El Niño Case Study

—

Capturing Learning Approach, Process, and Impact

Save the Children

Submitted by:

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EXECUTIVE SUMMARY

This study evaluated the effectiveness of locally-led anticipatory actions supported by Save the Children in mitigating the impacts of 2023 El Niño-induced floods on communities in Beledweyne, Somalia. Anticipatory Action means acting ahead of a predicted hazard to prevent or reduce the impacts on communities before they fully unfold, and the anticipatory actions implemented in Beledweyne were Early Warning Awareness Raising, Disaster Risk Reduction Training, and Unconditional Cash Transfer. The focus of the study was on assessing the local early warning systems and preparedness, the effectiveness of local traditional anticipatory practices, how the project collaborated with other key stakeholders to strengthen community resilience to flood risks, and how project interventions contributed to strengthening the community's anticipatory and resilience capacities to cope with flood risks. To achieve its objectives, the study combined a systematic literature review, observational fieldwork, key informant interviews, and focus-group discussions. A total of 14 key informant interviews were conducted with stakeholders from Save the Children and the Somali Disaster Management Agency, as well as community leaders. Additionally, 23 focus group discussions were conducted with respondents from different demographic profiles within the target community, including the elderly, youth, women, and internally displaced persons.

In general, the locally-led anticipatory actions significantly enhanced the local community's anticipatory and resilience capacities to cope with flood risk by strengthening local early warning systems. The project design and implementation fostered partnership and collaboration with key stakeholders including the Somali Disaster Management Agency and the Hirshabelle State Ministry of Humanitarian Affairs and Disaster Management and engaged in platforms such as OCHA, Cash Working Group, and the WASH, food security, and health clusters taping resources. This collaborative model proved effective in reducing effort duplications and enhancing the efficiency of the project design and implementation. Also, the project's locally-led approach facilitated successful community engagement in project design through the identification and prioritization of their challenges and needs fostering project ownership. In addition, the project mobilized and trained community flood preparedness committees and Disaster Risk Reduction clubs in schools from different age and gender groups investing in local community anticipatory and resilience capacities to cope with and adapt to flood risks. Promoting inclusive disaster risk reduction training across various demographic profiles and increasing the number of females participating or independently making household decisions addressed social inequalities.

The project built robust early warning awareness and preparedness, which mitigated communities' exposure and vulnerability to flood risks through disaster risk reduction training and facilitating relevant regular updates on flood risks, such as flood-prone areas where water could pass through potentially high grounds and roads for evacuation. The information was effectively disseminated to the community through various media channels such as local radio stations, mobile messages, and

community committees using microphones 1 month to 2 weeks before flood onset, which allowed the community to adequately prepare for and plan responses. Trained community members actively involved in early warning dissemination and other disaster risk reduction activities including evacuation guidance. Notably, school-based disaster risk reduction clubs were not only involved in early warning dissemination and evacuation efforts but also participated in public hygiene campaigns to minimize acute diseases (e.g. cholera) outbreak risks. Moreover, the findings showed that the communities gained and practiced a wide range of knowledge and skills, including flood risk monitoring, mobilizing communities for evacuation, and creating structural mitigation, such as dikes. As a result of the awareness raising, the community started setting visual marks and monitoring the river seemingly prompting them to make decisions based on early warnings. As evidenced by their timely evacuation to safer grounds the community stated that they trust in early warnings.

Despite the significantly greater magnitude of El Niño floods compared to previous floodings, the impact on human lives was minimized, with no deaths found in the target community. This is a significant improved in the community's preparedness for flooding considering that loss of human lives was a major occurrence in previous Beledweyne floodings with less magnitude. This success was attributed to early warning dissemination and early evacuation facilitated by the project. Most respondents appreciated the significance of early warning systems and preparedness and expressed their admiration for continuing awareness-raising and preparedness measures.

The project addressed economic inequalities and enhanced community resilience by providing direct access to unconditional cash to vulnerable households. Significant food security improvement was found with more households moving from low to high dietary diversity, reaching acceptable food consumption scores while fewer remained in the poor food consumption category. Although a significant number of households continued to resort to severe coping strategies according to the post-distribution monitoring findings, a reduced coping strategy and an increased number of women participating or independently making decisions in households were found. The persistent negative coping was possibly compounded by various challenges, including crops in the area being wiped out by floods, which negatively impacted food availability and led to price increases. Additionally, Households that received cash also received nutritional supplements from other aid agencies such as the World Food Programme (WFP) during the emergency phase which could have an impact on the food security findings.

Challenges remained, however, including flood-resilient infrastructural weaknesses, early warning receiving issues, shortage and or absence of essential services in evacuation centers, and malnutrition.

While the project facilitated evacuation before flooding onset, reluctance to evacuate persisted during the sensitization period which began 2-4 weeks before the flooding onset. This reluctance was due to shortages of basic needs such as latrines and delays in water trucking to the recommended evacuation areas. Also, respondents highlighted that they observed riverbanks

breaking for the first time in their lifetime, indicating the need for strong structural flood defense measures. In terms of health and sanitation, it is worth noting that the target community also benefitted from the Humanitarian Fund project (HF) which distributed mosquito nets and Interagency Diarrheal Disease (IDD) kits to prevent vector-borne and water-borne disease outbreaks respectively. However, FGD participants expressed concerns about the lack of health and sanitation centers in evacuation shelters, where people stayed for over a month because flooding submerged 85% of the city of Beledweyne. Moreover, some respondents noted challenges in receiving warnings due to lack of access to mobile phones or poor network coverage, but low-tech communication means such as megaphones were used for early warning dissemination. Similarly, some respondents expressed concerns about sudden situational changes during the evacuation, possibly due to the intensity of the flood.

In conclusion, while the anticipatory actions marked a significant improvement in Disaster Risk Reduction efforts and fostering community resilience, continued support, improvements in structural flood defenses, and supply of essential services such as water and latrines in the evacuation shelters are essential for sustaining these improvements.

Key Recommendations

Project Approach

- Increased engagement and coordination of more credible voices including Islamic scholars, elders, youth umbrellas, children and adolescents, women's associations, and other established networks, is crucial for enhancing future project prioritization, design, and implementation.
- Identifying and meaningfully including the marginalized tribes and ethnic groups and last-mile communities such as pastoralists in the decision-making and beneficiary list is also crucial to addressing the vulnerability root causes such as structural social and political challenges.
- Supporting long-term local institutional development and self-sufficiency of agencies such as the Somali Disaster Management Agency and the Hirshabelle State Ministry of Humanitarian Affairs and Disaster Management is also important to reduce dependency on donor projects.

Early Warning Awareness and Risk Communication

- Continued flood early warning awareness-raising and ensuring that it reaches the last mile or hard-to-reach communities such as pastoralists by doubling the efforts of on-the-ground teams is vital to the success stories of the anticipatory actions.
- Preparing flood risk maps for flood-prone areas to enhance the targeted and effective response measures to anticipated floods.

Community Preparedness and Response Practices

- Prepositioning of essential services such as water supply and latrines in the evacuation shelters is also important to avoid early evacuation hesitancy.
- Implementing measures that can divert water from markets and residential areas during flooding is also important due to the lower river capacity in Beledweyne, and water-breaking riverbanks. This can include constructing water reservoirs, drainage systems, and the installation of Geo-plastic sheets and earth dams before the flood onset.
- Facilitating regional collaboration and data sharing between Somalia and Ethiopia can also be important in timely evacuation since Beledweyne flooding is contributed to by water from Ethiopian highlands.

Cash Assistance

Distributing more rounds of cash transfers is essential, especially during unprecedented challenges like El Niño which disrupt markets and negatively impact food availability and prices.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

Abbreviations	Descriptions
AA	Anticipatory Action
EA	Early Action
EWEA	Early Warning Early Actions
EWS	Early Warning Systems
FGDs	Focus Group Discussions
IDP	Internally Displaced Persons
KIIs	Key Informant Interviews
MOHADM	Ministry of Humanitarian Affairs and Disaster Management
NGO	Non-Governmental Organization
SC	Save the Children
SoDMA	Somali Disaster Management Agency
SWALIM	Somalia Water and Land Information Management
SHF	Somalia Humanitarian Fund

1. INTRODUCTION

Somalia faces constant climate change challenges, including erratic rainfall patterns with detrimental impacts, such as damaging floods, which have become a stark reminder in rainy seasons with increasing frequency. The country has been marked by heavy rainfall during the last rainy season between October and December 2023, with the Somali Water and Land Information Management (SWALIM hereafter) recording five times its station's Long-Term Mean (LTM) in some of the major towns in the South, such as Baidoa (SWALIM, 2024). The confluence of El Niño conditions and a positive Indian Ocean Dipole (IOD) resulting in wetter-than-normal conditions and flooding, particularly in the south-central provinces, was anticipated before rainfall onset (ICPAC, 2023). Subsequently, the United Nations Food and Agricultural Organization (FAO) has estimated that approximately 1.2 million people and 1.5 million hectares of productive land in Somalia were at high risk of floods due to the anticipated El Niño (FAO, 2023).

Although it did not come as a surprise, flooding resulted in loss of livelihoods. There are 695,000 human displacements and other adversities, including 55 reported deaths in the country (OCHA, 2023a). The effect of flooding was seen in some of the other countries in East Africa, but Somalia hosts the highest number of people affected by heavy rains and floods in the region, with approximately 1.7 million people affected between October and December 2023 (OCHA, 2023b). It is also notable that some reports have shown approximately 2.3 million people are affected with at least 57 people dying across the country. Floods have reduced access to and caused damage to existing water sources and sanitation infrastructure, posing a high risk of water-borne disease outbreaks (OCHA, 2023a). Riverine communities were among the most vulnerable areas, and Beledweyne town was one of the most affected and high-risk areas (OCHA, 2023a). This has come off the back end of the worst drought in the country over four decades (Hub, 2023), exacerbating existing food insecurity and poverty levels and weakening community resilience to cope with disasters.

