Community-based Anticipatory Action in the Borana Zone, Ethiopia

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Abstract

This research analyses community-based anticipatory action in two pastoralist communities in the Borana region of southern Ethiopia exploring local perspectives on risk, vulnerability, and adaptive capacity. The aim is to identify opportunities to strengthen anticipatory action systems that enhance food security and resilience to multiple hazards. The research comprises multiple methods. The literature review provides contextual grounding, while focus group discussions offer insight into lived experiences and socio-cultural dynamics of decision-making. A participatory action workshop fostered dialogue among community members, NGOs, and government stakeholders to co-develop actionable solutions. The findings offer a context-sensitive understanding of both the potential and limitations of anticipatory action in the Borana zone, culminating in practical recommendations for local, regional, and national actors involved in disaster preparedness and early response. The conclusion summarizes the mechanisms to be strengthened to enhance food security and resilience among the Borana pastoralists.

Acknowledgements

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Collaborating partners

The Emergency and Risk Management Department at University College Copenhagen (UCC) has 400 students studying risk and emergency management. Research areas include resilience, food security, crisis management, humanitarian response, and livelihood strategies. UCC researchers have extensive fieldwork experience in sub-Saharan Africa, Asia, the Middle East, and South America, and expertise in anthropological field studies, qualitative methods, and participatory action research. UCC will be responsible for conducting literature reviews, and field research to explore the link between hazards, vulnerabilities, and food security in the Borana Zone, and lead fieldwork and reporting.

CIFA Ethiopia is an Ethiopian based NGO established in 2005 as an offshoot of CIFA Kenya and it works in the communities in Moyale Woreda, where the research took place and other areas of Ethiopia. CIFA Ethiopia has extensive experience working on Community Managed Disaster Risk Reduction (CMDRR), a process whereby a community systematically manages its disaster risk reduction measures towards becoming a safer and resilient community. It collaborates with both local government and traditional leadership. CIFA Ethiopia will support the research with its expertise in anticipatory action and local pastoralist livelihoods, coordinate interviews, and handle translation services. CIFA Ethiopia is a local partner working with ADRA Denmark.

ADRA Denmark operates in eight countries and has a Strategic Partnership Agreement with the Danish Ministry of Foreign Affairs and a Framework Partnership Agreement with ECHO. Certified in Core Humanitarian Standards, ADRA Denmark focuses on food security and agriculture in East Africa and the Middle East, collaborating with universities in Uganda, Tanzania and Denmark. ADRA Denmark aids vulnerable populations, emphasizing climate resilience and sustainable agriculture and pastoralist livelihoods. The data generated from the report will be used by ADRA Denmark in relation to its CLAP project.

Terminology

Agro-pastoralism
Refers to livelihoods that combines use of livestock and crop cultivation. This is typically practices in regions with rainfall sufficient to grow crops but need livestock to diversify and increase their income (Hayrol A. et al. 2024).

Anticipatory Action
Anticipatory action is actions taken ahead of predicted hazardous events to prevent or reduce negative humanitarian impacts (REAP, 2022). This definition differs from Welthungerhilfe's definition, which guided this research (see figure 7), in not identifying the predicted hazardous events as necessarily being imminent, which is further elaborated in Hassan et al. (2024). This distinction is important because it allows for including anticipatory action for known hazards, even though they are not imminent; slow onset hazards for instance.

Disaster
A serious disruption in the functioning of a community or a society at any scale. It is caused by hazardous events interacting with conditions of exposure, vulnerability, and capacity, which leads to human, material, economic and/or environmental losses and impacts (United Nations Office for Disaster Risk Reduction [UNDRR], 2017).

Drought
Drought is a prolonged period of abnormally low precipitation, resulting in a shortage of water that adversely affects ecosystems, agriculture, human health, and water supply systems. While drought can be classified into various categories, this research primarily focuses on meteorological drought, which refers to lack of rainfall and excess evapotranspiration (IPCC, 2023).

Early warning system
An integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses, and others to take timely action to reduce disaster risks in advance of hazardous events (UNDRR, 2017).
Forecasting involves predicting future events, while early warning systems translate these forecasts into actionable information that allows communities and organizations to prepare for potential impact (ACAPS, 01/05/2019).

Hazard
A potentially damaging physical event, process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation (UNDRR, 2017).

Localisation
Refers to the process of respecting, recognising, and strengthening local leadership. We use ‘local leadership’ and ‘locally led’ to acknowledge that humanitarian action must be owned and led from the ground up (Barbelet, V. et al., 2024).

Pastoral and agropastoral systems
Pastoral systems refer to the use of livestock as a source for food and/or income. Pastoral systems are typically associated with zones that are too dry for cropping to provide a basis for subsistence. Pastoral systems are often practices within communities that depend on livestock. These systems can be either nomadic (where herders move with their livestock to find grazing land) or sedentary (where livestock are kept in the same locations). (Wilson, 1986a; Swift, 1984).

Contents

Introduction to the research and objectives

This research aims to strengthen proactive adaptation, and anticipatory action systems to enhance food security and resilience to multiple hazards among pastoralists in the Borana Zone, Ethiopia.

The outcome of the research is a set of recommendations for effective and efficient community based anticipatory action plans aimed at supporting DANIDA funded project implemented by ADRA Denmark and Welt Hunger Hilfe (WHH) titled 'Strengthening Climate-Resilient Livelihoods, Adaptation and Preparedness towards Climate Extremes, Conflict and Displacement in Kenya and Ethiopia (CLAP)' (see box 1). The research seeks to understand traditional early warning systems (meteorological, biological & astrological signs) in multi–hazard situations (drought and conflict) and identify the challenges and the opportunities of these.

Strengthening Climate-Resilient Livelihoods, Adaptation and Preparedness (CLAP) towards Climate Extremes, Conflict and Displacement.

The CLAP project, led by a consortium including ADRA Denmark and Welthungerhilfe Germany, aims to mitigate the humanitarian impacts of climate change by integrating local governance, community-driven action plans, and more diversified livelihood solutions.

The implementation strategy, running from January 2024 to December 2025, focuses among other outcomes on planning and implementing Community Action Plans (CAPs) to enhance community based anticipatory action and early response mechanisms for disaster preparedness.

The total budget is 30 million DKK.

Within the framework of the CLAP project, CIFA Ethiopia will support communities in project target areas to formulate suitable Community Action Plans, which involve the following activities:

- Bring together early warning actors to enhance disaster preparedness and anticipatory action.
- Conduct risk and vulnerability analysis.
- Improve forecasting capabilities and promoting early warning preparedness actions.
- Strengthen Community-Managed Disaster Risk Reduction (CMDRR) committees.
- Develop and validate multi-hazard Early Action Protocols to guide timely humanitarian aid.

Box 1. Objectives of the CLAP project

The research was conducted in two communities - Mado and Mormora, chosen as case studies to document existing practices and strengths and weaknesses of early warning and anticipatory action systems in the communities.

The methods used for this research included a literature review, focus group discussions and an action research workshop with participants from the two communities, national

and international non-governmental organisations (NGOs), and representatives from government on the community and district (woreda) levels.

Through a community-based approach, the overall objective of this research is to explore how to improve the usefulness of anticipatory action and early warning systems and make them locally responsive and effective. As part of that, the research aims to gain a deeper understanding of perspectives and priorities of pastoralist communities in Borana Zone, and of the particular risk, vulnerabilities, and capacities they face.

While the research project sets out to inform the CLAP project, it also aims to provide actionable recommendations towards the larger early warning community at local, regional, and national level in Ethiopia targeting government and civil society early warning stakeholders, networks, and forums.

The following sections first provide an overview of pastoralist livelihoods and the key challenges facing these systems, establishing the contextual background for the study. The literature that is referred to in relation to Borana livelihood is based on references that focus on the Borana Zone.

The subsequent section outlines the analytical framework. A community-based approach to food security early warning and anticipatory action is employed to ensure a comprehensive understanding of the local context and the structural conditions shaping vulnerability and resilience. The methodology section details the data collection process. The research began with a literature review, which provided foundational knowledge on the Borana livelihood system. To facilitate the co-production of locally relevant knowledge, the study employed focus group discussions and a participatory action workshop.

Contextual background

Pastoralist livelihood in the Borana zone

Ethiopia has the largest livestock population in Africa, with the livestock sector contributing 19% to the country's GDP. Approximately 85% of Ethiopia's population resides in rural areas, and livestock sustains the livelihoods of about 80% of rural inhabitants (IGAD, 2021).

The Borana Zone, in southern Ethiopia, is one of the twenty administrative zones of the Oromia Regional State in Ethiopia. It is subdivided into thirteen districts, with this research focusing on Moyale, which borders northern Kenya. The Borana Zone is predominantly characterized by semi-arid lowlands (70%), and more than 85% of the population are pastoralists (Bogale & Erena, 2022). See Figure 1.

The Borana Zone is home to pastoralist communities who primarily rely on livestock and natural resources as their main livelihood. More frequent occurrence of droughts and floodings combined with other climatic induced shocks have resulted in water and pasture shortages, making pastoralist livelihoods increasingly vulnerable and exacerbating food insecurity.

While pastoral livelihoods vary widely, a common characteristic is the extensive use of rangelands through mobile livestock-keeping. Pastoral mobility is often used by scholars to differentiate pastoralism from other forms of livestock husbandry. Pastoralists move their animals strategically to access water and different types of forage and pasture resources in response to highly variable rainfall, fluctuating vegetation, and recurrent droughts. These mobility strategies are closely linked to seasonal rain patterns.

In the Borana Zone, there are two main rainy seasons. The primary rainy season, known locally as "Ganna," typically occurs from March to May, while the shorter rainy season, "Hagayya," takes place from September to November. Each rainy season is followed by a dry season: the cold dry season referred to as "Bona Adoolessaa" (June–August), and the long dry season, referred to as "Bona Hagayyaa" (December–February) (Gabessa, 2020; Shibru et al., 2023).

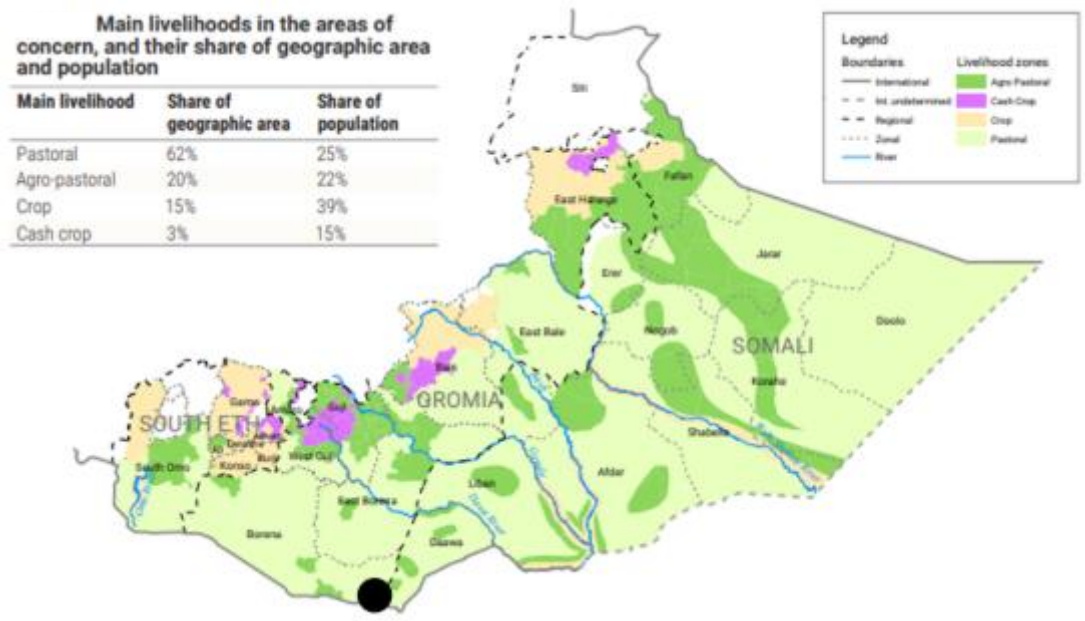

Figure 1. Livelihoods in Southern Ethiopia. Borana - Moyale district is marked (Food Security Cluster, 2024).

Figure 1. Borana type of cattle (Author's own photo).

Pastoralists in the Borana zone rely primarily on livestock, particularly cattle, for their livelihoods. Although households in Borana zone typically also keep goats and other types of livestock, cattle remain the most important, as wealth is traditionally measured by the number of cattle owned. Possessing a large herd elevates social status and identity within the Borana community. The Borana type of cattle, which has adapted to the dry conditions, is the most common among the pastoralists in Borana (see Figure 2).

The sale of livestock and livestock products such as milk, skins, meat, and calves, contributes to more than 90% of the household income in the Borana Zone (Bogale & Erena, 2022). Household consumption is also heavily dependent on livestock, with milk serving as a primary food source during the rainy season, while butter, ghee, and preserved meat products are consumed during the dry season.

The division of labour in Borana is gendered, with men and women assigned distinct roles related to cattle management. Men are responsible for herding, slaughtering, barn maintenance, and manure management. Women take care of daily cow care, including milking and tending to young animals, as well as handling, processing, and preserving food. While cattle are primarily slaughtered for meat consumption, they also have significant cultural and ceremonial value. They play a central role in religious and festive occasions, such as sacrifices during birth, marriage, and burial/memorial ceremonies. Meat products are not part of daily meals but are considered delicacies, typically reserved for respected family members, guests, in-laws, and men returning from long journeys.

Cattle play a central role in the Borana community's drought-coping mechanisms, known as "buusa gonofa." This coping strategy refers to an informal social safety network, which ensures that households with sufficient resources share food or livestock with those who have suffered significant losses due to crises such as drought, disease, or raids. The "buusa gonofa" practice facilitates the permanent redistribution of livestock within the community. Clan elders assess requests for support, evaluate the vulnerability of different households, and organize cattle redistribution for those in need. Additionally, cows are sometimes given or loaned to less fortunate clan members, allowing them to consume the milk for the duration of its milking period as a food security strategy and a drought-coping mechanism. The economic redistribution of cattle lies at the heart of "buusa gonofa," often referred to as the "cattle economy," emphasizing both the prestige of cattle ownership and their symbolic and economic significance (Dabasso et al., 2022; Hassan et al., 2024).

Traditional Practices in Borana Communities

A community in the Borana zone (referred to a "Ganda") can consist of up to 15.000 inhabitants. It is made up of several villages and sub-districts, which are further divided into smaller units consisting of five households, known as "Toko-shani" (meaning 1-5). Each level is led by an elder (Father of the Zone, "Abi-zoni"). The houses in the Borana zone are typically simple mud-plastered structures with thatched roofs and no water and electricity installed (see Figure 3).

Figure 3. Typical housing and landscape in Borana (Author's own photo).

Elders play a crucial role in maintaining the cultural values and social structures embedded within Borana communities. They are highly respected for their experience and knowledge, particularly the traditional forecasters who rely on indigenous knowledge to predict the future and potential hazards including floods, droughts, and conflict but also more positive opportunities. The following includes some of the traditional practices observed in the Borana communities.

Traditional Forecasting Systems in Borana Communities

The practice referred to as **"Uuchu"** includes observation of the intestines of slaughtered animals to predict future events, foretelling both fortunes and misfortunes and their potential impact on families and the wider community (Dinsa et al., 2022; Gabessa, 2020).

The **"Ayyaantuu"** practice is an indigenous early warning system using astrological signs and clouds, temperature, and animal behaviour as indicators for weather forecasting. These traditional weather forecasting methods remain an integrated part of livelihood decision-making in Borana zone (Ibid).

The **"Oromo Gadaa"** system, often referred to as the "elders' institution," serves as a framework for dispute resolution. Experienced elders, known as "Jaarsa Araaraa", act as neutral mediators between disputing parties. Under the Gadaa system, a group of men

is entrusted with maintaining law and order when conflicts arise (Hassan et al., 2024; Debisa, 2022; Gabessa, 2020).

The **"Abbaa Gadaas"** (leaders who serve in succession every eight years) oversee social, political, and economic matters, upholding values of morality, collective decision-making, respect, law, and order (Ibid).

Peace is a deeply respected value within the **"Gadaa"** system, emphasizing harmonious interactions between individuals, nature, and God. Peacebuilding is further institutionalized through **"Buna",** the traditional coffee ceremony, which takes place three times a day. During these gatherings, people inquire about one another's well-being and the state of peace in their lives (Ibid).

