food poverty and depends on food assistance every year due to unproductive land and the effects of the climate on agriculture and means of subsistence. Raising cattle through nomadic pastoralism for milk and meat is the primary source of income in Garissa County.

Camels, sheep, goats, and cattle are the primary animals bred. Crop farming that is irrigated and rainfed is also widespread. Farmers who raise cattle have resorted to diversifying their methods of subsistence by engaging in activities like crop growing and charcoal burning. Additionally, they use several coping mechanisms unique to cattle, including building water storage and irrigation infrastructure, migrating livestock, conserving feed, launching vaccination campaigns, destocking, and switching up the species of livestock. Additionally, producers use value-adding techniques including fermenting and boiling milk, as well as salting and drying meat. Pastoralists are compelled to abandon the pastoral system and turn to farming as a substitute source of income when their animal stocks are destroyed, often due to drought.

Climate change adaptation initiatives in the county are supported by several governmental, non-governmental, community-based, and corporate organisations via various routes such as policymaking, input delivery, and extension services. The institutional and financial capability of major players is critical to the effective execution of climate adaptation plans. While local beneficiaries are typically involved in the design stages of interventions, they are frequently left out of the implementation, monitoring, and evaluation phases that follow.

In Garissa, 40% of people over the age of 15 are literate, with more men than women. The primary education sector has a net completion rate of 63%. The low enrolment and transition rates can be explained by people's nomadic lifestyle. Another factor influencing the low transition rates among girls is early marriage. With the opening of public and private university campuses, colleges, and youth polytechnic institutes in Garissa Town and other metropolitan regions, tertiary education has been expanding in recent years. In rural areas, there are not many academic institutions.

**Somalia** is situated in the easternmost part of the Horn of Africa, sharing borders with Djibouti to the northwest, Ethiopia to the west, and Kenya to the southwest. It is flanked by the Gulf of Aden to the north and the Indian Ocean to the east. In the year 2019, 80% of the population was engaged in the agricultural sector, accentuating the nation's pronounced dependence on agriculture. This research took place in parts of Somaliland, located in northwest of Somalia and on the southern coast of

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<sup>27</sup> MoALF. 2017. Climate Risk Profile for Wajir County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock and Fisheries (MoALF), Nairobi, Kenya.

<sup>28</sup> Kenya National Bureau of Statistics (2010).

the Gulf of Aden. Most Somalis are actively involved in pastoralism and the trading of livestock.<sup>29</sup> There are rising concerns about the repercussions of climate change, including temperatures, shifting precipitation patterns, fluctuations in water availability, and the occurrence of extreme meteorological events. The recurrence of floods and droughts in recent years has contributed significantly to precipitous declines in both livestock and crop production, fostering food insecurity, jeopardising livelihoods, and prompting extensive internal displacement. The impacts of climate change, coupled with unregulated and unsustainable practices related to water and land use – such as deforestation for charcoal production and overgrazing – are compounding pressures on already scarce arable land and water resources. This multifaceted interplay of environmental factors accentuates the fragility of the region’s ecological equilibrium and underscores the urgent need for concerted mitigation and adaptation strategies.