In response, flood risk awareness has been raised with actors taking steps to mitigate their potential impacts. Humanitarian actors in the country have worked with the government to scale up their flood response efforts (Hub, 2023; Unicef, 2023). While the emergency response has been implemented during flooding, Early Warnings and Early Actions (EWEA hereafter) have also taken place before the rainfall onset by humanitarian organizations and government authorities, including Save the Children (SC hereafter) and Somalia Disaster Management Agency (SoDMA hereafter), as an effective strategy to reduce community vulnerability and exposure to floods and enhance their resilience. With growing advances in climate forecasting, it is increasingly possible to anticipate and respond to humanitarian and developmental crises (Chaves-Gonzalez et al., 2022). As such, there is growing momentum toward shifting to Anticipatory Actions (AA hereafter) by many humanitarian organizations, and this applies to Somalia, which heavily relies on humanitarian aid.

1.1. Save the Children Anticipatory Action Pilot Project

Save the Children (SC) supported a locally-led anticipatory action (LLAA) pilot project in Beledweyne town aimed at empowering local communities to effectively manage and mitigate El Niño-related risks, thereby enhancing resilience against natural disasters. Anticipatory Action (AA hereafter) is defined as acting ahead of a predicted hazard to prevent or reduce the impacts on communities before they fully unfold (SavetheChildren, 2022). The SC pilot project sought to prevent or minimize the effects of climate induced risks, such as floods, on communities, families, children, and individuals to contribute to creating a more resilient and stable society in the face of climate change. The objective was to reduce the impact of El Niño on vulnerable communities in the Beledweyne district to enhance their absorptive and adaptive capacities and strengthen their resilience through a localized anticipatory action approach building on local knowledge, capacities, and resources. Several anticipatory activities were implemented under the project, intended to enhance flood risk management and preparedness in Beledweyne. The project served as a pilot initiative in Beledweyne, marking the first such project implemented in the area. Its primary aim was to enable communities to identify and develop concrete measures for shock prevention. In collaboration with Save the Children International (SC) and the local communities, the project focused on addressing the needs prioritized by the communities, particularly in relation to recurrent shocks and enhancing resilience. SCI has a longstanding presence in the region and has maintained strong relationships with the target communities. During the implementation phase, SCI engaged not only the communities but also the Ministry of Humanitarian Affairs and Disaster Management (MOHDM) to ensure a comprehensive approach to disaster management and community empowerment. Summarized below, the project activities were identified, prioritized, and implemented by the target community.

Table 1*: Project components and activities*

Project Components	Project Activities
Training & Planning	Provision of refresher training for 80 members (40 male and 40 female) of the disaster risk reduction (DRR hereafter) committee who were previously trained in two workshops – 40 people each.

	School-based disaster risk reduction (DRR hereafter) training at 15 schools, preparing 180 children (90 girls and 90 boys) across 12 students per school (6 boys and 6 girls) to implement flood risk reduction activities.
	Reinforcement of 100m of riverbanks to reduce community flood risk exposure.
Preparedness and Anticipatory Actions	Prepositioning of mosquito nets for 18,000 individuals consisting of- 2,700 boys, 2,700 girls, 6,300 men, and 6,300 women.
	Prepositioning of five kits of Inter-Agency Diarrheal Disease (IDD), – each serving 100 people; totaling 500 individuals, which consisted of- 140 boys, 150 girls, 85 men, and 125 women, to address potential disease outbreaks.
Early warnings (EW hereafter)	Provision of risk information dissemination to at-risk communities 34,550 (7,677 girls, 10,413 women, 7,351 boys, and 9,109 men), with the coordination of (SoDMA).

To this end, a qualitative case study was conducted in Beledweyne and nearby villages along the Shabelle River to evaluate the process and impact of a community-led anticipatory action project on community resilience against El Niño post-flooding.

1.2. Scope and Objectives

This study investigated the impact of community-led anticipatory actions in reducing the impact of El Niño on vulnerable communities in Beledweyne and nearby villages. This study examined the status of local early warning systems and preparedness, the effectiveness of the traditional local anticipatory actions practiced by local communities, and the collaboration and coordination among stakeholders to strengthen the absorptive and anticipatory capacities of targeted communities in Beledweyne regarding El Niño-induced flood impacts.

In essence, this study provides a comprehensive understanding of Beledweyne community flood risk early warning and early action awareness, flood risk resilience, and response capability,

which will contribute to learning locally led anticipatory action methodologies and the design of future anticipatory actions to enhance community resilience in the face of flood risks.

1.3. Purpose and Research Questions

The purpose of this study is to provide valuable insights into the effectiveness of community-based and locally-led anticipatory action (LLAA) programming in addressing the challenges posed by climate change, particularly floods, and how enhanced anticipatory capacity can support community resilience. Insights need to be obtained by assessing the effectiveness of locally-led early warning systems and how they help to minimize damage or loss of assets and lives during and after the shock, as well as resilience and preparedness within the community. This aim is to highlight the benefits of improved early warning systems, enabling them to cope with and/or adapt to climate change induced risks and provide flood-affected communities with a chance to explore practical and achievable methods to enhance their preparedness and build resilience. These insights can be used to provide recommendations on locally-led adaptation to support communities' climate resilience by strengthening anticipatory and adaptive capacities.

With this in mind, the following questions were formalized to assess the key objectives of the study.

1. To what extent has the project strengthened the local EW system and preparedness?
2. To what extent does the project strengthen the adaptive and anticipatory capacities of the targeted communities in Beledweyne for El Niño-induced hazards?
3. Did the project promote multisectoral collaboration and coordination among stakeholders?
4. How effective are traditional local AA practiced by local communities?
5. Determine the impact of project activities and learning from the process of working with community leadership in AA.

1.4. Study Site and El Niño Condition

Beledweyne is a major town in Southern Central Somalia in the Hiran province, passed through by the Shabelle River, and is known to be flood-prone, especially during heavy rainfall periods, compounded by both its low-lying location and its proximity to the border of the Ethiopian highlands. In mid-November 2023, floods hit Beledweyne as a stark reminder when the Shabelle River water level passed its 8.3–meter capacity, causing it to burst its banks (Relief, 2023). This has resulted in 85% of the town being submerged by floodwater due to weeks of heavy rains exacerbated by “flood waves” from the Ethiopian highlands, with subsequent humanitarian crises, as approximately 250,000 people were forced to evacuate from their homes to higher grounds, according to reports (Relief, 2023). This situation compounded the plight of over 100,000 already hosted by the town as internally displaced people (IDPs) escaping the impact of other challenges, including prolonged droughts and conflicts (Relief, 2023). The town has seen these vulnerable

communities suffering as their shelters and sanitation facilities were destroyed by the floods, and new areas became sanctuaries for both the flood-displaced Beledweyne population and already internally displaced people (Relief, 2023). As an indication of the longevity of the period it took people to be able to come back to their homes, assessments at the end of the rainy season noted that the river level was at 8.00m on December 11, 2023, with flood waters slowly receding from roads and most parts of the town (Unicef, 2023).

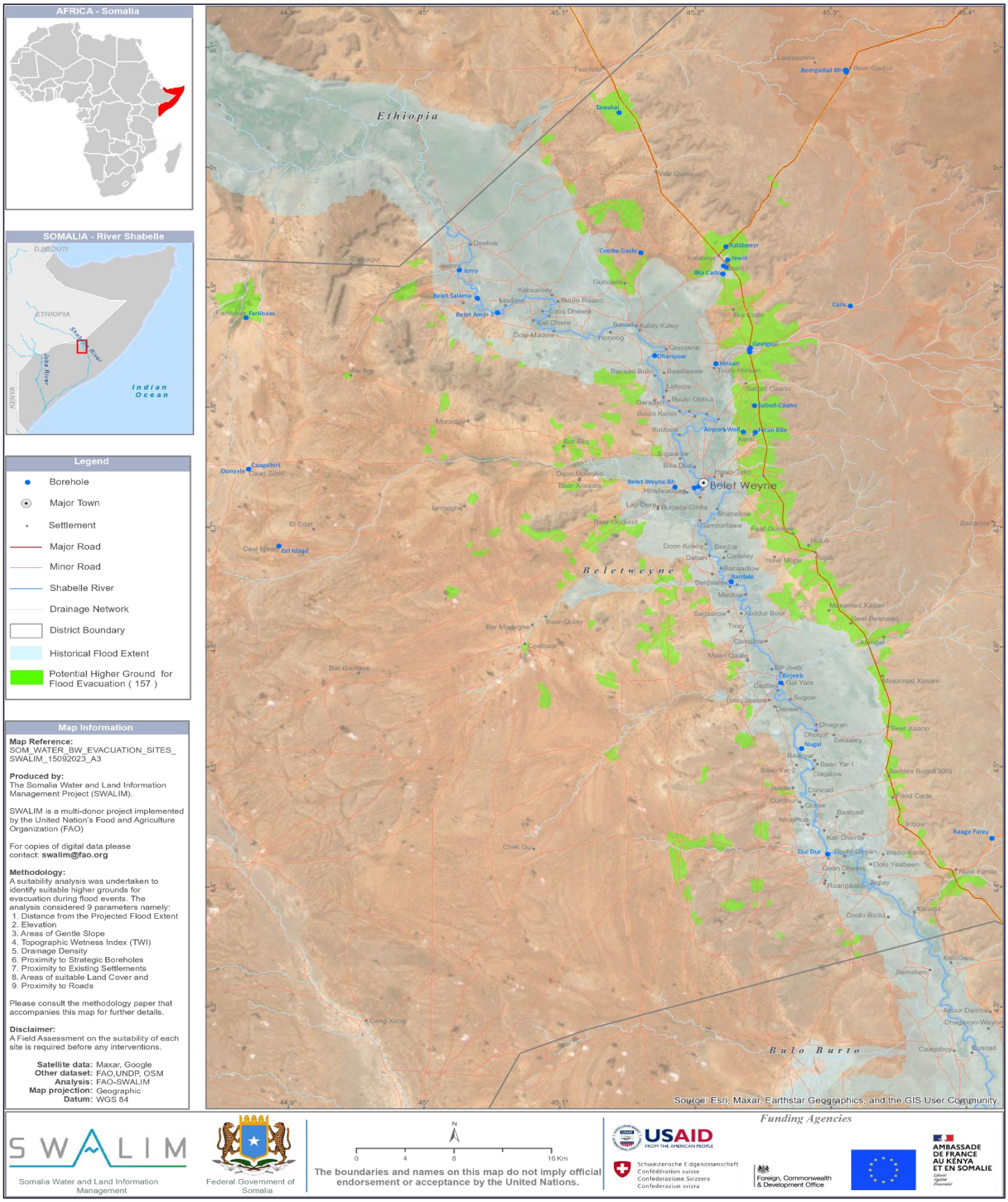

Figure 1: Beledweyne district, Somalia potential high ground for evacuation (SWALIM, 2023)