The role of elders in prediction the future was also an observation made in this research, and is further elaborated in the findings section, where their continued significance in foreseeing environmental threats is discussed.

Risks and resilience of pastoralist livelihoods

Borana pastoralist livelihood is highly adaptable and flexible, centred around strategies to navigate the complexities and changes while maintaining social, economic, and political structures. Pastoralist livelihoods are also well adapted to climate variability and harsh environmental conditions, which are considered a normal part of life in the Borana zone, where rainfall is low during dry seasons and droughts are a recurring challenge.

Pastoralists have developed indigenous anticipatory actions and coping mechanisms based on local knowledge and practices to cope with drought and other risks. Anticipatory actions are deeply embedded in their way of life and aim to prevent and mitigate the impact of risks and threats and to improve their coping strategies. As already mentioned, the practice of "Buusa Gonofa" is an important coping mechanism as the system ensures economic and social security for those who have lost their herds. With a focus on the Borana zone, other actions taken in anticipation of a risk according to Hassan et al., (2024) and Melese et al. (2021) include:

- **Mobility**: Moving livestock and herders to access fodder and water in order to benefit from the highly variable rainfall and fluctuating plant and fodder availability. Modern adaptations of mobility include the use of trucks, motorbikes, and mobile phones.
- **Adaptation strategies**: Adaptation has been widely defined as activities that involve adjusting and modifying existing livelihood activity, such as increased mobility and changes in herd composition, as well as short-term measures like fodder storage or selling live animals to purchase food grain.

- **Diversification**: Engaging in non-pastoral income-generating activities, either in rural or urban areas, to cope with climate change and other hazards. Examples include farming, small businesses in urban centres, petty trading, wage labour, charcoal production, and firewood sales.

Pastoralist livelihoods have carefully adjusted to cope with low and fluctuating rainfall conditions through the adaptive and mitigating strategies described above. However, in recent years, droughts have been occurring every 1-2 years (Bogale and Erena, 2022), and severe droughts at intervals of 3–6 years, a notable increase in frequency compared to historical intervals of more than 30 years (Gabessa, 2020). Table 1 below presents a historical timeline of drought and adapting strategies in the Borana region - the region has historically experienced severe drought in intervals of 25-40 years. Since the 1980s, drought has been more frequent with severe drought occurring every 6–8 years, which is confirmed by Bogale and Erena (2022). The table also highlights the coping strategies employed by Borana pastoralists when a period with severe drought sets in. This includes the sale of animal skins and more recently transportation of livestock feed.

The timeline in the table ends in 2011; however, recent meteorological data confirm the ongoing pattern of climate change in Borana, specifically in the Moyale district. According to data from the National Meteorological Agency of Ethiopia, the maximum temperature at Moyale station increased from approximately 30.9 °C to 31.4 °C, while the minimum temperature rose from about 18.97 °C to 19.8 °C, an average increase of +0.03 °C per year over the period 1990–2023 (Begele et al., 2025). Likewise, Worku et al. (2023) report a decrease in the number of wet days and a decline in extreme rainfall events in Moyale district between 1993 and 2022. Climate data from 1993 to 2022 for Moyale show rising temperatures and more frequent agricultural droughts. Warm days increased by about 1.5% per decade, while heavy rainfall days declined and periods of drought lengthened. Monitoring from 2000 to 2020 indicates that moderate to severe droughts have become more common, notably in 2006, 2011, and 2015, posing growing risks to pastoral livelihoods (Bogale et al., 2025).

These trends highlight the increasing vulnerability of pastoral communities due to intensifying drought and reduced availability of water and forage, which continue to affect livelihoods and coping strategies in the field area. The prolonged drought from 2020 to 2022, driven by La Niña, severely affected the Borana region and neighbouring areas in Ethiopia, Kenya, and Somalia. This drought was the most severe in 70 years and resulted in at least four consecutive failed rainfall seasons (Shibru et al., 2023), exacerbating challenges for pastoralist communities by drastically reducing water and pasture availability and causing the loss of nearly 80% of pastoralists' cattle (see Figure 4 for illustration). In addition to depleting water resources and massive livestock losses, the droughts caused crop failures, rising food prices, declining livestock market prices, severe land degradation, and a critical shortage of animal feed (Shibru et al., 2023; Bogale and Erena, 2022).

	Name of Drought	Time of Gadaa Period	Time of Drought	Interval of Severe Droughts	New Development Issues
1	Oolaa Bule Dhaddacha	1768–1778	-	-	Cattle death introduced
2	Oolaa Gadaa Ungule Halake	1800–1808	1801–1803	About 30 years	No rain for seven consecutive rainy seasons but not reported livestock death; damage of tulaa wells
3	Oolaa Saqqo Dhaddacha	1809–1816	-	About 40 years	Massive death of cattle increased
4	Oolaa Qoollajii / Gadaa Guyyo Boru	1944–1952	1950	>100 years	Sale of skins of perished cattle introduced; very few Borana families-initiated rearing of camels
5	Oolaa Midhaan Diimoo / Gadaa Gobba	1969–1977	1974–1975	25 years	Emergency food ration and communal rangeland enclosure/kaloo introduced
6	Oolaa Gadaa Jiloo Aagaa	1977–1985	1984–1985	10 years	Scale up rearing of camels; food for work activity; introduction of NGOs; resettlement program; labor employment at local towns; restocking of oxen
7	Oolaa Biirtee / Gadaa Boru Guyyo	1985–1993	1991–1992	7 years	Settlements along the main roads, sale of firewood and charcoals
8	Oolaa Bubbee / Gadaa Boru Madha	1993–2001	1997–1998	6 years	Peri-urban settlements; slaughter destocking
9	Oolaa Gadaa Liban Jaldessa	2001–2009	2001, 2007	3 years, 6 years	Transportation of animal feeds by NGOs and GO; restocking of breeding livestock
10	Oolaa Gadaa Guyyo Gobba	2009–2017	2010–2011	3 years	Transportation of animal feeds by livestock owners/ pastoralists, NGOs and GO

Table 1. Summary of Drought Timeline (Gabessa, 2020).

Figure 4. Drought affecting the livestock of Borana zone in October 2022 (Bogale and Erena, 2022)

The increasing frequency of drought places extreme stress on pastoralist livelihoods. Pastoralists are forced to travel longer distances with their herds due to dry grasslands and widespread land degradation. The traditional strategy of selling livestock during dry periods, combined with the low reproductive performance of animals during the rainy season, is challenged by insufficient time for herd recovery compared to what were previously considered "normal" periods. In addition to the droughts, the Borana grazing land is shrinking due to bush encroachment, expansion of farmlands, private enclosures, and displacement of the Borana communities by neighbouring pastoralist groups (Gabessa, 2020). At the same time, traditional institutions such as “Buusa Gonofa” have weakened and are no longer effective in supporting vulnerable groups. The values of sharing and reciprocity, which underpin these institutions, are difficult to uphold as cattle numbers dwindle, resources become depleted, and the demand for support through social networks grows (Birhanu et al., 2021; Dinsa et al., 2022; Hassan et al., 2024).

This indicates that the traditional coping strategies are being severely overstretched. In addition to depleting water resources and mass livestock deaths, droughts lead to crop failure, rising food prices, declining livestock market prices, severe land degradation and a critical shortage of animal feed (Shibru et al., 2023; Bogale and Erena, 2022).

The frequent and prolonged droughts have shown to severely affect the livelihoods of the Borana people. A recent study reveals that household resilience and adaptive capacity is critically low, and that pastoralists show lower resilience than agro-pastoralists (Tofu et al., 2023). This highlights how worsening climate conditions place growing pressure on pastoral systems and contribute to more frequent disaster situations and growing humanitarian needs (Hassan et al., 2024).

Birhanu et al. (2021) conclude that extreme weather events are key drivers of widespread food insecurity among the pastoralist communities of Borana, affecting household food security through limited food access, non-appropriate utilisation and instability. In severe cases, droughts have forced families to abandon their pastoralist way of life, leading men to migrate to nearby towns in search of wage labour (Dabasso et al., 2022).

Hassan et al. (2024) indicate a strong correlation between climate conditions and conflict in the Borana region, which may lead to an increased frequency of raids and competition for pasture reported during drought periods. Conflicts, violence, land competition, land degradation, and urban expansion are all factors that further undermine pastoral livelihoods. It is challenging to find comprehensive sources that document how conflicts over water and other resources during periods of drought

impact Borana communities. Beyond these resource-related tensions, the region is also affected by the ongoing conflict between Somaliland and the Borana region, rooted in the establishment of ethnically based administrative regions and competing territorial claims—particularly in the Moyale area (Adugna, 2011). Nevertheless, our fieldwork clearly indicated that daily life in the visited communities is significantly shaped by the presence of conflict. Further details are presented in the findings section.

The imperative for community-based proactive solutions to frequent droughts

As the literature presented above suggest, pastoral livelihoods are highly adaptable to environmental changes and traditionally rely on various coping mechanisms. However, when the resources are fully depleted and resilience to drought have reached critically low levels, the impacts of climate change become undeniable.

The relationship between climate change, increasing drought frequency, conflicts, and food insecurity is complex. Resilience largely depends on the ability of the pastoralist systems to take proactive action. This requires intervention before livestock prices decline, food and crop prices rise, herds are lost, and pastoralist are forced to abandon their way of life and/or rely on food aid. Rather than responding to crises after they occur, efforts must focus on anticipating and mitigating worsening conditions.

Rainfall patterns and vulnerabilities vary significantly by location, making it crucial to engage with communities at the local level. Understanding how risks are perceived and managed, how resilience is being affected, and how community anticipatory action strategies are developed and implemented is key to strengthening long-term sustainability.

The next section presents a theoretical analytical framework grounded in community perspective on anticipatory action strategies, aiming at providing a framework for analysing and understanding how these strategies are applied and enacted in two communities within the Borana zone.

Community-based Anticipatory Action - analytical framework

This section presents the community-based anticipatory action framework that guided and informed the research methodology and shaped the analysis of the findings and recommendations.

Anticipatory action in this context refers to actions taken before a predicted hazardous event to prevent or reduce acute humanitarian impacts (REAP, 2022; OCHA, 2025).

Figure 6 below illustrates the effectiveness ‘gap’ between traditional responses and anticipatory action. The vertical axis illustrates humanitarian needs, and the horizontal axis illustrates time. The curve, thus, illustrates the increase in humanitarian needs in the time after the shock/event has occurred. While traditional responses typically begin after the shock/event, anticipatory action is triggered before the crisis and humanitarian needs has peaked, allowing for faster and often more cost-effective responses. The space between the conventional response and anticipatory action illustrates the ‘gap’ i.e. the missed opportunity to reduce humanitarian needs. Anticipatory action most often relies on early warning systems, preparedness, and pre-emptive measures to trigger responses and minimize harm. Using anticipatory action is a proactive approach that helps safeguard vulnerable individuals and communities, ensures timely resource allocation, strengthens resilience, and supports the long-term sustainability of livelihoods.

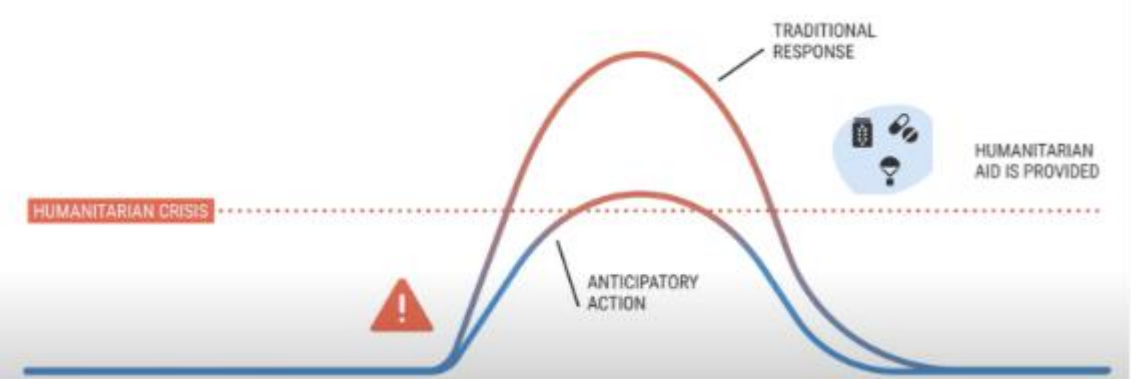

Figure 6. The effectiveness 'gap’ between traditional response and anticipatory action (OCHA, 2025).

Approach for Analysing Community-Based Anticipatory Action

Since the mid-1980s, following devastating famines in East and West Africa[i], donors and governments have invested heavily in food security early warning systems across the Sahel. Again, following the 2011 food crisis in the Horn of Africa, in response to a critical need for better and earlier warning of potential food security crises. However, these efforts have not yet translated into timely and effective anticipatory action. Past initiatives, such as Farm Africa’s 2008 project in Ethiopia’s South Omo zone, highlight the critical need for anticipatory action systems that are locally driven (IGAD, 2021). Many early warning systems have fallen short of achieving their goal of making the international community react on the early warnings to prevent or mitigate the food insecurity crises and famines they were warning about, because they lack adequate resources, adaptive mechanisms, and structural support and because funding for investing before the disasters unfold is limited. While pastoral communities understand the risks and hazards that threaten their livelihoods, they often lack the financial capacity and institutional capacity to respond effectively. When anticipatory action frameworks are too broad, they tend to ignore local priorities and fail to engage community knowledge and initiative. Moreover, as noted in the introduction, rainfall patterns vary

significantly between regions, underscoring the need for locally tailored forecasts and response strategies.

Many scholars and practitioners adopt a community-based approach as a framework for analysing anticipatory action, integrating local knowledge and contextual understanding of the environment, resources, and livelihood strategies of pastoralists. As noted by Pereira et al. (2024), structural conditions can disproportionately affect certain groups during and after disasters. A community-based approach targets all community groups - including vulnerable groups - in the action planning process, fostering a more holistic understanding of the local context and the structural factors shaping livelihoods. Similarly, Eitzel et al. (2020) emphasize that anticipatory action plans should be rooted in the community's own knowledge of their systems. A community-led anticipatory action plan is coordinated and implemented by affected populations including vulnerable groups, ensuring a multi-hazard perspective, community ownership, and timely and actionable response strategies.

To address the shortcomings of historical investment in early warning system, the research addresses the use of the community based anticipatory action as the analytical framework focusing on the specific needs of the communities and particularly vulnerable groups, timely action, and institutional support. According to WHH and OCHA the effective implementation of anticipatory action plans ideally requires five key elements (OCHA, 2025; Welthungerhilfe, 2025):

1. **Hazard Identification** – Understanding and monitoring risks and vulnerable groups as a continuous practice, incorporating historical impact data.
2. **Pre-Agreed Triggers** – Identifying triggers and establishing thresholds based on reliable, timely forecasts. In pastoralist contexts, it is crucial to integrate national forecasts with indigenous knowledge.
3. **Pre-Agreed Activities** – Defining accountable, feasible, and effective interventions to be implemented once a threshold is reached. These actions should support vulnerable groups in the critical window between the trigger moment and the full impact of a shock.
4. **Pre-Arranged Financing** – Ensuring guaranteed funding that can be rapidly released based on pre-agreed triggers and activities.
5. **Pre-Validation** – Securing validation of the action plan by key stakeholders such as NGOs, government institutions, and experts. Anticipatory action requires and promotes greater coordination, knowledge sharing, and planning between communities and external stakeholders to establish preparedness activities and build capacity in advance. Strong policies, legal frameworks, and local capacity-building are also crucial for supporting anticipatory action.

The recommendations for developing and implementing anticipatory action plans has been integrated into a framework, which is illustrated in Figure 7. The anticipatory

action planning framework will be used to analyse how communities experience and respond to hazards, their coping strategies, their coordination of planning and implementation, and the role of partnerships and support structures. It is important to keep the local context in focus. Empowering communities to implement anticipatory action requires an understanding of their perspectives and priorities, as well as the specific risks, vulnerabilities, and capacities that exist within their communities. The methodology designed to explore these aspects is presented in the next section.