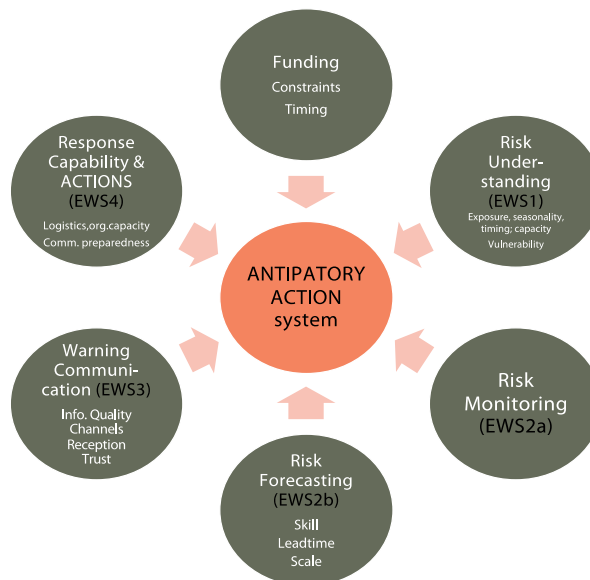
Currently, Kenyan NDMA reports are produced in English and are often lengthy and technical. A recent Jameel Observatory<sup>30</sup> study found that determining the timing for triggering anticipatory action for slow-onset emergencies in fragile areas of East Africa to be fraught with difficulties. There are also shortcomings in implementing comprehensive, system-wide approaches. At the same time, observed, small-scale Forecast-based Financing has shown to be effective, but its reach is not widespread. ‘*While Forecast-based Action approaches have been developed by a number of humanitarian agencies, the key [challenge] to scaling-up is mainstreaming these approaches into national risk management systems.*’<sup>31</sup> Efforts are underway to address this by incorporating more vernacular and visual elements in these communications, which aim to enhance their accessibility and impact.

The localisation of anticipatory action and incorporating it into established formal government frameworks is recommended, underscoring the importance of stronger connections and the involvement of informal/community-based systems.

## Appendix II: Anticipatory action system

The elements in the figure below outline the critical components and considerations of an effective anticipatory action system, aligned to the four components of early warning systems (EWS).

Anticipatory action system (aligned to four EWS components), Author compilation



<sup>29</sup> Potsdam Institute for Climate Impact Research, Adelphi 2022. Climate Risk Profile, Somalia.

<sup>30</sup> Jameel Observatory, Anticipatory action to mitigate drought-induced crises: Tracking drought impacts and aid responses in Kenya and Somalia, 2020-2022 (2022). <http://dx.doi.org/10.7488/era/2280>

<sup>31</sup> E. Mwangi et al. (2022). Mainstreaming forecast based action into national disaster risk management systems: Experience from drought risk management in Kenya, *Climate and Development*, 14:8, 741-756, DOI: [10.1080/17565529.2021.1984194](https://doi.org/10.1080/17565529.2021.1984194)

## Appendix III: Migration and drought

According to Save the Children staff and others consulted, the factors influencing the decisions to split the herd and/or family include:

- 1. Pasture availability:** Communities assess the availability of grazing land and pasture in the area, to ensure there is enough to sustain their herds. If pasture is limited, they may opt to split the herd to reduce the pressure on available grazing areas. In a few instances, community members reported asking for permission before using certain pastures. No evidence was found on the use of delegated and protected grazing areas in times of drought.
- 2. Resource availability:** Households consider the availability of feed resources, such as maize and sorghum. If there is a surplus from agricultural activities, they allocate a portion of it for livestock feed.
- 3. Seasonal considerations:** Households consider seasonal variations in pasture availability and quality. They may split herds during times of scarcity, such as dry seasons, when grazing resources are limited. This helps reduce competition for resources and ensures the livestock's survival.
- 4. Livestock health and productivity:** The overall health and productivity of the livestock are critical considerations in herd-splitting decisions. If certain animals are showing signs of illness, weakness or unproductivity, they might be separated from the main herd to prevent the spread of diseases and to allocate resources more efficiently.
- 5. Experience:** Households decide on herd splitting based on traditional knowledge and experience passed down through generations, considering factors such as the ability of camels to travel further distances than shoats

## Appendix IV: Education-related actions taken during drought

Examples for each case are described below:

- A teacher in one community reported that attendance at his school dropped to 50 during the drought but rebounded to 270 when the rains returned in 2023. Boys are removed from school to *'[assist] in migrating alongside our livestock, tending to their needs by providing them with food, water, and supporting [families] in ensuring their survival'* (FGD 8; KII 5; HH\_C).
- Some children were sent away. When families move to stay with relatives who are better off, their children must leave school. One family sent their children to live with their uncle outside the community while the head of the household migrated: *'I moved my household to stay with my brother so they could eat with his family as I migrated with the livestock'* (HH\_D).
- Other families removed their children from school, or even university courses, because they could not afford the fees (FGD 14; KII-X 10; KII-C 25). NGO informants reported families struggling to afford school, uniform and book fees.
- Children were also often left behind in the community when households split. *'As [Kenyan] Somalis, few people value education; they will leave part of the family [for schooling purposes] here to suffer alone... leaving a child with someone who earns a salary like the chief or myself who stays in the community'* (KII-C 17). Children who are left behind to attend school may be less able to concentrate on learning because of their hunger (KII 15, 18). As noted by one informant, *'During periods of prolonged drought, the children don't have morale or enthusiasm for education'* (KII-C 4). A teacher described a vicious cycle in which teachers, frustrated with low attendance and slow learning, mistreat their students, leading to further demoralisation and further dropouts (KII-C 7).

## Appendix V: Synthesis of most promising actions

Action Category	Actions and Save staff preference (*)	CIS Com. Interest Score	Effect-iveness	Notes on Suitability for AA (terms of triggers, timing, social acceptability)
LIVESTOCK	Supplementary feed*	18.5	High	Could be provided based on forecasts of additional seasons of drought, and monitoring of animal conditions and pasture availability
WATER	Water storage	16.5	N/A	Better as long-term
WATER	Water trucking	14.5	Mixed	Could be initiated based on forecasts of additional seasons of drought or monitoring of water availability
EDUCATION/ SOCIAL	Cash/social protection*	12.5	N/A	Can be anticipatory and initiated based on forecasts of additional seasons of drought
FOOD/NUT/ HEALTH	Food assistance	12	N/A	Typically delivered as humanitarian response but can also be provided as AA before prices peak
LIVESTOCK	Veterinary support*	11.5	N/A	Could be provided based on forecasts of additional seasons of drought, or monitoring of animal conditions or specific diseases
WATER	Boreholes*	11.5	N/A	Limited rehabilitation and drilling could be conducted based on forecasts but depends on groundwater resources; may be better as a long-term intervention
AGRICULTURE & LIVELIHOODS	Petty trade/ small business support	7	High	Better as long-term
FOOD/NUT/ HEALTH	(Mobile) health centres	6.5	N/A	Could be initiated based on forecasts of additional seasons of drought or monitoring of health centre records; mobile health centres to help people with ailments have been tried in other AA contexts
EDUCATION/ SOCIAL	School feeding	6	Low	Feeding programmes could be started and/or reinforced based on forecasts of additional seasons of drought. Need to explore if children who had already left would return for food. This might therefore be better as AA for first seasons of drought rather than protracted
WATER	Dam/ canals/ catchment	6	N/A	Better as long-term
WATER	Desalinisation	5	N/A	Better as long-term
LIVESTOCK	Destocking*	4	High	It is difficult to convince people to sell their animals based on a forecast. If this could be overcome, marketing/sale assistance could be provided based on drought forecasts. Furthermore, if the emphasis is protracted crises, animal condition may already have deteriorated by the time new forecast triggers are met. Commercial and slaughter destocking can both be conducted in a no-regrets manner
AG & LIVELIHOODS	Livelihood diversification*	3	Mixed	Better as long-term. Diversification is a broad set of actions that provide vocational choices beyond agro-pastoralism (e.g., green, eco-friendly, and climate-proofed to young people). Petty trade is often used temporarily, without training and not necessarily chosen as a vocational choice
FOOD/NUT/HEALTH	Food storage	3	N/A	Good for preparedness; may be difficult, particularly where agricultural yields are variable
MOBILITY (migration and herd splitting)	Aid to transport animals to pasture	3	Mixed	Aside from providing cash to allow people to make these decisions on their own, it would be difficult for an NGO to initiate based on a forecast
AG & LIVELIHOODS	Irrigation systems for agriculture	2	N/A	Better as long-term
FOOD/NUT/ HEALTH	Human medicines	1.5	N/A	Could be initiated based on drought forecasts or monitoring of health centre records, and implemented in conjunction with mobile health centres
AG & LIVELIHOODS	Drought resistant seeds	1	N/A	Could be done before the agricultural season, but given the climate, it is unclear that even drought-resistant seeds would help without additional access to irrigation/water