2. METHODOLOGICAL APPROACH

This study employed a qualitative research methodology to investigate the impact of AA supported by SC to reduce the effects of El Niño-induced flooding on vulnerable communities in Beledweyne. Additionally, the research sought to evaluate the communities' anticipatory and adaptive capacities by examining their early warning awareness and preparedness, and response capacities regarding El Niño flood risk early warnings and associated impacts. The research process involved a systematic review of relevant literature, on-site observations of the study communities, key informant interviews (KIIs) with community leaders spearheading anticipatory actions, and key individuals involved in the project and focus group discussions (FGDs) with community members and programme participants of the AA. The study adopted a comprehensive approach to understanding communities' anticipatory capacities, encompassing the key components of the project and its impacts using the project MEAL (Monitoring, Evaluation, Accountability, and Learning) framework, and baseline document as well as other relevant documents to develop qualitative data collection tools. In this regard, the study has also employed indicators from established disaster risk management frameworks including the Sendai Framework, and EW systems for all initiatives which encompass different disaster perspectives including understanding of the risk, monitoring, communication, preparedness as well as response capabilities.

Table 2: Overview of the methodological approach

Category	Description of the sample and respondents
Desk Review	The desk review included various literature highly relevant to the study's topic and objectives. This included literature on Beledweyne Flood Risk Information, EW Systems for all initiatives, the Somalia AA Framework by OCHA, and SS, SoDMA Data, and previous studies on flood EW and AA in different countries, such as South Sudan and Bangladesh (Children, 2022; de la Poterie et al., 2023; FAO, 2023; Perera et al., 2019; PROTECTION, 2021).
Key Informant Interviews (KIIs)	Respondents included SoDMA, SWALIM, the SC project team, IDP camp leaders, and flood risk preparedness committee members. **The total sample size achieved was 14 respondents**
Focus Group Discussions (FGDs)	FGDs were conducted with Beledweyne local community members with demographic profiles including the elderly, youth, women, teachers, students, children, nurses, and marginalized members, as well as programme participants of the SC anticipatory pilot project to understand the effectiveness of the project. These respondents resided in Lebow,

	Shinile, Beledweyne City, Bacad Buke, Harcadey, Hodley, Malindid, Bulohubey, Garash, Lafole, Qoqane, Baslawe. **The total sample achieved was 23 FGDs.**

The qualitative data from the field was collected by three experienced qualitative research enumerators, who had regular contact with the three principal researchers who conducted regular checks during the fieldwork. To maintain the highest standards of quality control, all FGDs and KIIs were systematically recorded and then transcribed for analysis. Fieldwork observations were also a significant part of the data collection process, conducted using a specialized tool designed to assess the project components and overall flood impact indicators, thus ensuring a robust and targeted approach to understanding the impacts and effectiveness of the interventions in question.

Location Name	Interview Type	Sample
Lebow	Focus Group Discussions	**1 FGD** - Adult Male (36 - 64 years)
		1 FGD - Adult Female (36 - 64 years)
	Key Informant Interview	**1 KII** - Teacher
	Observation	Pictures and checklist
Shinile	Focus Group Discussions	**1 FGD** - Teachers
		1 FGD - Students (Under 18)
	Key Informant Interview	**1 KII** - Community Flood Preparedness Committee Member
	Observation	Pictures and checklist
Federal Level	Key Informant Interview	**1 KII** - Minstry of Water and Energy District Representative
Bacad Buke	Focus Group Discussions	**1 FGD** - Youth Male Host (18 - 35 years) - EWS and DRR trainees
		1 FGD - Youth Female Host (18 - 35 years) - EWS and DRR trainees
	Observation	Pictures and checklist
Harcadey	Focus Group Discussions	**1 FGD** Male Farmers
		1 FGD Female Farmers
	Key Informant Interviews	**1 KII** - Community Flood Preparedness Committee Member
	Observation	Pictures and checklist
Beledweyne City	Focus Group Discussion	**1 FGD** - Social Workers (NGO workers, Nurses, etc)
	Key Informant Interview	**1 KII** - Nutrition Worker
Hodley	Focus Group Discussion	**1 FGD** - Elderly Male FGD (65+)
	Focus Group Discussion	**1 FGD** - Elderly Female FGD (65+)
	Key Informant Interview	**1 KII** - Community Flood Preparedness Committee Member
	Observation	Pictures and checklist
Malindid	Focus Group Discussion	**1 FGD** - Adult Male (36 - 64 years)
	Focus Group Discussion	**1 FGD** - Adult Female (36 - 64 years)
	Observation	Pictures and checklist
Bulohubey	Focus Group Discussion	**1 FGD** - IDP Male
	Focus Group Discussion	**1 FGD** - IDP Female
	Key Informant Interview	**1 KII** - IDP Camp Leader
	Observation	Pictures and checklist
Beledweyne City	Key Informant Interview	**1 KII** - Save the Children Project Staff
Federal Level	Key Informant Interview	**1 KII** - Ministry of Climate Change
Federal Level	Key Informant Interview	**1 KII** - SODMA
Garash	Focus Group Discussion	**1 FGD** - Adult Male
	Focus Group Discussion	**1 FGD** - Adult Female
	Key Informant Interview	**1 KII** - Flood Preparedness Committee Member
	Observation	Pictures and checklist
Lafole	Focus Group Discussion	**1 FGD** - Adult Male (36 - 64 years)
	Focus Group Discussion	**1 FGD** - Adult Female (36 - 64 years)
	Observation	Pictures and checklist
Qoqane	Focus Group Discussion	**1 FGD** - Youth Male (18 - 35 years)
	Focus Group Discussion	**1 FGD** - Youth Female (18 - 35 years)
	Observation	Pictures and checklist
Baslawe	Focus Group Discussion	1 FGD - Youth Male (18 - 35 years)
	Focus Group Discussion	1 FGD - Youth Female (18 - 35 years)
	Observation	Pictures and checklist
Beledweyne City	Key Informant Interview	**1 KII** - Youth Civil Society Representative
	Key Informant Interview	**1 KII** - Disability Civil Society Representative
	Key Informant Interview	**1 KII** - Somalia Water and Land Information Management (SWALIM)

Figure 2: This figure illustrates qualitative data collection sites, techniques, and respondent samples

2.1. Research Design

This case study adopted a phenomenological lens to explore the subjective impact of floods and evaluate the effectiveness of AA taken by SC before the flooding occurred. Utilizing phenomenology as a philosophical and methodological approach, the study concentrated on the diverse perceptions, interpretations, and coping strategies of individuals affected by the floods. Through KIIs and FGDs, the research delved into the core of the lived experiences, viewpoints, and realities that shaped the community's response to the floods in Beledweyne, as well as the anticipatory measures put in place.

The research employed qualitative methods, beginning with a systematic literature review to gather secondary data, and then moving on to primary data collection through observations, KIIs, and FGDs, recognized as fitting for the participatory goals of the study. The semi-structured interview format was selected due to its balance between the directive nature of structured interviews and the flexibility of unstructured ones (Dunn, 2000). This approach provided an adaptable framework, allowing the researchers to pose core questions and modify them based on the responses received. This flexibility facilitated a dynamic examination of the subject matter and yielded a more comprehensive understanding of its complexities.

The decision to exclude other interview types, such as structured and unstructured interviews, was based on their respective limitations. Structured interviews, with their rigid set of questions, limit the conversation to the researcher's agenda and fail to embrace the interviewee's insights (Punch, 2013). Unstructured interviews, while allowing for an in-depth exploration of topics the interviewee deems important, can overlook relevant issues and complicate comparative analysis due to their open-ended nature (Bryman, 2004). By using semi-structured interviews, the study managed to avoid these extremes, capitalizing on the strengths of both structured and unstructured methods to gather rich and nuanced data.

2.2. Participatory Research Approach

The study embraced participatory approaches throughout its execution, engaging directly with the affected communities to ensure their voices were central to the research findings. This inclusive method enabled participants to actively contribute to the data collection process, sharing their lived experiences and insights, which were crucial for understanding the real-world implications of flood risk early warning early action awareness, impacts, and preparedness strategies. By facilitating focus group discussions and interactive sessions, the study not only gathered data but also fostered a sense of ownership and empowerment among the community members, allowing them to highlight their perspectives on AA and emergency responses and their visions for the future. This participatory strategy enriched the research outcomes with diverse viewpoints and fostered a collaborative environment conducive to meaningful and actionable conclusions.