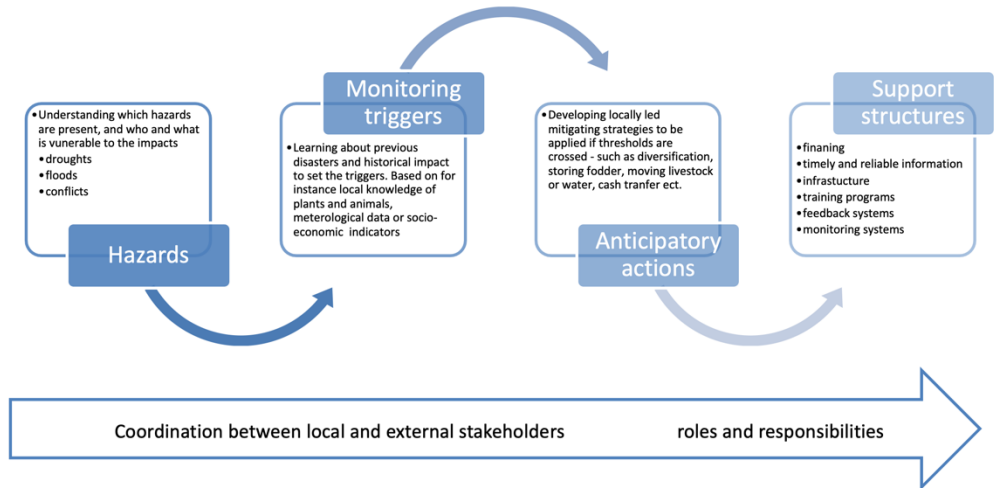

Figure 7. Anticipatory Action Plan. Adapted from Welthungerhilfe, WHH, 2025.

Methodology

This section outlines the methodological approach used to analyse anticipatory action in two Borana communities. The study employed three main methods to provide actionable recommendations for the CLAP project on enhancing community-based disaster preparedness and anticipatory action, (see Figure 8). These methods are explained in more details below.

First, a literature review was conducted to gain insights into the livelihoods of Borana pastoralists, the risks they face, their coping strategies, and the evolving challenges related to livelihoods, resources, and food security.

Second, the information from the literature review guided the questions for the focus group discussions with community representative. The interviews aimed to explore the perspectives and experiences of the communities regarding risk, coping mechanisms, and survival strategies in the face of current challenges. To further inform the focus group interviews, key informant interviews were carried out with stakeholders from CIFA Ethiopia and a representative from the Early Warning Team, Moyale Disaster Management were interviewed about institutional support and context specific issues.

Finally, a participatory action research workshop was conducted, bringing together key stakeholders from the communities where the research took place, NGOs, international programmes, and representatives from local governmental institutions. This workshop served as a platform for discussing specific challenges and collaboratively identifying potential solutions across the stakeholders relevant for making anticipatory action effective and efficient.

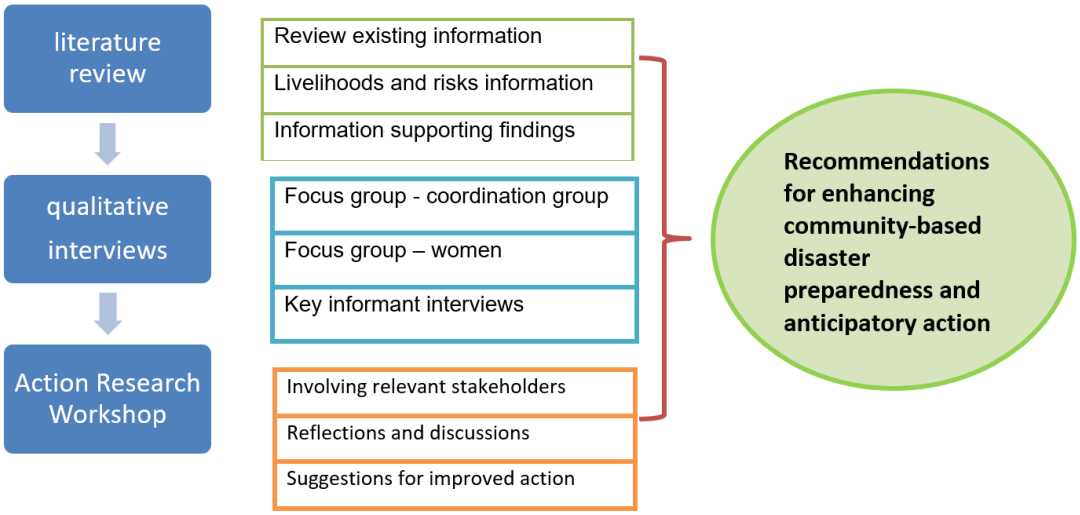

Figure 8. Methodological framework for analysing community-based anticipatory action in Borana.

Literature review

The literature review served two key purposes:

- It provided background knowledge on pastoralist livelihoods in the Borana zone, the risks and hazards affecting them, and the changes in living conditions due to climate change.
- It supported the Study's findings with already reviewed literature.

The first step involved mapping and analysing impact factors and mechanisms related to anticipatory action, community-based disaster preparedness, and the coping strategies used by pastoralist communities. With a focus on the Borana region, the review examined existing research on:

- Pastoralist livelihoods and socioeconomic conditions
- Early warning systems, early action, and anticipatory action
- Action research methodology in context
- Nutrition, health, and food security
- Risks and conflicts
- Climate change

The desk study utilised academic databases accessed through library services at UCC. Additionally, relevant data was gathered from reports by humanitarian organisations, as well as from data analysis institutions like FEWS Net on food security early warning. Recent reports shared by CIFA Ethiopia provided further insights into the current situation and trends in Borana pastoralist communities. These sources contributed to a comprehensive understanding of the factors influencing disaster preparedness and anticipatory action, many of which are specific to the Borana zone.

For background information, the study by Hassan et al. (2024), *Pastoralists' Perspectives on Early Warning, Anticipatory Action, and Emergency Response*, proved highly valuable in bridging pastoralist knowledge with external interventions and examining how pastoralists engage with climate, conflict, and other stresses and shocks. The literature review focused on the Borana region. However, some articles and reports on e.g. the institutional structures around early warning and anticipatory action have also been very useful. The report by ACAPS (2024), *ETHIOPIA: Early Warning Information Landscape*, for example, provided insights into the existing early warning systems in Ethiopia, the challenges faced, and the institutional structures governing early warning and early action in Ethiopia.

Focus group discussions

The literature review provided a broad understanding of livelihoods, risks, and vulnerabilities. The purpose of the focus group discussions was to examine how these insights unfolded in two selected communities in the Borana zone. These communities were chosen by CIFA Ethiopia, who already collaborates with them as part of the CLAP project. Communities in the Borana zone are referred to as "Gandas". The two "Gandas" visited were Mado and Mormora. Mado is one of the oldest "Gandas" in the area. Mormora was created in 2019, which used to form part of Mado (FG CMDRR Mormora).

In each community, two focus group discussions were conducted, a total of 4 focus group discussions.

- **Focus group discussions with both men and women** who have specific knowledge of early warning and anticipatory action as members of the newly established Community-Managed Disaster Risk Reduction (CMDRR²) committee. There were 28 participants in Mado and Mormora all together with some variation in attendance. The participants included men and women, younger and older individuals, traditional forecasters, community elders, abi-zonis, and people from different economic backgrounds.
- **Focus group discussions with women** to explore their understanding and experiences of risks, vulnerabilities, and socioeconomic changes from a

household perspective. The participants included women of all ages with different economic background.

The interview questions (see Appendix 1) were tailored to the different groups and were asked openly to the group to initiate a dialog. The interviews generally covered the following topics:

- Introduction of community participants
- Livelihoods, income sources, and changes in livelihoods
- Risks, seasonal changes, and their impact on households and livestock
- Monitoring triggers based on potential historical hazards and risks or shifts in the system, such as drought and conflicts
- Response and decision-making (mitigation, preparedness, and prevention)
- Effectiveness and appropriateness of responses
- Future anticipatory action and the roles of communities and external stakeholders

All interviews were conducted in the two communities, where participants and interviewers gathered under the shade of a large tree – see the frontpage of this report. CIFA Ethiopia facilitated the discussions, asking questions and translating participants' responses for the UCC partners. As is customary in Borana, the first hour was spent exchanging pleasantries and discussing community life before the formal interview began. Each interview lasted approximately three hours, with participants demonstrating strong engagement. In mixed-gender group discussions, all participants engaged actively and on relatively equal terms. Women demonstrated a clear willingness to speak openly and at length. There was a notable degree of respect shown toward elders and community leaders, whose contributions were often extended and reflective. In contrast, women-only group discussions created an environment in which participants expressed themselves more openly on topics related to gendered divisions of labour in the context of climate change and household-level decision-making. Many answers were repeated across the four interviews, indicating that key topics were explored in depth. The translators from CIFA Ethiopia played a crucial role, as their familiarity with the language and culture ensured that questions were framed in a way that was understandable in the specific context, thereby increasing the validity of the responses. However, one limitation was that participants' responses were not translated word to word. The Borana have an oral tradition in which storytelling is central to explaining events and perspectives. As a result, they tend to speak at length, and only the main content of their responses was translated into English.

Key informant interviews

Besides focus group interviews, three key informant interviews were conducted, including one interview with a CIFA Ethiopia partner on the working of insurance

systems and one interview with three partners from CIFA, Ethiopia on themes related to community livelihoods and risks in the Borana zone and NGO activities focusing on anticipatory action, e.g., insurance. Finally, a representative from the Early warning team in Moyale's Disaster Management Office was interviewed in relation to government structures and information flows regarding anticipatory action plans and early action from a government perspective.

Action research

Based on insights and learnings from the literature review and interviews, an action research workshop was conducted in Moyale to bring together relevant stakeholders. Action research is a democratic and participatory approach that involves all relevant stakeholders (Lehmann, S. 2018) in the development of anticipatory action plans. The purpose of the workshop was a) to reflect on and discuss key learning

Figure 9. Banner: action research workshop. Author's own photo

outcomes, b) to identify potential solutions for developing local anticipatory action plans, and c) to generate recommendations to inform future anticipatory action strategies.

To facilitate a participatory dialog between relevant stakeholders, CIFA Ethiopia and UCC researchers arranged a workshop at Koket hotel in Moyale (See figure 9). The participants included community representatives, NGOs, government officials, and project partners. The workshop was structured to foster a meaningful learning and development process, enabling participants to actively engage in examining and improving their own practices. The facilitation process followed three key steps, designed as follows: (see a more comprehensive description of the workshop, the vision and the themes in appendix 2):

Defining Key Issues

The workshop commenced with obtaining participants' consent regarding the use of data and photographs for this report. At the workshop, the issues and central challenges identified through the literature review and focus group discussions were presented as a shared starting point for participants.

Creating Space for Reflection and Dialogue

The facilitation of the workshop focused on providing space for reflection, allowing participants to learn from each other's experiences and collectively identify barriers to successful anticipatory action. The dialogue process within the workshop began with storytelling serving as an inspirational vision for participants, or an 'action' designed to raise awareness of participants' assumptions and practices that may hinder change (see Box 2, next page). The aim of the action was to encourage the participants to envision a successful implementation of community-based anticipatory action and start a dialogue of "who needs to do what differently" to achieve that vision.

Following this, participants were divided into six dialogue groups. The groups comprised of representatives from the communities, NGOs, and government. Each group included considerable variation in terms of age and gender – see an example of a group in Figure 10. The groups we given the following themes – predefined by UCC - to discuss and reflect on (hand-outs):

- Even if early warning information is available, it does not translate into anticipatory action. Why? What went wrong? At the community (Ganda), government, and NGO levels.
- What can be done differently next time? At the community, government, and NGO levels.
- Why is it so difficult to shift the focus from emergency response to prevention and mitigation actions?
- How can early warning, response, mitigation, and preventive actions be strengthened?

Learning and Action

After discussing challenges from different perspectives, the groups were asked to propose potential solutions and actions to address the identified issues. These were then presented to all participants. The aim was to empower participants to take ownership of possible development pathways. The proposed solutions have been incorporated into the recommendations section of this report. Throughout the workshop, participants demonstrated high energy and engaged in lively discussions across all groups, ensuring that all voices were heard. Each group documented their key reflections and proposed solutions on posters for the final presentation. This written documentation aimed to consolidate ideas and inform the project. While some participants with limited literacy

skills may have found this approach challenging, all appeared actively involved in discussing the content of the posters.

Language posed a methodological limitation, particularly for the action workshop. It was decided that the entire workshop would be conducted in Borana, as translating all discussions into English would have been too time-consuming and taking focus away from discussing the key issues. Instead, only the group presentations and poster content were translated into English.

Collaborative efforts between local leaders, local NGOs, international aid organizations, and local government bodies, an Anticipatory Action System (AAS) is introduced at Ganda level in Borana.

When signs of drought, e.g., emerge, the AAS is activated.

Vulnerable households receive 'cash transfers' they can use to buy fodder for livestock and essentials for families.

These actions keep livestock alive and ensure health of the population. Eggs are not sold in the market but given to the children. Also, communities keep rangelands, and water points clean and well-managed, natural resources are not depleted and there is no overuse of bushes, rangelands, water and trees.

As a result, the conflicts between neighbouring clans are minimized

Resilience of the households and communities are strengthened:

Busa Gonofa works

There is more 'energy' to focus on more long-term and sustainable livelihood strategies such as storing fodder, mixing pastoralism with other income sources such as agriculture, investing in drought resistant livestock and water systems.

The *Gandas* also start to collaborate and share market information to better take control of livestock prices and markets.

The Anticipatory Action System involves:

- Mixing traditional and modern forecasting to predict threats, e.g. rain and drought patterns and sharing this information enabling relevant and timely action.
- A Ganda-managed resilience fund that distributes financial aid to households before a crisis unfolds based on monitoring the resources and health of the population and the condition of livestock.
- Empowering of Ganda-based decision-making committees (CMDRR) responsible for deciding which community households are most vulnerable to the crisis.
- CMDRR committee will also manage a 'Ganda investment fund' and identify what are the priorities of the Ganda in terms of investment in water management such as repairing wells, building reservoirs or harvesting water.
- Localized conflict mediation – organizing dialogues to prevent conflict over resources.

Box 2. Aspirational Vision. Develop by the UCC partner for the action research workshop

Participants expressed to the UCC partners that they highly valued the opportunity to meet and understand different perspectives, as representatives from NGOs, communities, and the government do not typically interact in this way. Therefore, dedicating time to facilitate coordination among community participants proved to be a valuable decision. However, the process faced some limitations, as many valuable insights and quotes were lost due to the lack of translation into English. The English documentation consists only of poster presentations summarizing the main points from

the group dialogues, with each group producing three to four sheets for their presentation. In addition, the workshop was constrained by time, leaving no opportunity to carry out a formal evaluation.

Analysis

To analyse the three methodological components - literature review, focus group discussions and KIIs, and the participatory action research workshop - this study employed a combination of thematic analysis and interpretive synthesis. Each method was subjected to a qualitative interpretative approach, wherein data was coded in relation to the predefined themes, but also inductively identified recurrent patterns, categories, and emerging themes. The literature review provided a foundational contextual framework, offering a descriptive baseline of key concepts such as pastoralist livelihoods, early warning systems, and anticipatory action. This background informed the subsequent empirical methods. Data from the focus group discussions were analyzed through thematic analysis given by the interview guides. Here, the analytical focus is on lived experiences, coping strategies, and community perceptions of institutional support. Finally, the participatory action research workshop was analyzed using principles of collaborative inquiry and dialogical reflection. The workshop outputs, including group posters and recommendations, were evaluated to capture stakeholder-driven problem framing and solution generation. In this process, new themes emerged in the discussions. Combined, these methods formed a coherent analytical strategy: the literature review grounded the inquiry, the focus group discussions and KIIs provided in-depth perspectives from affected communities, and the workshop facilitated multi-stakeholder interpretation and co-construction of knowledge. This methodology allowed for an interplay between descriptive insights and interpretive understanding across methods and supported the formulation of contextually grounded recommendations for anticipatory action. The findings were analysed using the anticipatory action framework (Figure 7) as a guiding structure. The findings are therefore presented in alignment with the frameworks' steps and key components allowing for emerging themes.

Findings

The Ethiopian Disaster Risk Management Commission published *A Roadmap for Multi-Hazard, Impact-Based Early Warning and Early Action System 2023–2030. Building Disaster Resilient Communities in Ethiopia* (EDRMC, 2022). This document should be used as a reference document for stakeholders working with anticipatory action in Ethiopia.