## Appendix VI: Indicators of food security and nutrition

To the extent that any intervention focuses on food security and/or nutrition, below is an established set of metrics.

### Food security and recall periods:

- Household Dietary Diversity Score (HDDS): 24 hours
- Minimum Dietary Diversity for Women (MDD-W): 24 hours
- FCS and FCS-Nutrition (FCS-N): Seven days
- Food Insecurity Experience Scale (FIES, not a WFP CRF indicator): One month or 12 months, depending on the research and programme priorities. The 'recall period' is the time span referred to, which has to be remembered (recalled) by a respondent. For example, 'How many times during the last seven days', or '...in the last 24 hours have you...'

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- Household expenditures split into recall periods of 30 days (food basket), and six months, depending on estimated frequency of purchase of non-food items or health and education expenditure

### Coping strategies and livelihoods:

- Consumption-based Coping Strategy Index (CSI): Seven days
- Livelihood-based Coping Strategies (LCS): 30 days
- Asset Benefit Indicator (ABI) and Environmental Benefit Indicator (EBI): Since the beginning of the Food for Assets (FFA)/asset creation intervention (applicable to asset creation beneficiaries)

## Appendix VII: Correlation between action groups

Migration and food security/nutrition/health (FS/N/H) and social/education (Ed/Soc) actions occur frequently. Actions that are most often reported together (by the same household) are those in (FS/N/H) along with (Ed/Soc) actions with a Pearson's coefficient of  $r(32) = .52$ .

The occurrence of reported migration actions as a response to drought are negatively correlated with agriculture and livelihood actions ( $r = -.36$  and  $-.37$ , respectively) and positively correlated with the other sets of actions, especially FS/N/H ( $r = .44$ ) and livestock (LS) ( $r = .41$ ).

### Correlation between action groups

Category	LS	AG	LLH	W	FS/N/H	ED/SOC
MOB	0.41	-0.36	-0.37	0.08	0.44	0.39
LS		-0.02	-0.27	0.07	0.16	-0.10
AG			0.11	-0.15	-0.07	-0.06
LLH				0.04	-0.25	-0.13
W					-0.13	-0.11
FS/N/H						0.52

<sup>1</sup>MOB: mobility; LS: livestock; AG: agriculture; LLW: livelihood/income; W: water; FS/N/H: food security, nutrition, health; and ED/SOC: education/social. Correlation values (r) use Pearson's coefficient.

## Appendix VIII: Experiences and actions by gender and age

**Experiences of seasonality:** There were variations in the way that women/youth and men perceived the different seasons in both Somali communities, though the communities themselves were different overall. Men and women/youth in the village of Bus characterised the latter half of 2021 as Kaliil (very dry) or Deyr (short rains) respectively, whereas both men and women/youth in the village of Dacarta experienced a prolonged Dalolo (dry season). Men in Bus perceived the transition from the very dry Kaliil to the Haggaa differently than women/youth in both 2021 and 2022. Men in Dacarta did not recall experiencing any Kiran (heavy rains) in 2021, whereas the women/youth remembered some rain in August. Differences between men and women/youth may be explained by their migration patterns and livelihood activities, hence their experience or recollection of the rain.