2.3. Ethical Protocols that Were Employed in the Study

The study aligned with international human rights conventions, internal research ethical standards, and the SC Ethical Framework. Tigaal, well-versed in traditional ethical considerations such as confidentiality, power relations, and informed consent, ensured the following during all fieldwork:

- **Informed Consent:** Consent was obtained at the start of the data collection process, with respondents fully informed about the research purpose, data storage and usage, and the voluntary nature of their participation. Participants had the flexibility to withdraw at any stage although no withdrawals happened. Regular reassurance and verification systems for consent were implemented, and no financial inducements were offered to obtain consent.
- **Confidentiality and Anonymity:** In compliance with General Data Protection Regulations in data handling such as confidentiality, the collected data was strictly used for reporting purposes and not shared with external entities.
- **Participant Safety:** The study adhered to the 'do no harm' principle, with special attention to engaging vulnerable groups like youth, women, and people with disabilities, and the SC safeguarding code of conduct was also adhered to.

These measures underscore the study's commitment to ethical research practices, prioritizing the rights and welfare of all participants. The researchers followed a predetermined script, covering topics such as flood risk early warning early action (EWEA hereafter) awareness, impacts, preparedness, anticipatory action, and responses, as well as disaster risk management perspectives for the future.

2.4. Qualitative Data Analysis

The analysis of qualitative data from the study was conducted using a rigorous methodology that involved coding the collected narratives and subsequently identifying key themes that emerged from the discussions. This thematic analysis was a critical step in organizing and interpreting the vast qualitative data, enabling the study to distil the essence of community experiences and insights.

In the process of coding, the data was broken down into manageable segments, which were then closely examined and categorized. This allowed the study to systematically organize and code the data according to specific themes that consistently appeared across the different narratives. The coding process was iterative, with the research team revisiting the data multiple times to ensure that the themes accurately captured the nuances of the participant's experiences and the complexity of the issues discussed. Upon completion of the coding, ten key themes were identified, reflecting the multifaceted nature of flood impacts and the community's response to them. These themes were:

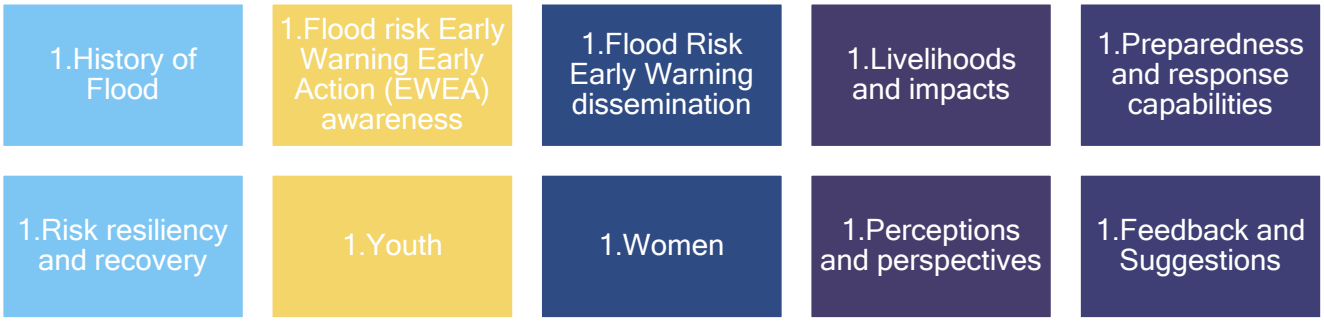

Figure 3: Themes Identified During Analysis

Each theme provided a lens through which to view the different aspects of the community's experiences with floods, from their historical context to the impacts and the overall community's resilience. The inclusion of perceptions and feedback also ensured that the study captured both reflective and forward-looking insights, vital for improving future flood response and preparedness strategies.

3. RESULTS

3.1. Overview of key findings

The section represents the findings of the study, which reflect on the impact of the SC AA project to support communities in reducing the challenges from the recent El Niño floods, anticipatory actions, and the broader intricate dynamics of disaster risk management, with a special focus on the five critical areas of community resilience and response capabilities investigated in this study in Beledweyne. Firstly, it reflects on the effectiveness of current EW and preparedness systems in predicting and mitigating the impacts of floods by examining EWEA awareness and preparedness as indications of the status of EW and preparedness in the target area, with a focus on the SC project components and activities. Secondly, it reflects on the indigenous and scientific knowledge and skills that have been practiced by the community to monitor and reduce flood risks, indicating the effectiveness of the traditional local AA. Thirdly, the findings identify the measures taken and actors involved in anticipatory and emergency flood responses, such as government agencies, non-profit organizations, and local communities, as well as the synergies and gaps in their collaborative efforts to reflect on stakeholder collaboration and coordination against flood risks. Fourthly, it reflects on how well the measures taken can cope with the flood-induced shocks and stresses. Finally, it offers lessons for the future, drawing on past experiences, the status of the EW systems, preparedness, and absorptive, and adaptive capacities to propose forward-looking strategies that can strengthen the resilience of vulnerable populations. Together, these areas provide a comprehensive overview of the current landscape of locally-led disaster risk management and pave the way for more effective and sustainable approaches in the future in Beledweyne and similar contexts within Somalia.

3.2. Project Approach

The findings suggest that the anticipatory action project closely engaged and coordinated with relevant national and Hirshabelle State Authorities and Line Ministries including SoDMA and the Ministry of Humanitarian Affairs and Disaster Management (MOHADM hereafter). This coordination with local disaster risk management agencies devolved the decision-making and gave local community and institutions decision-making power over how the project activities are prioritized and implemented to achieve the project goals without duplication of efforts and strengthened the organizational complementarity. Aside from this, the findings show that SCI coordinated effectively with platforms like OCHA, through their engagements with the Cash Working Group, and led the WASH, food security, and health clusters to strengthen responses. By engaging with these relevant stakeholders, the project has been able to tap into their expertise, resources, and networks, thereby strengthening the overall response to El Nino-related challenges and enabling proactive steps to be taken before the floods occur.

The project not only engaged and coordinated with institutions but also effectively leveraged local resources and mobilized the community through community-based flood protection committees and school-based disaster risk reduction clubs. These structures played a central role in the identification, prioritization, and implementation of anticipatory actions which positively contributed to the preparedness and response capacities. The DRR training, planning, and investment in local community capacities fostered project ownership which enhanced community resilience through strengthened anticipatory capacities. In the post-project implementation, there is a considerable presence of trained community members consisting of different age and gender groups with many of them stated to be members of disaster risk reduction clubs or flood committees with no barriers or instances of discrimination noted in terms of their participation and contribution indicating how the project addressed the structural social inequalities which are root causes of community vulnerabilities.

- *"There is a community committee for flood protection that alerts us and helps organize the evacuation." - Adult Female, Lebow.*
- *"Yes, I am a member of the flood protection committee; we try to organize people for a collective response" - Adult Male, Hodley. Indicating the proactive and collaborative spirit among the community members.*
- *"They were given community awareness then they prepared themselves, which led to less loss." - Community Flood Preparedness Committee Member.*

3.3. Project Impact

3.3.1. EWEA Training Participation

Respondents across various demographic profiles actively participated in comprehensive training sessions on flood risk EW systems, EA protocols, and preparedness measures. These capacity-building initiatives, facilitated by SC, aimed to educate and equip community members with the necessary knowledge and skills to effectively respond to flood risks and implement preventative actions.

A Community Flood Preparedness Committee Member highlighted the value of the training:

- *"Yes, I participated in the training on early warning early action, or disaster risk reduction. It was organized by Save the Children. We learned a lot about how to prepare and respond to floods."*

Similarly, a Youth Civil Society Member emphasized the importance of the training sessions in mobilizing the community:

- *"Yes, I participated in two training sessions before the flood season. These were crucial for understanding how to mobilize our community in times of need."*

The training modules provided participants with valuable insights into identifying and monitoring crucial early warning indicators, such as swelling river levels and increased rainfall intensity. This enhanced awareness enabled communities to promptly recognize imminent flood risks and initiate appropriate response measures.

An IDP Camp Leader noted the practical application of the knowledge gained from the training:

- *"When the river changes color and starts rising quickly, we know it's time to start preparing."*

Moreover, trainees acquired practical techniques for flood mitigation, including methods to reinforce river embankments, construct barriers, and coordinate community-driven response efforts through collective action. A male respondent in Lebow noted the following in support of increased awareness and practical skills.

- *"As we realize the water is approaching, we start organizing community groups to strengthen riverbanks and create barriers."*

The awareness training and capacity-building initiatives conducted as part of the AA project have significantly enhanced the community's knowledge, preparedness, and response capabilities regarding El Nino and its associated flood risks. While the baseline assessment showed that 84% of respondents already had a general understanding of El Nino's potential impact due to the recurring floods experienced in flood-prone areas, the training has equipped community members with the necessary tools, knowledge, and practical skills to monitor EW signs, communicate risks effectively, take proactive steps to minimize flood damage and collaborate in community-driven response efforts.

An adult male from Hodley highlighted the significant shift from a lack of early warning systems to their successful implementation:

- *"Previously, there were no warnings but this time we received an early warning, and it helped us to prepare."*

Furthermore, the training has empowered community members to actively monitor and interpret early warning signs, as evidenced by an adult female respondent: "They monitor signs of a flood including a low-level river water rising rapidly, the water turning muddy, and hearing about heavy rains upstream."

An elderly male from Lebow summarized the impact of the training on community coordination and decision-making:

- *"Once we see that the water is passing over the danger mark, we inform the community about the risk and provide necessary steps to take."*

He further added:

- *"We make decisions based on the warnings we receive from various sources, ensuring we act in time to mitigate the impacts."*

Moreover, the community's commitment to continued learning and awareness-raising is evident, as emphasized by an elderly male from Lebow:

- *"I think we should continue and increase the awareness among our community about flood preparedness and safety measures."*

As a result of the comprehensive training approach, the community has transitioned from a state of general awareness to one of empowered action, demonstrating increased resilience and a proactive approach to mitigating the impacts of recurring flood events. In other words, the project's capacity building initiatives have successfully fostered a culture of preparedness and have strengthened the community's capacity to protect lives, livelihoods, and assets in the face of El Nino-related challenges.