Throughout the findings section, the traditional terms for the different administrative levels in Borana region will be applied to reflect the terminology used by the research

participants. The Oromo Borana administrative structure combines the official state-level hierarchy with the indigenous Gadaa system, see below.

Level and official administrative system	Gadaa system	Place name example
2 Region		Oromia
3 Zone		Borana Zone
4 District	Woreda	Moyale
5 Kabele	Ganda	Mado
6	Each Ganda is divided into three zones headed by an Abba-Zoni	Zone
7	Each zone is divided into villages	Village
8	Each village is organised in toko-shanis (one-five), consisting of five household	Toko-shani

Source: CIFA Ethiopia

Mado has 1,208 households, 14,500 inhabitants and 95 villages. In Mormora there are 1,045 households and 8,305 inhabitants (FGD Mado and Mormora, CIFA Ethiopia).

Livelihoods

The purpose of anticipatory action is to support people by protecting their lives and livelihoods before an (imminent) disaster causes damage (WHH A, Anticipatory Humanitarian Action - Welthungerhilfe, accessed May 9, 2025, at 1100). Knowledge about livelihoods is therefore key to anticipatory action. Knowledge about livelihoods allows for locally relevant hazard identification as it provides the basis for identifying the hazards that can affect people's livelihoods, and thereby their access to income and food. The direct impact of drought, for instance, will normally be bigger for pastoralists and farmers than it will for fisherfolk; price increases will be felt by those that purchase; a decrease in the availability of food aid will impact families that depend on it, and a drought will impact people that rely on rainfed agriculture.

Both Gandas visited for this research used to be entirely pastoralists, but several households have diversified their livelihoods to include agriculture to increase household food security.

According to staff from CIFA Ethiopia and FGD participants in the Gandas, the population in Mado and Mormora lost all their livestock in the latest prolonged drought from 2020 to 2022 (focus group with women in Mormora, Women Mormora, CIFA Ethiopia). This loss made it difficult for the population to reestablish their livelihood, as it "takes a long time to harvest livestock" (CMDRR Mado). A woman in the FGDs in Mormora reported the following: "Livestock herding is not sustainable, there is nothing

to sell for 1-2-3 years" meaning that from you acquire the young livestock it takes up to three years for it to produce milk and to reproduce. According to FGD participants within both Gandas, households have therefore diversified into agriculture. Main crops grown are Malkaza maize and beans, and vegetable gardens with kale, onion, and tomatoes for consumption (FGD CMDRR and Women, Mado).

Crops and vegetables can be harvested within months from planting, providing food faster than livestock, if it rains or if there is access to water for irrigation (FGD CMDRR in Mormora). During the 2024 Hagaya rainy season, people planted, but did not receive rain, did not have access to irrigation, and therefore lost their seeds and crops.

Other factors reported to increase household diversification into agriculture include climate change (mainly droughts) degrading pasture and rangelands, conflict which have restricted access to grazing and water sources, and population growth, which has further reduced access to available rangelands (FGDs with the CMDRR in Mormora and Mado).

According to FGD participants, about 70% of the households in Mado are pastoralist and 30% also engage in crop cultivation (FGD with the CMDRR in Mado Ganda and CMDRR Mado). In Mormora, 80% of the households are pastoralist and 20% combine livestock rearing with crops (CIFA Ethiopia programme staff).

Income and food sources

Knowing how people access their income (for instance, crop and livestock sales, wage labour, and remittances) and food (own crop/animal production, market purchases using cash or credit, safety net programs, or gifts) is key for the early warning systems, as it provides important information on which hazards to include in the system, namely hazards that can reduce peoples access to income and food.

Income sources

Traditionally in Borana culture, the main income has been controlled by men and generated from selling livestock (cattle) and milk in Tukha and Moyale markets. However, following the 2020–2022 drought, households lost all their livestock to the drought, and are still struggling to rebuild their herds. Consequently, there is no current income from this source (FGD participants, CIFA Ethiopia).

In response to this crisis, women began earning income through firewood sales on the roadside and the Moyale DRM office and CIFA Ethiopia supported women's groups in the Gandas with poultry, goats, and vegetable gardening. The women sell some of the eggs and some of the goat milk in the market, the rest is for consumption. A few women also engage in petty trade (they bring onions, coffee, sugar, and tobacco from the market to sell in the village) (FGD Women Mado). Some people, mostly men, go to the cities to look for work, if they have not been successful pastoralists (CIFA Ethiopia).

The activities described above, have changed the role of women in the households. Traditionally, Borana women support the husband in livestock rearing and did not have an independent role as income earners. Currently women are the main income earners, and their income contribute to household food security. However, the activities that the women engage in are not part of traditional pastoralist livelihood and therefore they might not be included in the traditional risk identification and forecasting systems.

When people in the Gandas take livestock, or other products, to the market to sell, they do not know the going price. They will talk to the last person that has sold livestock, or has been to the market, and will ask for the price at that time. Other times, they get the price information from livestock traders, who sometimes come to the Gandas to buy in bulk. But as they said in one of the FGD: "A person who has just sold is more reliable than the trader" (Women Mormora). However, if they need the money, they will sell at whatever the price is (CMDRRs Mado and Mormora).

Food sources

The main staple food in Borana Zone is *borche*, a porridge made of dried maize. Milk and milk products from their own livestock complements the diet if they have access to it, if not, they will drink strong tea instead of milk (Women Mado). Households with chicken can get eggs and some families produce maize and other crops, but the majority will purchase the maize in the market. Reportedly currently most families receive the maize used for borche from food aid (CIFA Ethiopia).

According to the women in the focus group in Mado, where the local health worker participated, breastfeeding is part of the Borana culture, and it has traditionally been effective. But the 2020 to 2022 drought reduced breastfeeding: "When the Borana's had lots of livestock, women could breastfeed. Today, there is less livestock, less food for the women, worse health, and breastfeeding is down". The reasons being that with no livestock, there is no milk for the women to drink; and the men cannot slaughter a piece of cattle after the woman has given birth to provide meat for her to eat, as they would have done in the past, resulting in less milk production for the babies (Women Mado).

Both Gandas receive PlumpyNut[1] and Corn Soya Blend (CSB)[2] to treat severe acute malnutrition in children and pregnant and lactating women to improve the nutritional intake and help keeping people alive. The health workers reported that the need for therapeutic and fortified foods is larger than the availability (Women Mormora and Mado, Health workers).

[1] Ready-to-use therapeutic food used for severe acute malnutrition. https://nutriset.fr/en/products/plumpynut-en/

[2] Corn Soya Blend (CSB) is the main fortified blended food distributed by WFP. Fortified Blended Foods are blends of partially precooked and milled cereals, soya., beans, pulses fortified with micronutrients (vitamins and minerals). https://www.wfp.org/specialized-nutritious-food

Hazards and risk identification in anticipatory action

Hazard identification is an important first step in anticipatory action. It involves determining the hazards a community might face and understanding their potential impact. This information is then used to develop early warning indicators and set triggers for anticipatory action and response (next section).

Drought and water scarcity

The hazards most often mentioned, also when not talking specifically about hazards, were drought and water scarcity. Ganda members experience that droughts have come in more frequent cycles in the last five years. The pastoralist in the Gandas struggle to cope with the droughts and their increased frequency: "Drought affects everybody. Conflicts are few and local, but drought is a natural hazard, and you cannot control it. It comes with no fear. Conflict however, you can prepare for. It depends on your capacity" (CMDRR Mormora).

Drought severely impacts pastoralist livelihoods by disrupting their access to essential resources like water and pasture, leading to livestock losses, and reduced income leading to increased food insecurity. The women in the FGD in Mado put it this way: "With the drought there will be no water for agriculture, livestock will die, and this will result in hunger, diseases, and conflict between Borana and Somali."

Conflict

The political context in Ethiopia does not support an open dialogue on peace and security issues, and peace and conflict data are controlled at the national level and is not communicated to lower levels (ACAPS, 2024). Officially, conflicts between the clans do not exit and cannot be discussed openly (CIFA Ethiopia, ADRA Denmark), and therefore the mentioning of it was limited in the FGD and action research workshop.

However, participants in the action research workshop shared information about the traditional forecasting systems in Borana providing adequate conflict early warning information at grassroots level. This data is often not shared with people from outside the Ganda and is therefore 'overlooked' by external data collectors. The traditional forecasters and other with knowledge about conflict fear intimidation from the government if they share it. Sometime people are accused of having prior knowledge about what they predict, e.g. conflict. So, conflict early warning is shared informally, and only among Borana (Action research workshop, CIFA Ethiopia).

However, the Ethiopian Government's *A Roadmap for Multi-Hazard, Impact-Based Early Warning and Early Action System* (EDRMC, 2022) highlights that Ganda DRR profiles "need more data on conflict" (p. 10) and they refer to a "Head of Conflict Early Warning" in the Ministry of Peace (p. 54), representing a potential opening.

Conflict is an ever-present topic because it severely restricts pastoralist livelihood in the Borana zone. Conflict restricts access to water and grazing lands and limits the migration with livestock, which is the heart of pastoralist livelihoods, making them more vulnerable to dry periods and drought. The main conflict part is the neighbouring Somali region, where local peace groups exist. They meet under the auspices of government authorities, to resolve ongoing conflicts and resource disputes like livestock theft and migration accesses. According to the FGD these groups are often successful in resolving the disputes.

A clear link between drought and conflict was reported in the FGD and action research workshop. The Borana traditional Gada system is in transition (eight-year cycles) during 2024/25. During these times the FGD reported there is fear of political instability and conflict. “This time is never smooth” (CMDRR Mado). There were ongoing peace talks between Borana and Somali regions in Moyale in November 2024 and reports on killing. Local armed men were patrolling the Ganda.

Participatory scenario planning

In the two Gandas we visited, hazards and risks have been identified in participatory scenario planning workshops supported by CIFA Ethiopia. The lists of the hazards and risks were hanging on the walls of the Ganda chief’s office and were: Droughts, conflict, volatile political situation, Gada transition, climate change, malnutrition, animal and human disease outbreak (they named TB, HIV, cholera, and ebola), new types of diseases, US election, invasive plants and bushes taking over rangelands, water scarcity, irregular or no/too much rainfall, lost access to rangelands, especially at the borders to Kenya and Somali region (FGD with CMDRR and Women in Mado and Mormora).

All these hazards have direct negative consequences for the food security situation in the Gandas:

- Local food availability is limited because the hazards limit livestock production and derivatives and/or the growing of crops and vegetables (climate change, drought, conflict, livestock diseases, invasive plants and bushes taking over rangelands, water scarcity, irregular or no/too much rainfall, lost access to rangelands).
- Food access is limited because household access to the consumption and income generation from the production of crops, vegetables, livestock, and derivatives get limited (same hazards as above).
- Food utilisation is negatively impacted by reduced access to clean water and poor health (droughts, malnutrition, and diseases).
- Stability is threatened by volatile political situation, Gada transition, climate change, and US election.

The focus group participants did not mention the risk of losing food aid but did say that without the help of the government and NGOs, the situation would be difficult (United Nations World Food Programme, WFP, is referred to as an NGO).

With new livelihoods there will be new ways that hazards can impact people's food and income, and hence their food security situation, and climate change.
The IPCC Sixth Assessment Report highlights that human-caused climate change is increasing the frequency and intensity of extreme weather events, increasing the risk of cascading effects and the areas that different hazards impact is broadening (IPCC, 2023).

Monitoring hazards and triggers

In modern early warning and anticipatory action systems, monitoring hazards and setting triggers (specific threshold values that determine when to act) are key for timely and effective response (Anticipation Hub, n.d.). It involves continuous monitoring of hazards and trigger information like climate outlooks, weather forecasts, health and disease data and satellite imagery enabling timely detection of when hazards might present a risk that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation (UNDRR, 2017). Once threshold levels are reached, it triggers an early warning and activates predetermined anticipatory action plans, ideally including the release of pre-agreed funds for anticipatory actions such as providing cash transfers to prevent or mitigate the humanitarian impact.

In Borana Zone there are two types of early warning systems, the traditional and the modern. The key elements of these two systems are described below and are based on descriptions from the FGDs.

Monitoring hazards and triggers in traditional early warning systems
The traditional early warning system consists of traditional forecasters referred to as Uuchus (intestine readers) and Ayyaantuus (star and planet readers). They predict[3] what will happen, when and where it will happen and to whom. They predict fortunes and misfortunes reading the natural environment at Ganda, Woreda, and Zonal levels. They also predict upcoming events such as good season or droughts, periods of conflict or peace, and/or disease outbreaks (FGD and action research workshop).

As mentioned, Ayantus and Uuchus each have their domain. However, in addition to reading intestines, planets and stars to predict the future, they also monitor other indicators to make their forecasts including cattle, human, dog, and wildlife[4] behaviours,

[3] Predict is the direct translation of the term used by the FGD participants; we perhaps would use forecast instead.
[4] Examples include: If donkeys feed on wet pasture and dry leaves & branches, even when there is green pasture available, it is an indicator of drought. When donkeys bray and others follow, it is also a sign of drought. When the dogs then start, it is an even stronger indicator

the greenness of nature[5], livestock disease, and the moon (Gabessa, 2020; FGD). An example of using cattle to 'predict' the future was mentioned in a CMDRR FGD in Mado, where participants mentioned that although the past three seasons had been relatively good, the cattle did not fatten. According to the FGD participants, this was a bad sign that indicates misfortune is to come. It was referred to as 'no finna', meaning that the cattle did not fatten despite having access to pasture and water (CMDRR, Mado).

The Ayantus and Uuchus observe and analyse 90-day periods by breaking them into shorter intervals and monitor daily changes in rainfall, wind, and temperature (CMDRR, Mormora) and take pride in knowing nature´s signs in their area very well (FGD Mormorra). It was, however, also mentioned that climate change makes it more difficult to forecast future events, both for traditional and modern forecasters (Women Mado).

When the 'Uuchus' and 'Ayantus' predict the future, they look at their respective domains: intestines and the sky[6], and from that they infer threats to and opportunities for their community[7]. Unlike the modern early warning and anticipatory action systems, traditional forecasters do not set up single hazard monitoring systems. Rather, they have a multi hazard approach where they monitor a wide range of indicators that may have interconnected effects (FGD; Hassan et al., 2024; ACAPS 2024). It is the combined effect these indicators might have for people's lives, livelihoods, food security, and nutrition they act on. Each indicator alone, might not reach a critical level, but in combination with other observations, traditional forecasters will make a warning and recommend fellow Ganda members to take anticipatory action to mitigate or prevent a forecasted risk or crisis. Traditional forecasters do not only monitor hazards with negative potential, as modern system will do, but the overall variability in their environment (Gabessa, 2020). Managing this variability forms part of daily decision making sustain their livelihood, and recent research calls for a shift from a focus on predictability of hazards to uncertainty management when working on early warning with pastoralist, recognising that not everything can be controlled as the modern system's approach to early warning and anticipatory action might suggest. This challenges the modern single hazard early warning and anticipatory action systems and must be considered in the elaboration of locally led anticipatory action (Li, 2007 in Hassan et al., 2024).

Traditional forecasting, like the rest of the Borana culture, is based on an oral culture, and there are therefore no written reports on hazards, risks or disaster history or impact, on early warning systems or anticipatory action. This is an additional challenge in the combination of the modern and traditional knowledge systems.

[5] They mentioned, that if nature is not green on the 2nd day of the new moon, it is a bad sign indicating drought.
[6] Recognising that they monitor more indicators than these two.
[7] 'Community' refers to the Borana Oromo community

Finally, the activation of anticipatory action is suggested as a response to an identified hazard to prevent or mitigate the humanitarian impact that the hazard might result in. However, the population living in Borana Zone are already suffering the humanitarian impact. The Borana Zone is in the middle of a crisis already, struggling to make ends meet and receiving food aid (CIFA Ethiopia). This must be considered designing and communicating the anticipatory action systems, as its activities are not being implemented in a situation free from current impacts of hazards.

Monitoring hazards and triggers in modern early warning systems

The modern early warning systems[8] that the Ganda communicated knowledge and use of include weather and climate monitoring by the Ethiopian Meteorological Institute (EMI) in Addis Abeba, and at Ganda level the monitoring of nutrition levels of children < 5, pregnant and lactating women, and elders by the health worker. The health workers send nutrition data to the health office in Moyale Woreda every week (Women Mado and Mormora).