**Actions by gender:** In general, this study reveals no brand-new insights on gender to influence anticipatory action, beyond pointing to women's need for loans for petty trade or climate-sensitive/efficient charcoal production (which is a common theme in more general literature). Differences in reported drought-related actions between **gender of household head** are smaller than those comparing countries, ranging from between 1 and 22 percentage points. Actions reported more often by female heads of households (N=10) are buying feed, migrating to new areas, charcoal production, and petty trade. Male household heads (N=23) report the following more frequently than women: migrating further (vs. to new areas), herd splitting, producing feed, storing crop residue, and diversifying livelihood activities.

**Actions by age group:** Actions reported by age groups also differ widely. Youth (N=8) most frequently report herd splitting, abandoning water sources, charcoal production, and diversifying livelihood activities. Mid-aged household heads (N=12, between 35 and 55 years old) most often report petty trade, water transport, and household splitting. Older household heads (N=13) most commonly report migrating further, buying feed, migrating to new areas, and reducing meals (i.e., not diversifying). Development or resilience actions that aim to target young people should consider vocational training for climate-smart income diversification that could help to generate income during drought periods.

## Most frequent actions taken in times of drought by gender and age group

CATEGORY	ACTION TAKEN	Total HHs practicing action		Proportion HH practicing action by gender of HH head		Proportion HH practicing action by age of HH head		
		#	Proportion	Women	Men	≤35	36 to 49	≥50
MOBILITY	Migrate with livestock further than normal for given season	18	0.55	0.40	0.61	0.63	0.25	0.77
MOBILITY	Migrate with livestock to new areas	5	0.15	0.20	0.13	0.00	0.17	0.23
MOBILITY	Household splitting (leave some members at home without livestock)	4	0.12	0.10	0.13	0.00	0.25	0.08
LIVESTOCK	Buy commercial feed to supplement livestock	13	0.39	0.50	0.35	0.25	0.33	0.54
LIVESTOCK	Engage in herd splitting (by migration routes)	10	0.30	0.20	0.35	0.50	0.25	0.23
LIVESTOCK	Engage in commercial sale/slaughter of livestock (off-take from herd)	7	0.21	0.20	0.22	0.13	0.25	0.23
LIVESTOCK	Produce livestock feed	3	0.09	0.00	0.13	0.13	0.08	0.08
AGRICULTURE	Store crop residues for livestock	3	0.09	0.00	0.13	0.13	0.08	0.08
LIVELIHOOD/ INCOME	Engage in petty trade	8	0.24	0.30	0.22	0.00	0.42	0.23
LIVELIHOOD/ INCOME	Engage in charcoal/wood selling	5	0.15	0.30	0.09	0.25	0.17	0.08
LIVELIHOOD/ INCOME	Diversify or seek alternative sources of income	4	0.12	0.00	0.17	0.25	0.17	0.00
WATER	Abandon normal water source (due to salinity or insecurity)	6	0.18	0.10	0.22	0.50	0.08	0.08
WATER	Water-transport (bring water to livestock)	6	0.18	0.20	0.17	0.00	0.33	0.15
WATER	Travel further to seek/reach water sources (human needs)	3	0.09	0.00	0.13	0.00	0.00	0.23
FOOD/NUTRITION/ HEALTH	Reduce nutritious meal options/reduce diet diversity	6	0.18	0.10	0.22	0.13	0.17	0.23
FOOD/NUTRITION/ HEALTH	Abandon/lessen meals of adults in favour of children	4	0.12	0.10	0.13	0.25	0.00	0.15
EDUCATION/ SOCIAL	Remove children from school (dropouts)	6	0.18	0.20	0.17	0.25	0.17	0.15
EDUCATION/ SOCIAL	Send children to school (e.g., to benefit from meals served there)	3	0.09	0.10	0.09	0.00	0.08	0.15

## Appendix IX: Conflict of interest

The investigators and data collectors have no real or potential conflicts of interest or bias due to current or previous work experience with Save the Children or industry competitors, financial interest in the outcome of the study, or involvement in the project design or previous iterations of the project. No preconceived ideas toward individuals, groups, organizations, or objectives of the particular projects and organizations have biased the study.





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