Participants across the board, including different demographic profiles, expressed having participated in flood risk EWEA and preparedness training facilitated by SC with no barriers or instances of discrimination noted in terms of their participation and contribution to the training. This indicates accessible opportunities for involvement.

- *"Yes, I participated in the training of EWEA or disaster risk reduction. It was organized by Save the Children. We learned a lot about how to prepare and respond to floods." - Community Flood Preparedness Committee Member.*

Figure 4: Focus group discussions held in the Bacad Buke and Hodley villages

3.3.2. Early Warning Awareness and Risk Communication

The findings show that the communities gained and practiced a wide range of knowledge and skills including flood risk monitoring, mobilizing communities for evacuation and to strengthen riverbanks and creating barriers. The project integrated local knowledge and built robust EW

awareness and preparedness which mitigated communities' exposure to flood risks by enabling the provision of regular updates on flood risks. This included information on flood-prone areas, where water passes through, and potential high grounds for evacuation. Flood risk EW messages were effectively disseminated to the community through various media channels including local radio stations, mobile messages from Hormuud Telecom, and on through community committees using microphones 1 month to 2 weeks before flood onset. As the multimedia approach and the use of the Somali language allows easy access and a clear understanding of the messages, the timeline allows the community adequate preparation and response planning. Although most respondents acknowledged the effectiveness of the EW, some noted challenges in receiving warnings due to lack of access to mobile phones or poor network coverage. Community members acknowledged the importance of EW systems and preparedness and expressed the importance of continued flood risk EW awareness and preparedness measures.

- *"Previously, there were no warnings but this time we received an early warning, and it helped us to prepare." - Adult Male, Hodley.*
- *"I receive information from Humanitarian organizations, and we spread this to the community." - Community Flood Preparedness Committee Members.*
- *"We receive the alerting messages through community loudspeakers.'' - Adult Female, Lebow.*
- *"When there are signs of floods, a team will inform everyone in the community..." - Adult Male, Hodley.*
- *"Telecommunication companies like Hormuud provide us with SMS alerts regarding flood risks." - Elderly Male, Lebow.*
- *"The risks that we tell the people include warnings about rising water levels and advice on how to prepare, such as moving belongings to higher ground and using sandbags says the." - Community Flood Preparedness Committee Member.*
- *"We are 100% confident in the information because it helps us prepare accordingly." Elderly Male, Lebow.*

3.4. Community Preparedness and Response Practices

The findings show that the target community started setting visual marks and monitoring along the river and stated that they trust in EW and are seemingly prompted to make decisions based on EW which can be evidenced by their timely evacuation to safer grounds. The trained community members actively engaged in DRR activities including EW dissemination and evacuation guidance provision. The respondents acknowledged the EW dissemination which marked a remarkable improvement in the community's preparedness for flooding and minimized loss of human lives with no deaths found in the target community. With less flood magnitude, many deaths have been reported in previous flooding. For example, floods killed 22 people in Beledweyn in 2019

(VOA, 2019), and 24 in Beledweyn and Jowhar (the nearest major city passed through by the Shabelle River) in 2020 (Phys.org, 2020). Despite this, some respondents raised concern over sudden situational changes during evacuation which could be attributed to the flood intensity. In addition, school-based DRR clubs are not only helping communities in EW dissemination and evacuation efforts but are also engaged in cleaning campaigns to minimize the outbreak of cholera and other similar diseases. With regards to health and sanitation, it is notable that SC, through their Somalia Humanitarian Fund project (SHF), which was conducted simultaneously with their DANIDA El Nino project, distributed mosquito nets, and Interagency Diarrhoeal Disease (IDD) kits to reduce communities' exposure to vector-borne and waterborne diseases. However, the fieldwork team observed malnutrition and communities complained about the lack of health and sanitation centers in the evacuation shelters where people stayed for over a month due to 80% of the city being submerged by water. Similarly, although the project facilitated evacuation before flooding onset, reluctance to evacuate persisted during the sensitization period which began 2-4 weeks before the flooding onset. This reluctance was due to shortages of basic needs such as latrines and delays in water trucking to the recommended evacuation areas.

- *"The youth group takes part in the awareness-raising campaigns on the flood risk." Adult Female, Lebow.*
- *"We contact the local radio station and also use social media to spread the message." Elderly Male, Lebow.*
- *"The river starts to swell, and there's a noticeable increase in rain. We've learned to watch these signs closely." - Community Flood Preparedness Committee Member.*
- *"When the river changes color and starts rising quickly, we know it's time to start preparing." - IDP Camp Leader, Bule Xubeey.*

Case Study 1: Community-Led Initiatives for Disaster Preparedness: The Case of Bacaad Village

Bacaad Village stands as an example of community resilience and proactive action in disaster risk reduction and preparedness. Faced with the challenges of inadequate infrastructure for safe evacuation during emergencies, the residents of Bacaad have embarked on an initiative to construct a road that will ensure their safety and mobility during evacuation to avoid natural disasters. Initially included in the project activities, Save the Children invested to kickstart the road construction after the community expressed their need for such a project.

Understanding the challenges of their situation and driven by a collective will to safeguard their community, the residents initiated a fundraising campaign. Through concerted efforts, they successfully raised a sum of USD 8,000. This fund was allocated for further expansion of the road,

significantly enhancing their disaster preparedness capabilities. This mobilization occurred after the initial phase supported by Save the Children was completed. This expansion aimed not only to enhance mobility but also to foster better proactive action in disaster risk reduction and community preparedness.

During KIIs with Save the Children staff, the expanded initiative in Bacaad Village was highlighted, showcasing the community's proactive stance and their successful collaboration with external partners to make the road construction project a success.

3.5. Cash Transfer Impact and Food Security

Based on the project documents and qualitative data from the community, a total of 542 households received USD 110 unconditional cash transfers through mobile phones in November 2023. The selected beneficiaries were poor households (HHs) affected and displaced by floods who are headed by either the elderly or persons with disabilities. The unconditional cash transfer was intended for the El Niño affected communities to purchase food items, especially during this difficult time.

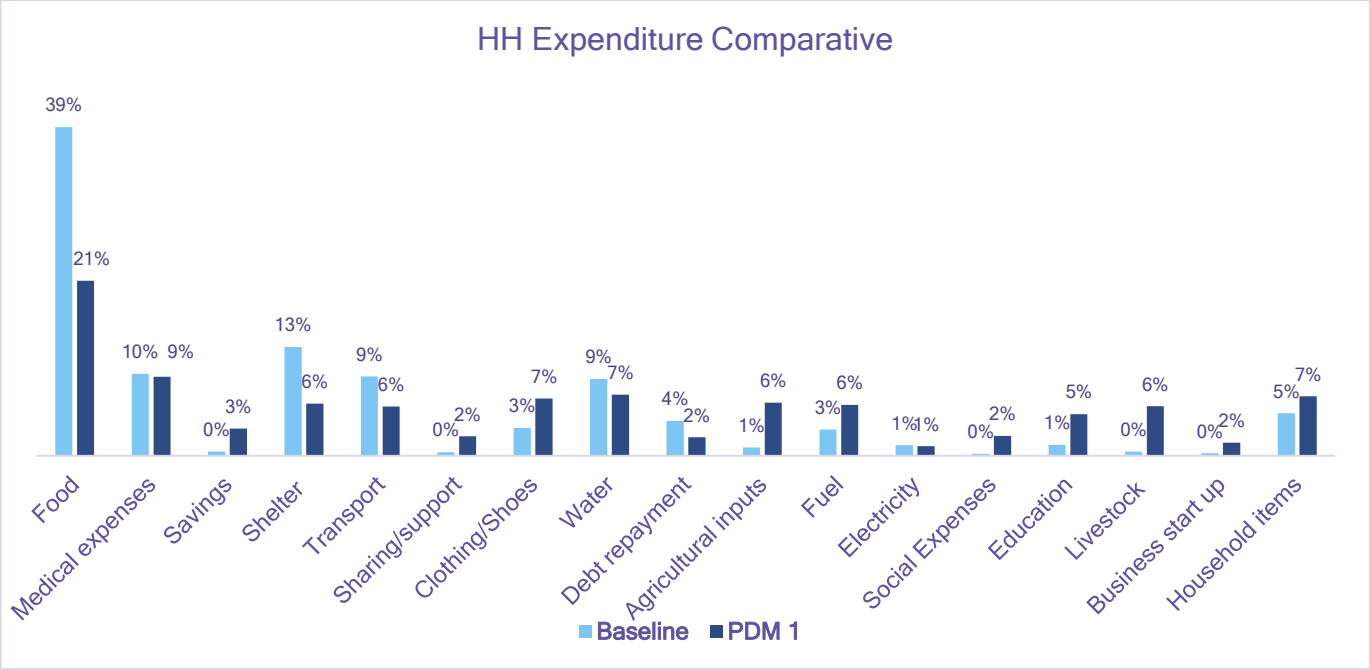

Figure 5: This figure compares HH expenditure at the baseline and PDM 1

By providing direct cash access to vulnerable households, the project has to some extent addressed economic inequalities and enhanced community resilience. The findings reveal an increased number of HHs moving from the poor category to the borderline and acceptable categories. The number of HHs with acceptable Food Consumption Score (FCS) increased from 7% at baseline to 57% Post Distribution Monitoring (PDM 1), and the average number of HHs within the poor FCS dropped from 55% (at baseline) to 21% (first PDM).

Table 3: Food Consumption Score (FCS)

FCS	Acceptable	Borderline	Poor	Total
Baseline	7%	38%	55%	100%
PDM 1	57%	22%	21%	100%
Overall	32%	30%	38%	100%

Also, the HHs' dietary diversity score (DDS) increased positively. The findings indicate that the proportion of HHs within the high HDDS increased from 4% at baseline to 49% PDM 1, while the average number of HHs within the low HDDS dropped from 58% at baseline to 29% PDM 1.