We did not obtain information of any other systematic modern early warning monitoring or information sharing taking place in the Gandas, for instance on conflict, livestock and human diseases, or prices (For an overview of available early warning systems in the country refer to ACAPS, 2024). The Ganda populations in the area visited do not access forecasts from the EMI or ICPAC (The Intergovernmental Authority on Development's Climate Prediction and Applications Centre) websites. They are challenged by network constraints and illiteracy. They also do not receive the information by radio (CIFA Ethiopia). They do however receive the consolidated forecasts elaborated jointly by traditional forecasters and the EMI, see next section.

Adding value to existing approaches: Combining hazard and trigger monitoring approaches in the traditional and modern forecasting systems

At the centre of localised anticipatory humanitarian action, is the aim to add value to existing approaches. Modern and traditional forecasters from EMI and Gandas in the area meet in advance of the rainy seasons to discuss their respective forecasts and consolidate a joint outlook and anticipatory action recommendations for the coming rainy season[9]. The participants use participatory scenario planning in the process. These meetings are coordinated with the DRM office in Moyale and financed by CIFA Ethiopia. According to the traditional forecasters and NGO representatives we met, the meteorologists from Addis Abeba had called the traditional forecasters after the meeting in October 2024 to tell them the traditional forecasters had been right in their forecast. This recognition of their work was obviously important to the traditional forecasters and the participants in the focus groups (FGD CMDRR Mormorra).

[8] Modern forecasting systems are here defined as systems that do not form part of the traditional forecasting system

[9] The short rainy season: Hagaya runs from September to November and the long rainy season, Ganna, runs from March to May. So, the length is the same, but there is more rain in Ganna.

These meetings are not representative of the use of traditional forecasters' knowledge in national early warning systems. The FGD and the 2023 National Roadmap mentions that sufficient attention is not yet paid to embracing and embedding such knowledge into the country's early warning system. The participation of Gandas in the design and decision-making of Woreda and community-based early warning response has often been limited, and community feedback mechanisms are not effectively utilised to prompt early actions (National Roadmap, 2023). To be able to do that it is important to understand how the traditional forecasters work, and what the differences are. The systems work in very different ways and to build essential trust, community sensitisation is an important part of the early warning efforts (ACAPS, 2024).

Gaps in existing early warning systems

In general, EWS in Ethiopia are heavily focused on natural hazards, primarily drought and subsequent consequences on food security. Conflict-related early warning information is not well integrated into early warning systems, also given its sensitive nature. It does exist, but it is either controlled at the national level and not shared at the local levels, or it is generated at the local levels by traditional forecasters and not shared beyond the Gandas because forecasters fear intimidation (see section on Conflict p. 32). This has implications for the anticipatory action systems; if anticipatory action systems address a single hazard in a multi-hazard context, it risks losing effectiveness (ACAPS, 2024).

There is a close relationship between health and disease in humans, domestic animals and wildlife, which is not being monitored. Setting up an integrated early warning system linked to the monitoring and joint risk analysis of the interfaces of humans, animals, and the environment would be important to detect spillover events, where diseases in animals might spread to humans, while anticipatory action and containment is still a feasible option (WHO, 2022).

The 2023 - 2030 National Roadmap addresses some of the above challenges and will, expectedly, expand the monitoring from the current drought-related scope and include multi-hazard geospatial indicators with particular attention to risks related to nutrition, public health, conflict, and displacement in the country. According to the UNDRR and the World Meteorological Organization, WMO, there is progress in the implementation of the Roadmap (UNDRR and WMO, 2024). However, the Roadmap was launched in December 2022 and the implementation at Woreda level is still pending (CIFA Ethiopia).

When analysing the effectiveness of the current early warning systems in Borana Zone, there are different weaknesses as described below. Each of them illustrates a different situation that makes EWS less effective and may hinder effective and efficient anticipatory action.

- FGD participants identified conflict as a hazard to food security that is not currently monitored, officially. This is also confirmed in ACAPS' 2024 assessment of the early warning information landscape in Ethiopia.
- Other hazards are monitored by the traditional forecasters and the health workers in the Gandas, such as undernutrition, weather, and conflict, and their developments are communicated to the relevant levels; Woreda Health Office in Moyale, and the EMI. However, the participants in the workshops in the two Gandas reported not receiving feedback or resources from the higher up administrative levels to help prevent or mitigate the situations early warned for (FGD CMDRR Mado, Mormora).
- A last situation takes place when indicators are monitored but the information does not reach the right people in a timely fashion, and the situation developing is not reacted upon. This seems to be the case with information on conflict. As mentioned previously, conflict cannot be talked about openly and therefore conflict early warning does not reach the right people in a timely fashion and is not included in the EWS.

When early warning system do not function, there is no time for anticipatory action and populations will receive the full impact of the hazard and they must cope with the situation. The coping strategies used in Borana Zone can be relevant as 'late warning indicators'. See the section on *Anticipatory action systems in food security and livelihood crisis situations* for a list of the coping strategies used in Borana Zone.

Early warning and anticipatory action communication

Communication and dissemination systems are key in ensuring people at risk receive advance warnings through information exchanges made at national, regional, and/or Woreda levels. Below is a presentation of the systems that are used in the area visited.

Communication and dissemination of locally produced early warning information to instances outside the Ganda

One of the tasks of the CMDRR committee is to monitor and provide information on early warning information and local capacities to the government through the Woreda levels on a regular basis (FGD CMDRR). According to one of the new Ganda chiefs, the CMDRRs have regular meetings with line departments' representatives for information exchange both ways. This was not mentioned by the regular CMDRR members.

The public sector health workers in the Gandas also reported that they pass on information on nutrition levels of children < 5, pregnant and lactating women and elders, to the health office in Moyale Woreda every week. To their understanding, nutritional monitoring information from other Gandas in the Woreda is collected there and sent further 'up' the system until it reaches the health ministry in Addis Ababa. Health

monitoring is instrumental in anticipatory action because it allows for taking proactive measures to protect vulnerable populations, such as children and pregnant & lactating women, from malnutrition before it worsens.

Traditional forecasters reported that they also share their traditional knowledge with the DRM office in Moyale on a weekly basis (CMDRR Mado and Mormora) allowing for a more central monitoring of the situation in the various Gandas in the Woreda and allowing for consolidation of information, early warning, and anticipatory action.

All parties communicate their information via phone, and in regular meetings with respective counterparts. The health workers register data on predesigned forms on paper (CIFA Ethiopia). So, the communication from the Gandas to higher administrative levels appear to be in place.

Communication and dissemination of early warning information in the Ganda

Information within the Ganda is shared in different ways, mostly through person-to-person contacts. The early warning information shared is generated by the traditional forecasters, alone or with the EMI (see the section *Monitoring hazards and triggers in modern early warning systems*, p. 35), or comes from NGO's, from workshops or from visits to the market, when it comes to price data. FGD participants reported that early warning information and advice on anticipatory action is shared in CMDRR meetings, where they also make decisions on how to interpret the information and which advice to give Ganda members, based on the analysis. The members of the CMDRR will share with their household and in other groups where they participate. The Abba-Zonis form part of the CMDRR, and they will reshare the information and advice in their respective zones. FGD participants also reported to obtain information, from their participation in various government and NGO meetings and activities. Women reported to share in the women's group, and at social gatherings and ceremonies.

In the action research workshop groups informed that the early warning is not always well disseminated in the Ganda (groups 3 and 4), and FGD participants reported that relevant early warning information exists at Woreda level (rainfall, water, pasture, livestock market price information) that is not communicated to the Ganda level through the official channels. They sometimes receive it from NGOs.

Finally, it was reported that sometimes the population does not understand the early warning information they receive and do not know how to use it and how to react to it (Group 3). It was not mentioned whether this refers to modern or traditional forecasting early warning.

Locally led anticipatory actions

Locally led anticipatory actions refer to the actions employed in the Gandas to prevent or mitigate the full impact of a hazard or risk situation. The actions are carried out in the window of opportunity between the trigger moment and full impact. In both Gandas, a wide range of, what would be called anticipatory action according to the definitions provided in this report; have been and continue to be implemented in response to early warnings, primarily issued by traditional forecasters or NGOs, as previously noted.[10]

In general, forecasts and early warnings issued by traditional forecasters in the Borana Zone focus on outcome and risk rather than individual hazards and thresholds, as also noted above in the previous section. Traditional forecasters elaborate a forecast for what they expect of the coming rainy season, and based on that send out, what the FGD referred to as 'messages' suggesting what to do to prevent or mitigate the anticipated risks. This implies that the advised 'anticipatory action' does not necessarily respond to one, single hazard, but the combined analysis of all the factors the traditional forecasting system consider.

Buusaa-gonofaa[11], described earlier, is an indigenous social protection mechanism among the Borana Oromo in Ethiopia. It functions as a traditional anticipatory action tool, where households in need can apply for support. The idea of sharing is based on the recognition that there is uneven resource access and capacity to respond to shocks (Wako et al., 2023). If elders estimate that the applicant has lost livestock because of carelessness, they might not help (Women Mado).

Examples of previously employed anticipatory action in the Gandas visited
FGD participants reported that the CMDRR interpret available early warning information, mainly from traditional forecasters and EMI (the seasonal forecasts for the rainy season), and based on that they elaborate advice for the Gandas on which anticipatory action to take. Below the examples shared in the FGD and action research workshop.

Farming related advice on how to address forecast:

- Diversification and adaptation into crop and vegetable production
- Increased acreage for farming
- Use of early maturing crops (beans, teft, wheat)
- Use of drought resistant crops (such as teft)
- Plant vegetable gardens: kale, onion and tomatoes for consumption

[10] Keeping in mind that they have been meeting with EMI before each of the two rainy seasons to consolidate forecast and recommended anticipatory action over the last few years.
[11] There is no word for disaster risk reduction, DRR, in Borana Oromo, and therefore the concept is also applied to refer to DRR and DRM, Buusaa-gonofaa and Buusaa-gonofaa offices respectively (CIFA Ethiopia).

- Use of tractors to prepare land for planting (only the wealthier families can afford to this). Normally people plough the land with oxen, but after the 2020-2022 drought, where the population lost their livestock, they have been doing it manually. This is a slow and physically hard process.

Livestock related anticipatory action advice:

- Improve water management
- Regulate access to water for livestock by implementing scheduled time slots for users
- Enclosure of livestock to save pasture
- Protect pasture by not using certain areas for grazing and reserve it for the dry season
- Preserve hay for dry season
- Structure grazing in orderly manner[12]
- Migration with livestock to where rain and access to water is better than in Mado and Mormora respectively. This action is being limited as conflict with the Somali Region to the east, and border control with Kenya to the south prevent pastoralists from moving freely; and population growth increases the competition for access to rangelands and water.
- Use of open enclosures for livestock
- Use of traditional deep singing wells[13], when there is no water available for livestock elsewhere (must migrate to get there)
- Rangeland preservation and management
- Pasture preservation and management
- Livestock vaccination
- Pasture cultivated with distributed seeds
- Destocking livestock when price is good

Other/combined

- Harvest rain
- Preserve maize cops for silage instead of burning them
- Clean and maintain wells and ponds (referred to as dams) and their influxes
- Water trucking by government and CIFA Ethiopia
- Construction of ponds to increase access to water and thereby mitigate drought impact (Government and NGOs)
- Maintenance of water pumps
- Merry-go round savings in the women's group. The savings can be borrowed by those who need it and repaid when there is money to do that
- Index-based livestock insurance (IBLI)

[12] The above livestock related advice, together with the recommendation of using early maturing crops (beans, teft, wheat) was given to the Ganda members in October 2024 by the CMDRR.

[13] https://www.dec.org.uk/story/ethiopia-singing-wells

– Promote a culture of family saving

Examples of anticipatory actions introduced by NGOs and others after 2020 – 2022 drought and livestock losses

Use of Index-based livestock insurance (IBLI)[14]

Many of the households in the two Gandas visited for the field work for this research have taken out index-based livestock insurance (IBLI) to help prevent and mitigate economic livestock related losses caused by drought (FGD). The insurance is based on livestock protection rather than livestock replacement, meaning that financial compensation is activated to keep livestock alive rather than waiting for it to die. If satellite images reveal a predefined level of drought, the insured pastoralists receive the payment allowing them to take preventive and/or mitigative anticipatory action to save their livestock, for instance by having water trucked or purchasing fodder.

IBLI enables pastoralists to, anticipatorily, protect their livestock and maintain their livelihoods when facing drought. As climate change continues to threaten the well-being of pastoralist communities in East Africa and beyond, tools like this are essential for preserving their dignity and resilience (Ballantyne, P. 2025).

More than 10,000 pastoralist families in Borana Zone and 7,816 households in four Woredas of the Somali Region had already taken out IBLI to mitigate the risk of disasters in 2021 (IGAD, 2021). More recent data report that a total of 84,646 pastoralists in Oromia, Somali South Ethiopia and Southwest regions are covered by the DRIVE Index Based Livestock Insurance product being sold in Ethiopia in 2024. (DRIVE n.d.). In the Gandas we visited, households started buying IBLI after the 2020 to 2022 drought (CIFA Ethiopia)[15]. The FGD participants said that the livestock insurance is necessary but challenging: “Livestock insurance isn’t working, but likeable. It is about protecting our animals” (CMDRR Mormora). The challenges experienced with IBLI were the following:

– Unclear information about the conditions, premiums, and payments
– Difficulty in obtaining bank accounts and set up payment schemes
– Uncertainty about how and when the insurance is activated
– Uncertainty about when insurance takers can expect pay-out
– Government restrictions on how much money can be withdrawn from a bank account

[14] IBLI is a livestock insurance based on the use of satellite imagery and was created by the International Livestock Research Institute (IGAD, 2021). IBLI uses the Normalised Difference Vegetation Index (NDVI), to quantify vegetation greenness. The NDVI interprets vegetation density and assesses changes in plant health by comparing current conditions to long term averages, LTA (USGS, 2025).

[15] IBLI was introduced by the International Livestock Research Institute and implemented by NGO's Ayuda en Acción and CIFA Ethiopia and Oromia Insurance Corporation (OIC) in Borana zone; and with the World Food Programme (WFP) Ethiopia Country Office in collaboration with the Somali Regional Government and four insurance companies (IGAD, 2021)

To overcome the above challenges with IBLI it will be key to maintaining support for the insurance scheme. The insurance is based on a technology (see footnote 14) that cannot differentiate between different types of green, and therefore it will not discriminate well between invasive scrubs and bushes, that livestock cannot eat, and pasture that the livestock can eat (FEWSNET 2025; Ballantyne, P. 2025). This means that the IBLI might not pay out in actual drought situations, because the images that the insurance index is based on tells the insurance company that things are fine on the ground, while they are not. FGD participants reported being in this situation in November 2024. Also, if pastoralists do receive payment from the IBLI, the Ethiopian Government controls how much money can be withdrawn from bank accounts. FGD participants reported having been in this situation previously, not allowing them to take proper anticipatory action to save their livestock (CMDRR FGD, Mado).

Introduction of small livestock

CIFA Ethiopia introduced goats to the area after the 2018 conflict related displacement, where almost 100% of the population in the Moyale area was displaced according to CIFA Ethiopia. According to the focus groups, goats are more drought resistant than cattle; they are cheaper; do not need as much fodder and water and are therefore considered a good complement to cattle to improve livelihood resilience and food security. This is not anticipatory action in the narrow definition of the concept, but in a broader understanding it increases resilience and provides a potentially more continuous access to milk and thereby help mitigate the full impact of droughts.

Crop and vegetable production

More household in the Gandas visited have taken up crop production to secure access to food and income. Increased agricultural production is also a priority for the Ethiopian government, and one of the strategic goals in the 2023-2027 Transform Ethiopia's Food System is to enhance food security and resilience of smallholder farmers to reduce food insecurity and malnutrition through increased agricultural production (AGRA, n.d.). To this end the FGDs reported that the government has a plan to create water reservoirs in the area visited to be used for irrigation.

Leaves and tree branches for silage

Some people in the Gandas were making enclosures with hay for silage to feed livestock. Some have also started using leaves and tree branches for silage too, which is a new anticipatory action. Some of the people in the FGD mentioned that cutting down trees for silage can have negative consequences for future availability of trees. Therefore, the community has agreed on how much each household can cut (CMDRR Mormora).

Challenges to implementing anticipatory actions at Ganda level

Based on the findings described in the previous sections, the Ganda research participants presented a variety of known anticipatory actions. However, it became clear in the FGDs

and KIIs that people in the Gandas do not always employ the strategies available to them. Therefore, in the action research workshop, participants were asked to discuss, why it is difficult for the Gandas to shift from disaster response to preventive and mitigative actions (anticipatory action) at Ganda level.

The challenges to shifting to anticipatory action in the Gandas, identified in the action research workshop are included in the table below. As mentioned in the methodology section, the results of the group discussions were presented in plenary, and we do not know whom said what in the different groups. This implies we do not know whether all parties; Ganda members, public sector employees, NGO workers, all agree to everything mentioned below.

Challenge reported	**Description and potential impact on anticipatory action**	**Group #**
Lack of funding for AA	With eroded livelihoods and reduced investment in preparedness, prevention and mitigation, populations in Borana Zone are left more vulnerable to future shocks, and with reduced capacity to carry out anticipatory actions. The population might have knowledge of potential anticipatory actions, but no economic resources to carry them out. Limited economic support from Government and NGOs for anticipatory actions. Participants recognise it is more difficult for NGOs too, to obtain funding for anticipatory action than for response, but it would save money and increase self-sufficiency.	
Limited uptake of past experiences	People do not learn from past misfortunes and continue to not take preventive and mitigative actions.	Group 1
Lack of Government support	Government play an important role in taking the lead in the process of developing sustainable early warning and anticipatory action systems; provide contingency funding; coordinate actors; elaborate and implement policies; develop guidelines; and support the CMDRRs in the process. Groups did not see this happing.	Groups 1, 2 and 4

	Further, groups reported that the government shows "resistance to declare and officially recognising humanitarian crises information until it is too late".	
Limited knowledge on climate change and absence of multi-hazard early warning systems	Limited knowledge about climate change and the absence of effective multi-hazard early warning systems lead to inefficient and delayed anticipatory actions in and by the Gandas.	Groups 2 and 4
Limited tradition and perseverance in preparedness and mitigative activities	Pastoralists are used to living in the very harsh environment of Borana Zone, and "hardship comes and goes as part of life for pastoralists." This implies that periods of hardship are not anormal, but part of being a pastoralist. This combined with "pastoralists easily forgetting things" means that once the rains have arrived and livestock and agriculture thrive, activities that would help prepared for, prevent and mitigate the next crisis are discontinued.	Groups 1 and 3
Fatalism and religious practice and interpretation	Religious practice and interpretation challenge anticipatory action because people trust that "Everything is in the hand of God", making them reluctant to carry out anticipatory action. Further "Religion is having a low belief in and perception of the traditional early warning system", and early warnings from the traditional forecasters are considered ungodly or haram[16].	Groups 4 and 1
Limited effectiveness of existing EWS	Early warning structures are weak, there is a lack of sustainable monitoring of hazards, poor information dissemination and information rarely translates into anticipatory action and economic support for anticipatory action. There was no reference to whether this applied to modern and/or traditional forecasting systems.	Groups 1 and 3
Absence of fora to analyse forecasts	Lack of effective community forums for wide discussions and analysis to consolidate forecasts and recommended anticipatory action	Group 2

[16] A large proportion of the population in the area has changed from the traditional religions to Islam (CIFA Ethiopia).

	(which participants reported having had “in the olden days”).	
Aid dependency syndrome	People lack motivation to prepare and take preventive and mitigative initiatives at household level if they receive food aid.	Groups 1 and 4
NGO support does not deliver what is needed locally to implement anticipatory action	NGOs should provide quicker and timely response to early warnings in the future. Anticipatory action planning and resource mobilisation is slow and delayed. Anticipatory action is not incorporated into project frameworks and NGOs wait for humanitarian disaster response calls rather than engaging in proactive anticipatory action. However, groups reported awareness of donor funding priorities challenging financing anticipatory actions and timely response, which is what is needed to allow Gandas to take anticipatory actions with limited resources available locally. NGOs are dependent on Government early warning information to activate anticipatory action, meaning it is sometimes delayed because Government systems are not effective. NGOs are often not in the areas for a long time making working with them more difficult.	All groups
Varying degrees of accuracy in forecasts	Findings from the action workshop revealed that the forecasters’ predictions might not always be accurate, which can reduce trust in the forecasts and make early warning systems less effective.	All 4 groups
Limited coordination amongst stakeholders	Coordination among the various stakeholders from Ganda to federal level is perceived as poor: the coordination between the government and NGOs, and amongst the NGO and UN organisations.	Groups 2 and 4

	An example provided was that data collection is duplicated and not harmonised, making it tiresome and unnecessary time-consuming.	

Anticipatory action systems in food security and livelihood crisis situations

Another potential challenge to the implementation of anticipatory action in the Borana zone, is that the communities are in the middle of a livelihood and food insecurity crisis. As mentioned above, the purpose of anticipatory action is to support people by protecting their lives and livelihoods before an (imminent) disaster causes damage. However, lives and livelihoods in Borana Zone are currently affected by the accumulated consequences of drought, conflict, US budget cuts to the humanitarian sector (ACAPS, 2025) and households are employing coping strategies to manage the adverse conditions, risks and potential disaster.

Coping strategies are remedial actions undertaken by people whose survival and livelihood are compromised or threatened. They can be *erosive* or *non-erosive*. Non-erosive coping strategies leaves behind little or no permanent damage, whereas erosive coping strategies, however, compromise the future livelihood and food security situation of the households. Coping strategies are closely related to resources and assets and thus they are finite (WHO, 1999). This implies that in the Borana Zone, there are currently less resources available at the local level to carry out and fund anticipatory actions.

In the Gandas visited for the field work, the following coping strategies were identified:

- Elders take over milking the cows from children and women (FGD women, Mormora) as a strategy to avoid overmilking of the cows, which can result in reduced productivity of livestock.[17] Men prioritise livestock well-being and the long-term livelihood of the family over short-term food needs of children and other family members, and milk the livestock less.

- Collecting and selling firewood on the roadside is a strategy employed by women. As with the cutting of tress for silage mentioned earlier, this coping strategy also carries the risk of compromising the future environment.

- With seriously reduced access to water and pasture for livestock, pastoralist will encroach on the buffer zones between Somalia and Borana regions and risk theft and killing of livestock and herders (FGD CMDRR and Women, Mado).

[17] "[…] during the dry season there is often considerable competition between calf and man for the declining [milk] production. The calf usually suffers, with the result that the breeding rate and ultimate productivity of the herd is reduced, because a malnourished female calf is slow to reach reproductive age". Pastoralism and Milk Production, M.J.L. Nicholson Ethiopian Rangelands Programme, 1984.

- Selling livestock can be a non-erosive coping strategy. However, if pastoralists are selling undernourished livestock, it is a sign that they are facing hardship. The price the pastoralist will obtain for skinny livestock is low compared to well-nourished livestock, and the only reason for selling it skinny is that you urgently need money. The same applies to households selling their oxen, which they need for ploughing.

- The women in Mormora reported that they reduce the number of daily meals, meal size and food diversity if they do not have access to sufficient food for all members of the household. "Children and elders are prioritised when there is food scarcity. So, when children are undernourished, the situation is very bad" (Women, Mado). What is meant here is that if the situation that obliges the household to reduce food intake is short term and transitory, then the reduction in food intake will not impact the children, as the food in the household is given to them (and the elders). However, when the children are undernourished, it is a sign that there is nothing left to eat in the household, and that their coping strategies are depleted.

Role of effectiveness and trust in early warning system and anticipatory action

In general, the effectiveness of early warning systems will depend on whether they are trusted. In the FGDs held in the two Gandas the overall impression was that people consider that the early warning information they get, mainly from traditional forecasters, is trustworthy. However, participants mentioned, this is mainly true for the adult part of the population and not the youth. It was explained that children and youth now attend school, and the knowledge they acquire there has reduced their trust in traditional forecasters (FGD CMDRR, Mormora). That said, participants from the CMDRR focus group in Mado mentioned, that the traditional forecasters of Mado Ganda had forecasted that the Hagaya rainy season of 2024 would be bad, it would not rain enough for plants to grow. Therefore, the traditional forecasters advised people to not plant. However, Mado Ganda members sowed despite the forecast, also the traditional forecaster's wife (FGD CMDRR Mado). This implies that Ganda members' trust in the traditional forecasting system, might not be as strong as reported in the FGD. This was confirmed in the action research workshop, where all four groups presented issues with trust or validity of early warning information[18].

Participants from the FGDs reported that early warning information and status of local capacities compiled by CMDRRs on a weekly basis and sent upwards in the political administrative system is not used to provide timely response by Government. One example is that Gandas had hoped to receive specialised seeds for planting and fodder to sustain their livestock in response to the forecast for the Hagaya rainy season in 2024. Another example referred to the health sector where "The information on health and

[18] We cannot from the translations from the action research workshop see if there is any difference in trust of modern or traditional forecasting.

nutrition is there, but it does not lead to Government response." (FGD Mormora, local health worker). Household capacity to respond themselves is limited because of scarcity of resources.

Another important finding regarding trust in anticipatory action systems, is a recent change in government organisation. As part of a 2024 government initiative, traditional Ganda leaders have been replaced with appointed Ganda chiefs holding university degrees (Moyale DRM officer, CIFA Ethiopia). Most used to work in line ministries at the zone or Woreda levels as liaison officers to the Gandas. As part of this new initiative, their workplace has changed from an office in the city to working in, and for some, living in the Gandas (CIFA Ethiopia, CMDRR Mado). Ganda chiefs head the CMDRRs[19], a key partner in the design, development and implementation of anticipatory action systems. According to CIFA Ethiopia, this change represents a potential challenge that NGOs and others working in the communities should pay attention to, because the traditional leaders now represent an informal, but important, power structure. The new Ganda leaders might be less trusted than traditional, locally elected, leaders; they might not receive key information (sensitive conflict related information might not be shared with 'an outsider'); and there can be competing priorities and contradictory perceptions of the value of modern and traditional forecasting systems. This can pose a challenge as communities need to trust and accept early warning systems for them to act on the information (KII 05/02/2024 in ACAPS 2024).

Support structures

The CMDRR is the key Ganda actor, when it comes to anticipatory action related activities. One of the tasks of the CMDRR committee is to monitor and provide information on early warning information and local capacities to the government through the Woreda levels (FGD CMDRR). In addition, they support the population in the Gandas by identifying and prioritising key risks and threats to raise awareness, assessing the needs of vulnerable groups such as the elderly and children, and recommending appropriate interventions to address those needs.

In the future, budget allocations for DRR and anticipatory action will be going directly from the central government to the Woredas (DRM Moyale; CIFA Ethiopia). This brings the decision making on how to spend and prioritise the funds closer to where programmes and projects are being implemented. This represents an opportunity for CLAP and other stakeholders to advocate for anticipatory action and a contingency fund with local decision makers increasing the effectiveness of anticipatory action.

[19] The CMDRRs form part of the government's A Roadmap for Multi-Hazard, Impact-Based Early Warning and Early Action System, 2023–2030 (Ethiopian Disaster Risk Management Commission, EDRMC, 2022)

Financing of anticipatory action related activities

The 2023 National Roadmap mentions the value of a Woreda level contingency fund for utilisation by Gandas on emergency response at times of shock to respond to local needs. It would appear the Borana Zone, Moyale Woreda has not yet received this funding, as action research workshop participants solicited the support from Government and NGOs to create a decentralised contingency fund at Woreda level with flexible, responsive funding to help deter the effects of hazards, and strengthen early warning systems. Buusa Gonnofa was suggested as the host for such fund (action research workshop).

Another financial support function mentioned in the action research workshop was the Ethiopian Productive Safety Net Program, PSNP (group 1). Participants suggested the PSNP be expanded to include more people and help with economic resources to carry out anticipatory action when facing disaster situation. A recent study by Barbelet, V. et al. (2024) highlights the following outcomes from nationally delivered social protection systems, which highlight their effectiveness and efficiency:

- Timeliness: Social protection responses to economic lockdown due to COVID-19 were more than twice as fast as donor-financed programmes (on average 49 days compared to123 days to pay beneficiaries) and
- Cost-effectiveness: (The PSNP in Ethiopia is estimated to have saved USD 859 million in humanitarian assistance in avoided household losses, with a potential additional saving of USD 269 million through extending the safety net to the additional caseload in response to COVID-19).

As for the NGOs, participants recognised that donor's funding priorities do not allow for anticipatory action, and that prevention is more difficult to get money for than response (provision), but it would save money (Action research workshop).

The Ethiopian Government has previously supported the Gandas with water trucking, when there is no water. Participants reported, on their own initiative, that this is not a sustainable way to provide water (FGD CMDRR, Mado). It just fills the gap, whereas "Our own system is [sustainable]. It helps more people. We do not only do water harvesting, also management, shading etc." That said, proper water management is not always carried out, but it indicates a frustration with how things are working. Both in the focus groups and in the action research workshop participants mentioned how responding to a disaster is more expensive than mitigating it.

Recommendations

Building on the findings of this report, the following recommendations aim to provide inputs to how the CLAP project and other actors in anticipatory action can strengthen community-based early warning and anticipatory action systems; make them more effective and efficient at different levels; integrate traditional and modern monitoring and forecasting; and promote anticipatory action over response. The recommendations are designed to target decision makers from Ganda to government level and wider humanitarian and development stakeholders.

The population in Borana is currently experiencing a livelihood and food insecurity crisis caused by drought and conflict. The Borana people we met are struggling to make ends meet and many receive food aid to survive. This can challenge working with anticipatory action, as the population is not in a period 'free from hazard impact', just planning for potential future disaster risks. This must be considered designing and communicating the anticipatory action systems and its activities.

The recommendations are organised in the themes inspired by WHH's anticipatory action guide, also presented in Figure 7.

Recommendations to hazard identification

Adapting hazard identification to evolving livelihoods, gender roles, and emerging risks

To help strengthen focus and relevance of food security EWS we recommend that:

- ADRA DK and others working with anticipatory action use food and income sources as the starting point for hazard and risk identification. Using the main food and income sources of any population put people's lives, livelihoods, the local economy and environment at the centre of the EWS and increases relevance and makes the EWS locally relevant. This focus will guide the EWS towards those hazards and risks that have the potential to negatively impact people's ability to access food, whatever the source is (own production, purchase, barter, fishing).

New livelihoods imply new risks and hazards

With new livelihood strategies (goats, chicken, camels and agriculture) there will be new hazards and risks that can impact people's food and income sources, and hence their food security situation, because of limited understanding of these new risks and how to monitor them. We recommend that ADRA DK and other organisations that work with early warning and/or anticipatory action:

- Conduct research on and reach out to (modern) subject matter experts (in line ministries, academia, Research organisations, the Intergovernmental Authority on Development, IGAD, International Livestock Research Institute, ILRI, World Health Organisation) about the hazards and risks these livestock and crops are subject to, and the risks they potentially present to humans and the environment (clearing land for agriculture, erosion, diseases etc.).
- Share the above knowledge on hazards and risks with CMDRR committees.
- Work with CMDRR committees to elaborate a map of risks and hazards that combines the modern expert inputs with locally identified hazards and risks, eg. using participatory scenario planning.
- Ensure the incorporation of these new livelihood strategies in the early warning and anticipatory action systems at local levels.

Women's new role as income earners

With women's increased role in income generation in the Borana Zone, they are becoming an important economic factor at the household level. There is a risk of gender barriers to women's participation, and the inclusion of their income generating activities in decisions related to anticipatory action. We recommend ADRA and others working in anticipatory action:

- Work with CMDRR and women's group to identify the current participation and inclusion of women that participate in the new income generating activities, in the CMDRR and in the discussions around hazard identification and monitoring.
- Advocate for the inclusion of the women's group in the identification and monitoring of hazards if they are not already represented.

Climate change

In addition to more frequent and severe natural hazards, climate change is shifting the areas affected by certain natural hazards. This means that in addition to preparing for more frequent and severe hazards, Gandas might have to prepare for hazards they have not previously experienced. We recommend ADRA:

- Conduct research the expected consequences of climate change in the area
- Share with the CMDRR to create awareness about the potential of new hazards. and the importance of having a monitoring system that will be able to identify these when they occur.
- Invest in community capacity to interpret and respond to new hazards and risks.