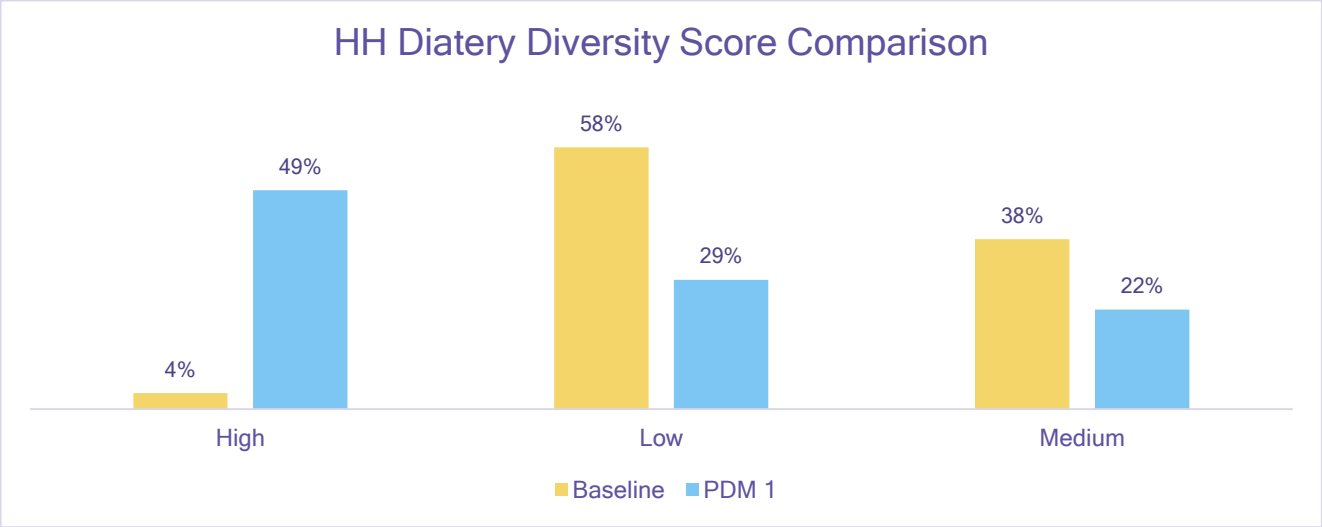

Figure 6: This figure depicts the household dietary diversity score during the Baseline and PDM 1

However, there is a mix of results in terms of the Coping Strategy Index (CSI), as 71% of the surveyed households were still in high coping employing more severe coping strategies and another 19% were still employing medium strategies. While such persistent severe coping strategies imply the need for more rounds of cash transfers to reduce it, there is relative improvement as the number of households in the no or low coping increased from 4% at baseline to 16% PDM1. This is surrounded by various challenges including crops in the area being damaged by floods negatively impacting food availability and affordability. In addition, vulnerable households that were supported with cash such as those in Hodley village also received nutritional supplements from the World Food Programme (WFP) during the emergency.

Table 4: Coping Strategy Index comparison at the baseline and the PDM 1

Row Label	Hight Coping (>10)	Low Coping (0 - 3)	Medium Coping (4 - 9)

Baseline	72%	4%	24%
PDM 1	70%	16%	14%
Overall	71%	10%	19%

In terms of HHs decision making, the findings show that husband decision dropped from 44% at baseline to 33% PDM 1, while female decision alone increased from 4% at baseline to 20% PDM 1, followed by deciding together dropped from 52% at baseline to 46% PDM 1. The households supported with cash acknowledged the importance of this direct access to cash and stated that they spent it on food and other necessities positioning families in vulnerable positions to mitigate negative coping strategies and early recovery from the loss and damages experienced. In summary, giving direct access to cash reduced the economic and social inequalities and the associated vulnerabilities of certain community groups such as women, children, and displaced people.

Table 5: HH decision-making at the baseline and PDM 1

HH Decision	Baseline	PDM 1
Husband decision	44%	33%
I decide alone	4%	20%
Mother-in-law decides	0%	0%
We decision together	52%	46%
Grand Total	100%	100%

- *Community Flood Preparedness Committee Member says, "All crops were destroyed, we saved only ourselves and what little we could carry."*
- *"We received cash support... but we need more sustainable solutions for water and food security." - Adult Female, Lafole*
- *"We have received cash support from Save the Children which helped us to buy food and other necessities." – Adult Male, Lafole*

Case Study 2: Mohamed Abdulle's Experience in Lebow Village

Mohamed Abdulle, a resident of Lebow Village in Beledweyne, became a crucial part of this project. The DRR training provided by Save the Children was designed to empower individuals like Abdulle with the knowledge and skills needed to mitigate the adverse effects of the floods. Abdulle's

engagement with the project included receiving a one-time payment of USD 110 unconditional cash transfer, which played a pivotal role in safeguarding his family's well-being and sustaining their livelihood during this challenging period. The financial assistance was timely and multifaceted in its benefits. Abdulle allocated the funds towards providing essential food supplies for his family, covering the school fees for his children, and purchasing farm supplies to compensate for the crops lost to the floods. This support was not just monetary relief but helped ensure the family's basic needs were met and their children's education continued uninterrupted. This mitigated negative coping strategies and helped his family to recovery early from the loss and damages experienced.

Abdulle also highlighted the benefits of training. It stood out for its comprehensive, visual, and practical approach, incorporating videos and hands-on training. This methodology not only facilitated a better understanding of flood preparedness and mitigation strategies but also enhanced community cohesion. Abdulle and his community learned the importance of relocating from areas prone to flooding before disaster struck, a testament to the training's effectiveness in fostering proactive measures.

Mohamed Abdulle's story is a testament to the importance of anticipatory action and community engagement in disaster risk reduction. The Save the Children project in Beledweyne provided tailored training and financial support that supported the communities to enhance anticipatory and adaptive capacities to build climate resilience.

3.6. Observational Guide in Targeted Villages

Table 6: Project indicators

Village Name	Effective flood risk EW messages received	Sufficient lead time given	Organized and dedicated DRR clubs	Preposition of flood risk-prone area maps	Evacuation procedures	Signs of water diverted by riverbank reinforcements	Prepositioning of Interagency Diarrhoeal Disease (IDD) Kit	School-based DRR activities
Lebow	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Shinile	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Bacadbuke	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Harcadey	Yes	Yes	Yes	No	Yes	Yes	No	No
Hodley	Yes	Yes	Yes	No	Yes	Yes	No	No
Bule Xubeey Camp	Yes	Yes	No	No	No	Yes	No	No
Garash	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Lafoole	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Qoqane	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes

Malindiid	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes

Table 7: Overall Flood Impact Indicators

Village Name	Flood-induced displacements	Stagnant dirty water	Flood damages on important infrastructures (e.g. roads, homes, farms, schools, and health centers)	Malnutrition and disease outbreak prevalence
Lebow	Yes	Yes	Yes	Yes
Shinile	Yes	Yes	Yes	Yes
Bacadbuke	Yes	No	Yes	Yes
Harcadey	Yes	No	Yes	Yes
Hodley	Yes	Yes	Yes	Yes
Bule Xubeey Camp	Yes	No	Yes	Yes
Garash	Yes	Yes	Yes	Yes
Lafoole	Yes	Yes	Yes	Yes
Qoqane	Yes	Yes	Yes	Yes

Observed Stagnant Water and Damaged Facilities in Hodley and Lebow Villages

Observed Damaged Facility in Hodley and Shinile Villages

Figure 7: This figure shows photographic evidence of observed damages caused by flooding in the target area

3. CHALLENGES, LESSONS LEARNED, AND THE WAY FORWARD

Despite the use of low-tech communication means, such as megaphones, for EW dissemination, and most respondents acknowledging the effectiveness of the EW system, some noted challenges in receiving warnings due to lack of access to mobile phones or poor network coverage in remote areas. To ensure that last-mile or hard-to-reach communities, such as pastoralists, receive the warnings, future EW dissemination efforts are recommended to double the efforts of on-the-ground teams. Although the cash transfer had a positive impact on various food security indicators including household food consumption score, and dietary diversity, many households were still in high coping index employing more severe coping strategies. This can be related to challenges such as floods wiping out crops, negatively impacting food availability, and raising prices. To mitigate these negative coping mechanisms, ensuring continuous support to vulnerable households through more rounds of cash transfers is recommended for future anticipatory actions. In terms of health and sanitation, the target community benefitted from the Humanitarian Fund (HF) project which distributed mosquito nets and Interagency Diarrheal Disease (IDD) kits to prevent vector-borne and water-borne disease outbreaks respectively under the DANIDA. However, FGD participants expressed concerns about the lack of health and sanitation centers, and the field team observed stagnant dirty water and malnutrition prevalence in evacuation shelters, where people stayed for over a month because flooding submerged 85% of the city of Beledweyne. Although the project facilitated evacuation before the flooding onset, reluctance to evacuate persisted during the sensitization period which began 2-4 weeks before the flooding onset. This reluctance was due to shortages of basic needs such as latrines and delays in water trucking to the recommended evacuation areas. Respondents highlighted that they observed riverbanks breaking for the first time in their lifetime, indicating the need for strong structural flood defense measures. They also have also raised concerns about sudden situational changes that are attributed to the intensity and magnitude of El Niño-induced floods. The capacity of the river was an issue and the respondents suggested increasing its capacity which could be a challenging task. Better coordination and data sharing between Somalia and Ethiopia was seen as important in timely evacuation since Beledweyne flooding is mainly contributed to by water from Ethiopian highlands. Addressing this challenge could potentially provide ample time for the community to prepare and cope with the associated risks of floods.