Cultural impediments to effective anticipatory action

As described in the section on challenges to implementing anticipatory action

at Ganda level, participants referred to a cultural normalization of hardship that reduces the perceived need for proactive or preventive measures, as crises are not viewed as avoidable but as cyclical and inevitable. Short-term memory and discontinuity of action was highlighted together with a belief that "everything is in the hands of God". These all discourages anticipatory action. Preventive and mitigative actions are abandoned during good times, leading to repeated vulnerability when the next crisis hits. We therefore recommend to:

- Work with the Gandas' CMDRR and women's groups to identify strategies to reduce the recognised barriers to employing anticipatory action.

Recommendations to hazard monitoring, setting triggers and early warning

Single versus multi-hazard EWS

Traditional forecasters' EWS employ multi-risk and uncertainty monitoring offering a holistic view of the risk landscape versus modern EWS' focus on single hazard monitoring. Single hazard systems risk overlooking interactions between hazards, and ignoring cascading or compounding effects, leading to under-preparedness and potentially a false sense of security. Single hazard systems are not designed to detect or communicate multiple threats, which limits their ability to issue timely, integrated warnings that reflect the full risk landscape of the area. This reduces the overall effectiveness of the system, delays critical anticipatory action and can reduce trust in the EWS. Therefore, we recommend that ADRA DK and/or other NGO's and agencies working in anticipatory action:

- Use multi-hazard monitoring and EWS and integrate conflict and diseases (to humans and livestock) into the EWS, using the participatory scenario planning model, for instance.
- Advocate for multi-hazard early warning and anticipatory action systems with donors, public sector partners and in discussions with other humanitarian and development partners.
- Use scenario-based forecasting to simulate how different hazards might interact.
- Facilitate additional research into what the differences mean for the combination of the two approaches and the uptake of modern hazard monitoring systems in the Gandas. The College of Pastoral Studies & Dryland Agriculture, at the new Borana University in Yabelo, Borana Zone, is suggested as research partner.

Combining modern and traditional forecasting

As mentioned in the FGD and the 2023 National Roadmap, sufficient attention is not yet paid to embracing and embedding traditional forecasters knowledge into Ethiopia's EWS. The use of traditional knowledge and the combination of the two knowledge systems are key components of this research project, and key to making locally led anticipatory action systems more effective. The combination of the two systems should be a process of co-learning and co-production as opposed to just integrating the

traditional into the modern, recognizing the importance of community-based and locally led actions and decision making, and the power dynamics inherent in the different EWS. We recommend that ADRA DK and other stakeholders working with EWS and anticipatory action:

- Support a co-creation process combining traditional and modern knowledge and forecasting to develop a hybrid EWS that is both culturally accepted and technically robust
- Facilitate the identification of relevant existing modern hazard monitoring tools and data for and in Ethiopia (maps; tools like the NDVI and WRSI (Water Requirement Satisfaction Index); data series (price data, epidemiological data).
- Explore the possibilities of making agreements with the 'producers' of above-mentioned data to allow for timely and continuous sharing of the data with the CMDRR (and make the agreements).
- Work with national partners, eg. from Borana University, and the CMDRR to translate the data into relevant information that the CMDRR and Ganda members can use for early warning and anticipatory action (similar to the process CIFA Ethiopia is currently practicing combining traditional and modern weather forecasting).
- Recognize, promote and advocate for the use and recognition of traditional early warning information generated by Uuchus and Ayantus in open communication, and in dialogue with government partners and donors.
- Work with the CMDRR and traditional forecasters to share how modern early warning systems function, for instance the employment of thresholds, (e.g., IBLI), to increase the acceptance, understanding and use of relevant modern early warning systems.

Targeted drought monitoring

As mentioned, households have diversified into agriculture to improve food access. Drought is a risk to this diversification too, and Water Requirement Satisfaction Index (WRSI) models, elaborated for the crops grown in the area, can be a tool to improve crop failure early warning. We recommend that ADRA DK and other stakeholders working with EWS and anticipatory action:

- Investigate if WRSI models have been developed for the crops grown/to be grown in the area. FEWSNET and USGS run WRSI models for several crops and countries in the world, there will be others too.
- If the data and maps exist, facilitate the sharing and explanation of the tool to the DRR office at Woreda levels and in selected Gandas and pilot them with the Gandas
- Facilitate research into whether the tool can be used for drought monitoring of grazing lands too.

Support the development of a multi-hazard early warning systems

As noted in the Findings, the traditional forecasters employ a multi-hazard monitoring system that encompasses both risk and opportunities, and a system that does not only trigger response when a determined threshold has been reached or passed. We recommend that ADRA DK and other stakeholders working with EWS and anticipatory action:

- Advocate for the development of a multi-hazard early warning and anticipatory action systems in meetings with donors, public sector partners and in discussions with other humanitarian and development partners.
- Support a co-creation process combining traditional and modern forecasting to establish an early warning system, integrating conflict and diseases (to humans and livestock), for instance using the participatory scenario planning model.
- Promote the continued use of multi-hazard monitoring for both risks and opportunities in the anticipatory action system.
- Work with the CMDRR and traditional forecasters to share how modern early warning systems function, for instance the employment of thresholds, (e.g., IBLI), to increase the acceptance, understanding and use of modern early warning systems.

Conflict early warning and mitigation

Conflict poses a serious threat to the pastoralists' livelihood as it reduces migration options and increases the risk of herd theft and puts people's life at risk if they decide to migrate despite the risk. Unofficial, localised conflict early warning systems exist, and there are some positive experiences with local dispute and conflict resolution. We recommend working with CMDRR committees, the traditional forecasters, local peace groups and the DRR office at Woreda level to:

- Strengthen traditional community-based conflict resolution mechanisms, for instance by making resources available for peace and youth groups from Borana and Somali region to meet, and/ or joint cultural events.
- Use the Ethiopian Government's *A Roadmap for Multi-Hazard, Impact-Based Early Warning and Early Action System 2023–2030* (EDRMC, 2022) as a reference and framework to advocate for the integration of early signs and triggers of conflict in the official early warning system, allowing for monitoring and reporting signs of emerging conflicts such as resource disputes, migration patterns, or tensions between groups in the area. Do this in all fora with public sector participation.

Domestic animal and wildlife health and disease

As previously mentioned, there is a close relationship between health and disease in humans, domestic animals and wildlife, which is not currently being monitored (WHO,

2022). A multi-hazard integrated system can provide more timely detection of potential events where disease spreads to humans and provides time for anticipatory action to reduce the risk of disease spreading and health deteriorating. We recommend that ADRA DK and other stakeholders working with EWS and anticipatory action:

- Fund research into what already exists in terms of monitoring, data integration, AI and/or GIS tools to map hotspots and forecast outbreaks in these different sectors.
- Fund the collection of national and international research and experiences with integrating domestic animals', wildlife's, and human's health and disease monitoring with the aim to develop an integrated early warning system.
- Promote and establish cross-sectoral surveillance systems and databases that integrate data collection across human health, veterinary, and wildlife sectors to allow for early detection of zoonotic diseases (e.g., rift valley fever, anthrax, TSE).
- Strengthen local reporting networks and train Ganda health workers, animal health workers, and herders to report unusual health events.
- Strengthen and train the CMDRRs and/or Woreda level employees in the practical combination of climate, land use, and health data to model disease risks.

Communication and dissemination of early warning

Most Communication and dissemination of early warning is based on person-to-person communication, and it is not always well disseminated in the Ganda and sometimes the population does not understand the early warning information. We recommend to:

- Explore complementing ways of disseminating forecasts and early warnings in the Gandas to ensure everybody receives the information.
- Work with the CMDRR to elaborate early warnings that the population understand.

Recommendations for locally led and relevant anticipatory action

Strengthen existing and new livelihood strategies

Livelihood adaptation is defined as activities that involve adjusting and modifying existing livelihood activity; and livelihood diversification is defined as expanding livelihood streams beyond pastoralism (Hassan et al., 2024). Both are anticipatory action activities that pastoralists in Borana Zone traditionally engage in to survive in the harsh environment and to prepare for future disaster risks. However, analysis on the longer-term implications and the sustainability of the concrete new livelihood adaptation and diversification strategies employed in Borana Zone has not been shared

with the FGD and action research workshop participants. We recommend ADRA and others working in anticipatory action:

- Facilitate research into local and other similar environments' experiences which adaptation and diversification strategies that have proven sustainable with the aim to support pastoralists in livelihood adaptation and diversification, in alignment with government priorities (local, regional and national).

Livelihood adaptation recommendations

Livelihood adaptation is defined as activities that involve adjusting and modifying existing livelihood activity (Hassan et al., 2024).

Fodder production and grass preservation

Traditionally, the Borana pastoralists have reserved grazing areas to ensure pasture for their livestock in the dry season. The Gandas continue this practice, but as access to grazing areas is becoming more restricted the use of this traditional 'anticipatory action' is being limited, and FGD expressed interest in the production of silage and better storage facilities for grass. We recommend to:

- Explore the possibilities of silage production in the area with subject matter experts, for instance the Ministry of Agriculture, ILRI and IGAD.
- If there is no current study or experience, facilitate research into the feasibility and sustainability of silage production and fodder storage in the area with subject matter experts. This research should include assessing the local availability of material suitable for silage.
- Support relevant and interested Ganda organisations with technical support and resources to improve sustainable fodder production and preservation facilities, also in the shorter run, to prevent spoilage and ensure pest control.
- Supplement communities with livestock fodder in anticipation of drought and severe fodder shortage.

Support water harvesting and conservation

There are no permanent rivers in Borana Zone and access to water is a challenge. Pastoralists have traditionally migrated seasonally to access reserved pasture and water as a key strategy to keep their livestock alive. However, as previously noted, pastoralist mobility is increasingly constrained by conflict, population growth, shrinking land availability, the privatization of communal resources, and growing competition for land from external actors engaging in alternative forms of production. This erodes traditional anticipatory action carried out by pastoralists to access water for their livestock. We recommend ADRA DK including consortium partners and others working in anticipatory action to:

- Work with local, regional and national authorities to identify proven successful water harvesting methods in similar areas.
- Conduct research to explore existing practices around water management in the Gandas.
- Support the provision of skills, technical support, tools and materials for (additional) water harvesting to increase access to water.
- In anticipation of severe life-threatening water shortages, secure emergency water supply, for instance by water trucking.
- Work with relevant existing committees; community leaders and local governments to identify the most water-scarce areas and prioritise areas for the implementation of water harvesting.

Establish price information sharing system

The main income source in the area is the selling of livestock, milk and eggs in local markets. However, Ganda members do not have access to objective and updated price information in the local markets.[20] In the action research workshop, it was mentioned price information on livestock do exist, but the Gandas do not receive it. This information can help people make informed decisions about when to sell and at which price. We recommend to:

- Identify existing price information, contact providers and help link Gandas members to the data to ensure access to regular information on key products' market prices. Prices are also good indicators for the early warning system: if prices of livestock, fodder or food increase in the markets, something is happening.
- Price information can be shared on telephones, radio and in Ganda gatherings and meetings.

Livestock supply and diversification

Borana cattle are well adapted to the conditions in the area, but after losing all their cattle in the 2020-2022 drought, people are still struggling to get a herd again. In this situation smaller livestock, can provide eggs and milk to improve food security in the shorter run. We recommend to:

- Financially support restocking with Borana cattle.
- Investigate if support for small livestock diversification (chicken, sheep, goats) could be a sustainable and cheaper alternative to cattle.

Improve trust in and effectiveness of index-based livestock insurance schemes

[20] FEWSNET, a USAID financed project, monitored prices in Ethiopia, but there is no access to the data, which was shared on their website, currently.

As mentioned previously in this report, the people visited during data collection reported a low trust in the index-based livestock insurance schemes they had experience with, which might reduce the use of the insurance. Index based livestock insurance enables pastoralists to, anticipatorily, protect their livestock and maintain their livelihoods when facing drought. As climate change continues to threaten the well-being of pastoralist communities in East Africa and beyond, tools like this are essential for preserving their dignity and resilience (Ballantyne, P. 2025). This is also emphasised with the $360.5m World Bank project: *De-risking, Inclusion and Value Enhancement of Pastoral Economies in the Horn of Africa*, launched late August 2022. DRIVE focuses on customising drought insurance for pastoralists, amongst other initiatives, to enhance pastoralists' access to financial services for drought mitigation to enable them to adapt to the impacts of climate change (The DRIVE project, n,d,). We recommend to:

- Provide subsidies to include and maintain the most disadvantaged groups on the insurance scheme, paying particular attention to women's participation.
- Arrange workshops with people that have taken out insurance to discuss challenges and how trust in the insurance can be enhanced (in or across Gandas).
- Identify information needs, and how information on IBLI can be better communicated in the future. This information will be used in the next step.
- Arrange and facilitate workshops with organisations involved in the implementation of[21] and research on IBLI (eg. Jameel Observatory) in the area to address the concerns and suggestions resulting from the workshops above and those presented in the action research workshop.

Livelihood diversification

Livelihood diversification is defined as expanding livelihood streams beyond pastoralism.

Index based agricultural insurance

With the Ethiopian government´s focus on increased crop production, the number of households in Borana Zone that engage in agriculture, and the importance of agriculture, might increase. As previously mentioned, the FGD revealed that the Ganda population see agriculture and vegetable production as a way to increase access to food, at least in the short run. Crops and vegetables rely on water and there might be a market for agricultural insurance products. We recommend to:

- Explore the interest in index based agricultural insurance in the Gandas with the aim of exploring the possibility of offering agricultural insurance.

[21] In 2021 they were the NGO's Ayuda en Acción and Community Initiative Facilitation and Assistance, Ethiopia (CIFA Ethiopia); Oromia Insurance Corporation (OIC) in Borana zone; the World Food Programme (WFP) Ethiopia Country Office; and the International Livestock Research Institute (ILRI), according to IGAD, 2021.

- Conduct research to explore the availability of index based agricultural insurance for this particular area and the feasibility of implementing it in Borana Zone. Maybe the NDVI used for IBLI can be used for agriculture too.
- In case of interest and feasibility, support the implementation of the insurance and subsidise the most disadvantaged groups, paying particular attention to women's participation.

Support climate smart agriculture

As previously noted, many households are turning to agriculture as a means of diversifying their livelihoods, aiming to increase food access and improve household food security. These efforts should be supported, with an emphasis on promoting climate-smart agriculture practices. Integrating such approaches not only helps safeguard soils and protect the environment but can also enhance resilience to climate shocks, increase productivity, and ensures the sustainability of food access. We recommend to:

- Support initiatives that enable pastoralist communities to diversify their livelihoods through sustainable agricultural practices. This can be achieved through targeted programs such as Farmer Field Schools and Farmer Market Schools, which provide hands-on learning and market-oriented training. All agricultural activities should adopt a climate-smart approach and include capacity-building components to ensure communities are equipped to implement environmentally sustainable and resilient farming methods.
- Support the provision of oxen or tractors to prepare land for planting if people do not have access to oxen.
- If people lose their seeds or plants to drought or flooding, distribute early maturing and/or drought resistant seeds, if there is a second chance of sowing, as anticipatory action.

Co-creation of anticipatory action systems combining traditional and modern knowledge

Pastoralists have traditional well-established early warning systems and response strategies to address conflict and climate change, that have evolved over the centuries to support their pastoralist livelihood. These EWS have not been used by the Government, as previously mentioned, but NGO's and other humanitarian organisations have not incorporated them in their projects and programmes either. , limiting the local input to EWS and anticipatory action systems being promoted by humanitarian actors To increase Ganda members' use of the EWS and participation and implementation of anticipatory action we recommend to:

- Work with the traditional forecasters and the CMDRRs to understand, identify, and document the methods, procedures, and tools currently employed in the Gandas to forecast future shocks.
- Use the experience CIFA Ethiopia and its partners have in facilitating meetings between traditional and modern forecasters from different Gandas in Borana Zone and representatives from the EMI and extend it to the areas of 1) human and livestock health & disease and 2) conflict (if possible). This implies setting up meetings with traditional forecasters and staff from the ministries of health/ agriculture/ interior. The CIFA Ethiopia facilitated meetings should take place twice a year, one month before the begging of each rainy season. The intervals for the meetings on health & disease and conflict respectively, can be different.
- The Borana culture is oral, and there is limited written documentation of the traditional forecasters' knowledge, and we recommend CLAP supports that documentation to facilitate the integration of the modern and traditional knowledge systems.

Support structures of the anticipatory action system

Recommendations to the financing of anticipatory action

Advocate for timely and reliable financing for anticipatory action

Timely and flexible financing is a cornerstone of effective anticipatory action systems as it is enabling the implementation of pre-agreed measures before a crisis escalates. Research consistently demonstrates that early investments in disaster risk reduction and anticipatory action reduce the long-term social and economic impacts of hazards. However, such financings are often lacking because anticipatory efforts are viewed as uncertain or non-urgent expenditures. As emphasized by the UNDRR, there is a need to shift this perspective and promote the understanding that financing for anticipatory action is not a cost for an event that may never occur, but a strategic investment that saves lives, protects livelihoods, and reduces response costs over time. Furthermore, as illustrated in this study, the trust of anticipatory action systems, especially those introduced by external actors, largely depends on the availability of funding to support timely implementation. When early actions are not visibly and promptly carried out due to funding gaps, communities may lose trust in the system's reliability and question its overall effectiveness.

Research participants generally described aid as being *'too little, too late'* (FGD CMDRR Mormora). According to KII, budget allocations for DRR and anticipatory action will be going directly from the central government to Gandas, cutting out the zonal level, sometime in the near future (DRM Moyale; CIFA Ethiopia). This brings the decision making on how to spend and prioritise the funds closer to where programmes and projects will be implemented. This represents an opportunity for actors in DRR and

anticipatory action. While enhancing trust in anticipatory action systems requires a combination of financial, institutional, and community-centred strategies, the recommendations below focus on enhancing trust through availability of timely and reliable financing. We recommend ADRA and others working in anticipatory action:

- Advocate for and provide funding to the creation of a dedicated contingency fund (Busaa Gonoofa) to enable timely anticipatory action at the onset of emerging risks
- Discuss with local Woreda and Ganda level authorities how to locally anchor the fund.
- Use this report to advocate for making flexible and contingency funding available with NGOs, UN agencies and donors
- Ensure alignment of contingency funding with the existing traditional Buusaa-gonofaa protection mechanism to enhance local relevance, coordination, and ownership.
- Support the allocation of a portion of anticipatory action financing directly to Ganda-based structures, such as CMDRR committees, recognizing that risks are most acutely felt at the local level and that early, localized responses are often the most effective.
- Promote budget allocations at the Woreda level for anticipatory action, including coordination activities related to anticipatory action such as meetings, transport, and communication costs.

Recommendations on coordination

Strengthen the coordination between actors working in the area (Ganda, Woreda, national level governments, NGOs, UN)

With the new administrative structure enabling central government funding to be channelled directly to the Woreda level, there is a critical opportunity to strengthen locally led anticipatory action and early warning systems. Findings from this research highlight key challenges that currently hinder the effectiveness of such systems. To address these challenges, we recommend:

- To support the improved coordination and collaboration between government institutions and community structures to align community-based early warning and response mechanisms, such as CMDRR committees and traditional forecasters, with woreda-, zonal-, and regional-level systems. This coordination ensures that local knowledge and priorities are incorporated into formal planning processes, enhances the timeliness and coherence of anticipatory responses, and supports the scaling and institutionalization of successful community practices. The following recommendations outline concrete steps to strengthen coordination between communities and government actors.

Strengthen the coordination between actors working in the area (Ganda, Woreda, national level governments, NGOs, UN)

Support the DRM Office in Moyale to Lead Multi-Hazard identification and anticipatory action

- Provide technical assistance to the DRM office to develop a multi-hazard anticipatory action framework aligned with the National Roadmap.
- Ensure the framework integrates local risk knowledge from community actors and identifies clear triggers and roles for each hazard type.
- Create and disseminate a coordination protocol outlining the responsibilities of the DRM office, CMDRR committees, traditional forecasters, and other key stakeholders before, during, and after early action triggers are activated.

Support the establishment of joint planning platforms at Woreda level

- Facilitate and support regular coordination meetings between the DRM office, CMDRR committees, traditional forecasters, women's groups and other relevant community structures to jointly develop and review anticipatory action plans.
- Advocate for the institutionalisation of the platform as part of Woreda-level DRM structures and support it through dedicated facilitation and logistical support.

Strengthen the CMDRR committees and use of traditional community practices

The Ganda CMDRR committees are relatively new structures in the Gandas and might have limited local support and weak institutional capacity. Yet they play a key role in ensuring that early warning and anticipatory action systems are functional, sustainable, locally embedded and led. To strengthen their effectiveness and enhance community ownership of anticipatory action, we recommend the following:

- Foster intra-community information sharing through regular forums or coordination meetings that bring together individuals with early warning information from different Gandas. As highlighted by a CIFA Ethiopia representative: "Get people that have information on early warnings from different Gandas together. It is important information that can save lives, but it does not happen." Creating such spaces can enhance the flow of timely and critical information across communities.
- Engage with CMDRR committees to identify their support needs and discuss how to best complement other activities and support them. Potential areas include training in technical skills such as early warning data collection tools, reporting, information sharing, and data analysis.
- Build capacity of CMDRR members and other community actors to a) strengthen capacity building in conducting traditional forecasting; b) interpret modern early warning data, such as meteorological forecasts or locust movement

projections, in relation to local livelihoods and c) translate this information into practical, context-specific anticipatory actions that mitigate humanitarian risks and the interpretation of modern early warning data.
- Support community-based practices for targeting support to anticipatory.

Support local leadership

The recently implemented new Ganda leader model might imply that there are two leaderships of the Gandas. A formal and informal. This can challenge the local leadership of early warning systems and anticipatory action in a variety of ways; lack of trust, poor information sharing, for instance on conflict related information; and opposite perceptions of the value of modern and traditional forecasting systems. We recommend to:

- That parties working in the area coordinate well with local organisations, that know the Gandas, to establish how well the individual CMDRR committees work.
- This potential conflict in the CMDRR committees is considered when planning activities, engaging all parties, highlighting the importance of contributions from modern and traditional, young and old, men and women

Coordination and complementarity of anticipatory action activities

The research showed that information, training, and assistance to, and in, Gandas are fragmented and characterized by numerous organisations implementing relatively short-term projects, that are not coordinated with and complementary to locally led and Ganda-based actions, or those of other relevant stakeholders working in the Gandas. Improved coordination and complementarity will increase effectiveness and efficiency and make the local lead of the activities easier. Improvements in this field might increase the effectiveness of short-term projects, as they will be integrated with other activities We recommend to:

- Coordinate anticipatory action activities with CMDRR and other relevant stakeholders working in the area. This collaboration should centre around aligning actions and approaches to early warning and community-based anticipatory action plans.

Conclusion

In conclusion, this study demonstrates that the efficacy of early warning and anticipatory action systems in the Borana Zone hinges upon the meaningful integration of indigenous knowledge and scientific methodologies. Empirical evidence from Mado and Mormora

indicates that traditional mechanisms - such as Uuchu divination, Ayyaantuu astrological forecasting, and the Buusaa-gonofaa livestock-sharing network - retain high legitimacy and offer nuanced insights into local multi-hazard dynamics. However, these systems are increasingly challenged by shortened drought cycles, environmental degradation, and socio-political transformations.

Consequently, a localized approach to anticipatory action is indispensable. This entails co-designing hazard identification protocols and trigger thresholds with Gadaa elders, CMDRR committees, women's associations, and youth representatives to ensure that forecast signals correspond to community-validated indicators. It also requires the pre-arrangement of financing modalities that can be rapidly deployed via established communal channels.

Moreover, the findings underscore the necessity of strengthening community governance structures by empowering local leadership and fostering equitable participation across gender and generational lines. Communication strategies should be diversified - combining oral networks with digital platforms - to optimize the dissemination and interpretation of early warning messages.

Finally, this research affirms that pastoralist-led anticipatory actions are not ancillary to humanitarian interventions but constitute their foundational pillar. By privileging local expertise, co-validating intervention protocols, and institutionalizing collaborative decision-making processes, humanitarian assistance can transition from reactive relief to proactive resilience-building, thereby safeguarding both livelihoods and pastoralist livelihoods in an increasingly changing climate. Integrating these mechanisms will strengthen anticipatory action systems and enhance food security and multi-hazard resilience among pastoralists in Ethiopia's Borana Zone.

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Appendices

Appendix 1: Questions to focus groups with men and women, Mado and Mormara

Questions to focus groups with men and women respectively, Mado and Mormora

Consent

- Who are we
- Purpose with the day: Gather information on the current use of early warning information and risks in the community and link it to better decision making for improved food security. CIFA will receive the results of our work, a report and can use it in the collaboration with your community.
- Can we record – can we take photos? (will not mention names)

1. **Community presentation**

- Will you present yourselves?
- How would you as a community define yourself?
    - How many households in your community?
    - Any IDPs?

2. **How is CMDRR organised in this Ganda?**

3. **Livelihood**

- Food sources
    - What are the staple foods?
    - Do you rely on purchase, barter, own production, relief?
- Income sources
    - What are the main household income sources (eg. selling livestock, agriculture production, petty trade, coal selling, wage income)
    - Which are most important?
- Has this changed?
- How do you rank wealth in this community?
    - Are all 'wealth' groups represented here today?
- How often and how long do herders move/migrate?
    - Has this changed?

4. **Risks**

- What are the main threats to your livelihoods and food security?

    - Weather
    - Conflict (internal and with Somalis)
    - Disease
    - Price increases
    - Land degradation
- Are the threats more frequent than before?
- Are there new risks?
- How do the risk impact you and your families/livestock?
- Can you rank the risks in term of importance?
    - E.g. – is drought or conflict the bigger threat to food security and livelihoods?

5. Monitoring and triggers

- How do you know about coming crises?
- Where do you get this information from?
- Is the information timely/useful/understandable?
- Who in the community receive the early warning information?
- When you receive early warning information do you also get advice on how to act?
- How is early warning information disseminated in the community?
- Have you experienced crises situations where you did not receive early warning?
- Do you trust the knowledge you get? (Traditional vs modern early warning).
- How do you know when to take action?
    - what are the indicators?

6. Response to early warnings (mitigation, preparedness and prevention)

- What do you do to reduce the negative consequences of threats?
    - Long and short term
    - Do you have livestock insurance?
        - Why not?
- Do external stakeholders help to reduce the negative consequences of threats?
- Are there any coping strategies you cannot use anymore
    - Why?
- Do you have contingency plans on what to do when expecting a crisis?
    - Who has made them? (Community or external)

7. Effectiveness

- Are the responses (community and external responses) effectful in preventing and mitigating the crisis?
    - Are the responses relevant and appropriate?
    - Why and why not?

8. Future

- What can help you avoid bad times in the future?
    - In relation to child malnutrition and livestock deaths.
    - When do you need it?
- What can you do yourself?
- What do you need external stakeholders to help with?
- Do you have any suggestions for early warning and anticipatory action to work better in this Ganda?

Appendix 2: Programme AR workshop

Guidelines for workshop facilitators at the workshop:
Bridging Early Warning to Anticipatory Action: Strengthening Resilience in the Borana Region

Workshop arranged by CIFA and University College Copenhagen.

November 14, 2024, Koket Hotel, Moyale

The objectives of this participatory workshop:

1. To bring stakeholders from local communities, local governments and NGO's working in Moyale together; to put our heads together to make collective recommendations at community, NGO and Government levels.
2. To identify activities and interventions to be carried out before crises and disaster develop, based on forecasts and community needs and priorities.
3. To support the CLAP project.

We are here as facilitators to learn from local actors (communities, committees, sector head, administrators, NGOS) because it is you who have the experience and knowledge about what can and has worked, what works and what has not worked or will not work – in the broad concept of anticipatory actions.

Today participants will be reflecting in groups, listen to each other, discuss the challenges involved and come up with visionary but doable solutions and recommendation to these challenges. Who will be doing what differently to make anticipatory and sustainable changes?

Agenda:

1. Introduction

Objective: The common objective of CIFA and UCC is to enhance the ability of pastoral communities to anticipate and respond to multiple hazards, thereby reducing associated risks and increasing food security.

We will be presenting preliminary findings from our community level FGDs and KII of stakeholders:

– Our findings show that pastoralist already knows the forecasting systems works (multi-hazard anticipation), knows what to do to mitigate the anticipated

impacts, but there are not much anticipatory actions from external stakeholders; but mainly emergency response interventions
    - communities reported that these responses are "too little too late"
    - even though there have been three good seasons, pastoralist and agropastoral livelihood systems are pressed due to prior loses from the last severe drought periods in 2020/22 – therefore difficulties and slow recovery
    - the related losses of livestock assets and depletion of resources have rendered "many households more vulnerable and increased the struggle to survive on little income from firewood sales".

2. The good story. The idea is to use it as a 'burning platform' to get the group reflections started

- Through collaborative efforts between local leaders, local NGOs, international aid organizations, and local government bodies, an Anticipatory Early Action System (AEAS) is introduced at Ganda level in Borana.
- When signs of a drought, for instance, emerge, the AEAS is activated. The vulnerable households receive 'cash transfers' they can use to buy hay/fodder for their livestock and essentials for their families. These actions help keep the livestock alive and ensures the health of the population. Eggs are not sold in the market but given to the children. Also, communities keep the rangelands and water points clean and well-managed, the natural resources are not depleted and there is no overuse of pastures and other natural resources (bushes, rangelands, water and trees). As a result, the conflicts between neighboring clans are minimized.
- As the resilience of the households and communities are strengthened, *Busa Gonofa* works, there is more 'energy' to focus on more long-term and sustainable livelihood strategies such as storing hay/fodder, mixing pastoralism with other income sources such as agriculture, investing in drought resistant livestock and water systems. The *Gandas* also start to collaborate and share market information to better take control of livestock prices and markets.

- The AEAS involves:
    - Mixing traditional and modern forecasting to predict rain and drought patterns and sharing this information enabling relevant and timely action.
    - A Ganda-managed resilience fund that distributes financial aid to households before a crisis situation unfolds based on monitoring the resources and health of the population and the condition of livestock.
    - Empowering of Ganda-based decision-making committees (CMDRR) responsible for deciding which community households are most vulnerable to the crisis.

- CMDRR committee will also manage a 'Ganda investment fund' and identify what are the priorities of the Ganda in terms of investment in water management such as repairing wells, building reservoirs or harvesting water.
- Localized conflict mediation – organizing dialogues to prevent conflict over resources.

– This is a success story because households are not forced to give up pastoralism. Early action is much more cost effective than emergency response and more dignifying. Preventing livestock losses is far cheaper than replacing them or providing food aid to affected populations.

How can we make this happen? How can we strengthen it? How can we improve on this good practice?

Based on the foregoing – what are the priority issues or themes for reflections today in groups?

Group reflections: guiding questions

Themes that could be interesting to discuss:

- Early warning information is available
- However, early warning information does not translate into anticipatory action, also not in the last drought
- Why, what went wrong? At Ganda, Government and NGO levels
- What can be done differently next time? At Ganda, Government and NGO level

- Why is it so difficult to shift the focus from emergency response to prevention and mitigation actions?
- How can the new government structure at Ganda level be used to strengthen early warning, response, mitigation and prevention actions?

- Potential issues:
    - Unclear roles and responsibilities
    - Coordination
    - Collaboration
    - Many projects last only 2-3 years
    - Each project starts with an analysis
    - Silos

Agenda

The participants are divided into five groups of 6 members. In each group there is a CIFA, ISID, other NGO or Government facilitator (moderate the discussions), a rapporteur who takes notes and makes presentation

From 0830 to 1230

- Introduction
- Group work:
- Each participant first take time the think about what the important issues are from their experience
- every participant shortly presents themselves and their thoughts to the group. Only one person talks at a time – the rest are listening
- the group discusses the various issues and challenges that are emerging (the notetaker takes notes). the team leader asks the group to focus on one theme they think is particularly important
- the group brainstorm and discuss what are the challenges, problems and risks regarding the theme they have chosen. The team leader makes notes
- the group brainstorm and agrees on a future vision or scenario for the theme. Next, they identify practical solutions, actions and resources necessary to achieve this scenario – be as concrete as possible. Who should be doing what, when?
- Presentations in plenary. The presentation includes:
  - what is the theme or themes they regard as the most important?
  - what are the challenges?
  - what are the recommendations and solutions and who will be doing what to achieve it?

Lunch: 1230-1330

1330 - 1500: Conclusions and way forward: priorities - recorded
Include: Evaluation: Team leader asks the participants in their group: have they felt involved, listened to and do they feel the themes have been relevant and the solutions workable? Everyone should give their input.