- *Adult Male from Bulexuubey Camp: "The floods destroyed my home, and we now lack access to basic sanitation facilities."*
- *Adult Female from Lebow: "They all responded, 'We have lost our houses, livestock, and lack access to clean water.'"*

Social desirability bias is a challenge when asking people their perspectives for suggestions, and improvements considering the dependence on the aid. Highlighting areas with high risk profile most of the respondents mentioned their specific localities.

- *An elderly Male from Lebow says "Leebow is a more risk-prone area, it's one of the first places to get flooded." While IDP Camp Leader form Bule Xubeey says, "Camps are more at risk, where poor displaced people live without any protections."*

5. CONCLUSION AND KEY RECOMMENDATIONS

5.1. Conclusion

The findings reveal that the project effectively coordinated with SoDMA and MOHADM, and integrated efforts with humanitarian agencies and platforms such as OCHA, the Cash Working Group, WASH, food security, and health clusters to strengthen resilience responses. Also, the project effectively engaged the target community through flood risk preparedness committees and school-based DRR clubs to participate in the identification, prioritization, and implementation of AA. This approach devolved the decision-making power to the local community and institutions, minimized the duplication of efforts, and strengthened complementarity by sharing resources, expertise, and skills.

The project built a robust community awareness and preparedness through DRR training which blended traditional, and scientific knowledge to bolster communities' anticipatory capacities. This resulted in significant community engagement in flood risk monitoring, EW dissemination, evacuation planning, and infrastructural reinforcement such as strengthening riverbanks and creating dikes. Despite 85% of Beledweyne being flooded and an estimated 250,000 residents displaced, no human deaths which t used to be prevalent in previous Beledweyne flooding were reported in the target area during 2023 El Niño-induced floods. This was credited to the locally-led EW and preparedness which reduced communities' exposure and vulnerability to flood risks through regular updates on flood risks including flood-prone areas where water may pass through and potential high grounds for evacuation roads and shelters.

The information was effectively disseminated to the target community through various media channels including radio stations, mobile messages, and through community committees using microphones 1 month to 2 weeks before flood onset which allowed the community adequate preparation and response planning. While most of the respondents acknowledged the effectiveness of the EW, some noted challenges in receiving warnings due to lack of access to mobile phones or poor network coverage. Besides, the community started setting visual marks and monitoring the river, seemingly prompting them to make decisions based on EW and stated that they trust in EW which can be evidenced by their timely evacuation to the safer grounds. Community members acknowledged the importance of EW systems and preparedness and expressed their admiration for continuing flood risk awareness raising and preparedness measures.

The project leveraged and invested in local capacities, leaving a considerable presence of trained community members consisting of different age and gender groups. These DRR clubs and flood risk preparedness committees mentioned no barriers or instances of discrimination in terms of their participation and contribution to the training and planning indicating how the project addressed the structural social inequalities that are root causes of community vulnerabilities. The trained community members actively engaged in disaster risk reduction activities including EW

dissemination and evacuation guidance provision. The respondents acknowledged the EW dissemination which marked a remarkable improvement in the community's preparedness for flooding. Despite this, some respondents raised concern over sudden situational changes during evacuation which could be attributed to the flood intensity. In addition, school-based DRR clubs are not only helping communities in EW dissemination and evacuation efforts but are also engaged in cleaning campaigns to minimize the outbreak of cholera and other similar diseases.

By giving direct access to unconditional cash to vulnerable households including the poor and those led by disabled persons, the project has to some extent addressed the social and economic inequalities that are root causes of vulnerabilities and helped people to be able to buy food and other necessities during the critical period mitigating negative coping strategies and enabling early recovery. Significant food security improvement was found with more households moving from low to high dietary diversity, reaching acceptable food consumption scores while fewer remained in the poor food consumption category. Although a significant number of households continued to resort to severe coping strategies, there is a reduced coping strategy and an increased number of women participating or independently making decisions in households.

5.2. Limitations

The data was collected from a vulnerable community, and therefore responses regarding impacts, challenges, and suggestions may be susceptible to social desirability bias. While this does not negate the validity of the findings, caution is suggested. This study did not provide comparative analysis or evidence of areas with DRR clubs and the one area that lacks the DRR club. Although the study provided evidence of how the one-time cash transfer helped vulnerable communities to have access to food during the emergency, it did not provide enough quotes related to how cash transfer reduced inequality and associated vulnerabilities. This is because most of the data related to the impact of one-time cash transfer was based on the project baseline and post-disaster monitoring data.

5.3. Key Recommendations

5.3.1. Project Approach:

- Identifying and meaningfully including the marginalized tribes and ethnic groups and last-mile communities such as pastoralists in the decision-making and beneficiary list is also crucial to addressing the vulnerability root causes such as structural social and political challenges.
- Supporting long-term local institutional development and self-sufficiency of agencies such as the Somali Disaster Management Agency and the Hirshabelle State Ministry of Humanitarian Affairs and Disaster Management is also important to reduce dependency on donor projects.

- Increased engagement and coordination of more credible voices including Islamic scholars, elders, youth umbrellas, children and adolescents, women's associations, and other established networks, is crucial for enhancing future project prioritization, design, and implementation.

5.3.2. Early Warning Awareness and Risk Communication:

- Continued flood early warning awareness-raising and ensuring that it reaches the last mile or hard-to-reach communities such as pastoralists by doubling the efforts of on-the-ground teams is vital to the success stories of the anticipatory actions.
- Preparing flood risk maps for flood-prone areas to enhance the targeted and effective response measures to anticipated floods.

5.3.3. Community Preparedness and Response Practices:

- Prepositioning of essential services such as water supply and latrines in the evacuation shelters is also important to avoid early evacuation hesitancy.
- Implementing measures that can divert water from markets and residential areas during flooding is also important due to the lower river capacity in Beledweyne, and water-breaking riverbanks. This can include constructing water reservoirs, drainage systems, and the installation of Geo-plastic sheets and earth dams before the flood onset.
- Facilitating regional collaboration and data sharing between Somalia and Ethiopia can also be important in timely evacuation since Beledweyne flooding is contributed to by water from Ethiopian highlands.

5.3.4. Cash Assistance:

- Distributing more rounds of cash transfers is essential, especially during unprecedented challenges like El Niño which disrupt markets and negatively impact food availability and prices.

ANNEXES

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Data Collection Tools

Observational Guide

	Implemented flood risk EWEA indicators' checklist	
	EWEA Project indicators	
	Effective flood risk EW messages received	
	Sufficient lead time given	
	Operations of organized and dedicated DRR clubs	
	Preposition of flood risk-prone area maps	
	Evacuation procedures	
	Reinforcement of Riverbanks	
	Signs of water diverted by riverbank reinforcements	
	Preposition of evacuation centers	
	Preposition of mosquito nets	
	Prepositioning of Interagency Diarrhoeal Disease (IDD) Kit	
	School-based DRR activities	
	Overall flood impacts indicators	
	Flood-induced displacements	
	Stagnant dirty water	

	Flood damages on important infrastructures (e.g. roads, homes, farms, schools, and health centers)	
	Malnutrition and disease outbreak prevalence	
	Reflective notes	While at the field, the researchers will extensively write about post-flood situational observations and how that is impacting the livelihood of the residents living in the affected areas.

Local EWEA Leaders Key Informant Guide

KII Guide	
Name:	
Phone Number	
Institutional Name	
Sector Focus	
Role	

Introduction:	Good [morning/afternoon], my name is [Enumerator Name] from Tigaal Consultancy. We are conducting a study under Save the Children to investigate the impact of the El Niño floods on riverine communities in and around the Beledweyne district and assess the status of early warning and early action against flood risks. We collect information from key informants to enhance locally led anticipatory actions to protect the community from future flood events. Your expertise and knowledge as a key informant are invaluable to understanding the impact of the El Niño floods on riverine communities in and around the Beledweyne district and the status of early warning and early action against flood risks. This conversation will be kept confidential, and any information provided will be used solely for research purposes. I want to assure you that all the opinions you give are completely confidential. You may refuse to answer any question. You may also end the interview at any point without any negative consequences. However, we would greatly appreciate your opinions on these topics. This discussion should not take more than 60 minutes.
Area	**Guiding Questions**
Flood risk and EWEA awareness	Did you participate in any EWEA or disaster risk reduction training? Can you please describe any early warning signs of an approaching flood?
	What early actions can be taken to avoid such an approaching risk?
Flood risk monitoring	How do you obtain flood risk warnings to communicate to people?
	How long before the flood risks onset do you generate the warnings?

	How confident are you about the accuracy of the data and information?
	Describe the challenges and barriers you face in obtaining flood risk warning data
Risk warning dissemination	
	How do you make sure that all people at risk receive and understand the risk warning message? **Prompt**: (language and media channels used)
	Does your community have organized flood risk protection/DRR clubs? Did flood risk protection/DRR clubs get involved in flood risk EWEA?
Preparedness and response capabilities	Apart from risk communication, what flood risk protection measures have been implemented to protect people and properties?
Resilience and impact assessment	What assets and access to basic services are most affected by flooding and what assets are you able to protect against flooding?
	How do you believe the recent floods have affected youth and children in Beledweyne? (Probe for educational and social impacts)

Educational Impact	How do you believe children and youth can be better protected against the adverse effects of the floods in the area?
	How long did it take the community to come back to their homes after flood-induced displacement? **Probe**: How did flood protection measures benefit people? **Prompt**: data about avoided losses?
Perspectives for improvements	What other measures do you plan or want to be taken to better or differently to prepare for potential flood risks?
Feedback and Suggestions	What additional resources or support could enhance your capacity to enhance early warning and early action against flood risk?
Closing	Is there anything else you would like to add or emphasize?
	Thank you, that concludes our interview.

This general KII guide is designed for government and non-governmental organizations working on flood risk EWEA.

Relevant Institutional KII guide

KII Guide	
Name:	
Phone Number	
Institutional Name	
Role	
Introduction:	Good [morning/afternoon], my name is [Enumerator Name] from Tigaal Consultancy. We are conducting a study under Save the Children to investigate the impact of the El Niño floods on riverine communities in and around the Beledweyne district and assess the status of early warning and early action against flood risks. We are collecting information from key informants to enhance locally led anticipatory actions to protect the community from future flood events. Your expertise and knowledge as a key informant are invaluable to understanding the impact of the El Niño floods on riverine communities in and around the Beledweyne district and the status of early warning and early action against flood risks. This conversation will be kept confidential, and any information provided will be used solely for research purposes. I want to assure you that all the opinions you give are completely confidential. You may refuse to answer any question. You may also end the interview at any point without any negative consequences. However, we would greatly appreciate your opinions on these topics. This discussion should not take more than 60 minutes.

Area	Guiding Questions
Introduction	**Can you please give us an overview of your organisation, your role and how your organisation is involved climatic hazards (i.e. in flood early warning, early action (EWEA) initiatives?**
Profile of the informant	Please describe your role here, since when and how you serve
Climatic Hazards	What is the main hazard or crises affecting this area? This community? i.e. flood and droughts From your perspective, what are the major impacts of flooding in this area/community? How do these impacts change/evolve after multiple events of flooding in year? Are any other hazards of equal concern: if yes, which, how?
History of floods	What was your first flood experience? Describe your experiences of the flooding. How are these floods remembered and talked about? Is flooding reflected in stories or songs, and in local practice/culture? Does these reflect how you historically have lived with flood risks?
Impact of flooding	How were you affected differently during the recent flooding that during "normal" flooding? How is your life different? How does it impact what you eat? Your economy? Access to education? Are there different protection risks normal? How is your life different?
Sources of livelihood	What are your main sources of income and food sources? How are these sources affected by floods?

Particularities of affected communities	What do you know about the community affected by flooding that makes it different from others nearby, if anything?
Impact on children and youth	How has the floods affected children and youth in the area? What can be done to reduce these adverse impacts facing them in the area?
	Can you please give us an overview of your organisation, your role and how your organisation is involved climatic hazards (i.e. in flood early warning, early action (EWEA) initiatives?
Flood risk knowledge	Can you please describe the frequency and severity of floods in Beledweyn area?
	Which specific places in Beledweyn area are more risk prone, and did you prepare flood risk maps of the area?
Flood risk monitoring and forecasting	What is the status of your EWS? Which hazards does it focus on? **Probe:** How do you obtain flood risk warnings? **Prompt**: technology and models used (eg. Rain gauge)
	How long before the flood onset do you generate warnings, and describe the accuracy of the data and information? **Prompt:** how reliable are you on the data accuracy?
	Describe the challenges and barriers you face in obtaining flood risk warning data

Community-based EWS	What community-based early warning flooding system exist in Hiran, Beletweine? Are there examples of these community –based early warning flooding system? Is it community driven/government/humanitarian – and how do you engage with such systems? Do / did you see any signs that community used to know that flooding is going to happen? i.e. moon and star position etc. What happening in the level of water that signals flooding is coming or already here? How do community measure / quantify the level of water?
Risk warning dissemination	What warnings do you provide to community members? How/what channels? Do they contain advice/recommendations on how to respond to the warnings? · Do they receive them in time to react? · Do they believe the warnings? · Are they able to react to the warnings? Why/why not?
	Probe: How do make sure that all people at risk receive and understand the risk warning message? **prompt**: the language and media channels used to convey flood risk warnings

Effectiveness of AA – INGO (SC), Gov, NGOs.	Actions / Interventions - How, if at all, do you help this community manage flooding? Effectiveness - Is your flood-related support timely enough? Why, why not? More - What more could you do to support the community if you had additional resources? When?
	How did you handle the situation during the flooding to make sure you were safe, and protected? What actions did you take? Were these actions supported by community, government, or humanitarian originations? Were the mechanisms locally driven?
Preparedness and response capabilities	Apart from risk communication, what flood risk protection measures have been implemented in Beledweyn area to protect people and properties?
	Who else gets involved in preparedness and response?
Community-based AA	How do you and your community protect against flooding? What are strategies that communities have used for generation to prepare for flooding? How have your historically managed flooding situation? What assets and access to basic services are you able to protect, and based on what information do you and your community make decisions to take different actions? Who is involved and how is it coordinated?

Resilience and impact assessment	What assets and access to basic services are most affected by flooding and what assets are you able to protect against flooding?
	Can you provide any data about avoided losses and damages due to flood protection measures being implemented?
Gov / INGO preparedness	How would you describe your org's / institution current ability to help communities prepare for flooding? Does your planning enable you to predict and act before the onset or peak of flooding? What other plans are in place that support the DRM plan?
	Has humanitarian action been adequate to help the community for the drought? Was an early warning system activated? Did it lead to early action? Or a response? Have you done anything before the onset of drought (any hazard) to help his community? What? Success?
Gov / INGO preparedness / DRM plans / Capacity / EAP	What funding mechanisms do you have access to that could help prevent the impact of flooding for this community before they occur? Can you access a country contingency fund? What triggers the release of the funds? When are the funds available compared to the flooding cycle? Any households in this community that have risk-insurance for their farming and livestock (if any, any initiative that are under pipeline).
Additional Support	Is there anything else you would/could do to lessen the impact of flooding on peoples livelihood(s) / health / education / if you had additional support or resources? - If yes, what? - What resources would be needed? When would they be needed (timing)?

	What additional support would you need (and when) to accomplish these tasks?
Perspectives for improvements	What other measures do you plan or want to be taken to better or differently to prepare for potential flood risks?
	What opportunities were there for communities and humanitarians (SCI) to explore ways in which communities can prepare in advance for next flooding season?
Feedback and Suggestions	What additional resources or support could enhance your capacity to enhance early warning and early action against flood risk?
Recommendation	What opportunities were there for communities and humanitarians to explore ways in which communities can prepare in advance for next flooding season?
Closing	Is there anything else you would like to add or emphasize regarding how people in this area experience (consecutive) floodings that is necessary for us to understand the impacts and potential mitigation/response??
	Do you have any questions for us? **Thank you, that concludes our interview.**

Focus Group Discussion Guide

Moderator to record:

Number of participants:

Age groups:

Gender:

Location of the research participant—

Start of the FGD:

End time of the FGD

Warm up activity:

a) Please try to speak one at a time, let each other talk

b) Please try not to use your phone during the session.

1. Reassure it's all completely anonymous

2. Check whether anyone has any objections to being recorded

3. Check that both microphones are still working, reassure this is just so that the moderator does not have to take notes/or helps researcher to transcribe correctly

4. Does everyone agree to participate?

5. Does anyone have any questions before we start?

FGDs Guide	
Name:	
Phone Number	

Institutional Name	
Sector Focus	
Role	
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Area	**Guiding Questions**
History of flooding	What was your first flood experience? Describe your experiences of the flooding. How are these floods remembered and talked about? Is flooding reflected in stories or songs, and in local

	practice/culture? Does these reflect how you historically have lived with flood risks
Impact of floods	How were you affected differently during the recent flooding that during "normal" flooding? How is your life different? How does it impact what you eat? Your economy? Access to education? Are there different protection risks normal? How is your life different?
Flood risk EWEA awareness	Did you participate in any EWEA or disaster risk reduction training, and if so, can you please describe any early warning signs of an approaching flood?
	What early actions can be taken to avoid such an approaching risk?
	What community-based early warning flooding system exist in your community? Are there examples of these community – based early warning flooding system? Is it community driven/government/humanitarian – and how do you engage with such systems?
Livelihoods and impacts	What are your main income and food sources, and how are these affected by floods?
	Probe: Describe how floods affected your life, and how different your life is now compared to before the flooding. **Prompt:** lower diet (food insecurity) poor Sanitation (e.g disease outbreak), loss of income (poverty), and lack of access to education

	What assets and access to basic services are most affected by flooding and what assets are you able to protect against flooding?
Preparedness and response capability	Can you describe if you received any flood early warning before it started and from whom? **Probe**: What did you do to prepare yourself against flooding before it hits you? **Prompt**: actions taken by you or your community before flooding to make sure you are safe and protected.
	Are you or any of your community individuals a member of a flood risk protection club, and engaged EWEA? Apart from early warning messages, what were you told to do or what was done to help you avoid losses and damages?
	How did you handle the situation during the flooding to make sure you were safe, and protected? What actions did you take? Were these actions supported by community, government, or humanitarian originations? Were the mechanisms locally driven?
	How do you and your community protect against flooding? What are strategies that communities have used for generation to prepare for flooding? How have your historically managed flooding situation? What assets and access to basic services are you able to protect, and based on what information do you and

	your community make decisions to take different actions? Who is involved and how is it coordinated?
Risk resiliency and recovery	Describe any existing flood protection measures that were done well and helped you avoid losses and damages and who implemented them. What emergency response measures did you receive after flooding and from who?
	What opportunities were there for communities and humanitarians to explore ways in which communities can prepare in advance for next flooding season?
Youth	**Youth:** How did floods impact your education? **Prompt**: schools closed **Youth:** does your school have a Disaster Risk Reduction (DRD) club, and are you a member of it? **Youth:** If your school has a DRD club, does it get involved in EWEA? What role did youth play for the monitoring risk monitoring, awareness raising, and response to the flooding? Youth involvement of DRD, and AA?
Women	**Women:** what barriers did you face to participating in EWEA training? Prompt: discrimination
Perceptions, and perspectives:	Can you describe something that can be done better/differently to prepare for the next flooding season?

Feedback and Suggestions	What additional resources or support could enhance your capacity to enhance early warning and early action against flood risk?
Recommendation **Closing**	What opportunities were there for communities and humanitarians to explore ways in which communities can prepare in advance for next flooding season?
	Is there anything else you would like to add or emphasize regarding how people in this area experience (consecutive) floodings that is necessary for us to understand the impacts and potential mitigation/response??