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DISASTER RISK ASSESSMENT

ASSESSMENT OF EARLY WARNING SYSTEMS IN FLOOD PRONE AREAS IN SOMALIA

2023

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EXECUTIVE SUMMARY

Somalia faces profound challenges due to its heightened vulnerability to natural hazards, exacerbated by the escalating climate crisis with its unpredictable weather patterns. This vulnerability not only amplifies the severity and frequency of natural disasters but also introduces new risks and fuels instability, leading to increased conflicts over resources and further displacements of populations. Comprehensive disaster risk and vulnerability assessments are critical for understanding and mitigating the impacts of these adverse events.

Given the competing needs and ongoing crises, humanitarian funding is strained, prompting actors in this field to pivot towards a more proactive approach centered around prevention, preparedness, and disaster risk management. A key development in Somalia's disaster risk management strategy is the establishment of the Multi-Hazard Early Warning System in 2020 by the Ministry of Humanitarian Affairs & Disaster Management, overseen by the Disaster Management Agency under the Ministry of Environmental Affairs and Climate Change, and a dedicated Early Warning Center to refine disaster preparedness and response capabilities. These initiatives, including the backing from programs such as the Food and Agriculture's (FAO) SWALIM initiative are pivotal in delivering timely information and coordinating efforts to mitigate disaster impacts effectively. Such measures are critical in ensuring the resilience and security of Somalia's populations against the frequent challenges posed by climate-related and natural disasters.

The primary objective of this assessment was to evaluate the existence and effectiveness of early warning systems for enhanced disaster risk monitoring and reduction across 6 flood-prone districts in Somalia; Balcad, Baardheere, Beledweyne, Bulo Burto, Doolow and Jowhar. The assessment examined the status of the early warning systems, focusing on key components such as risk knowledge, monitoring and early warning, dissemination and communication, and response capabilities during the El Niño 2023 floods. By providing valuable insights into the current state of early warning capabilities within the evaluated districts, the assessment highlighted the critical gaps and areas requiring strengthening. This is crucial to ensure that communities are better prepared and able to respond effectively to the escalating climate-driven hazards, such as floods which have been exacerbated by the ongoing climate crisis in Somalia.

Summary of Key Findings

Climate Change Trends:

- The top climate change trends over the past 10 years are increased rainfall (33%), drought due to less rain (29%), and rise in temperature (26%). These trends are observed across various districts with different intensity levels, affecting communities in disparate ways. Doolow District reported highest with rise in temperature at 98%; Bulo Burto had the highest reported increase in drought incidences at 39% and Jowhar district reported highest increase in rain associated with flooding (38%) observed over a 10 year period.

Observed Common Natural Disasters:

- Riverine floods and drought were identified as the top natural disasters impacting all districts, occurring in cyclical patterns that aligned with the seasonal calender in Somalia. Riverine flooding peaked during the Gu (mid-April to mid-May) and Deyr (mid-September to mid-October) seasons.
- Doolow and Baardheere districts reported 76% and 64% respectively the highest frequency of riverine flooding while flash floods were reported mostly in Jowhar at 24%, Balcad at 22%, and Beledweyne at 22%. Drought cycle occured every 1-3 years, affecting most months of the year, with peak periods during the Jilaal (December to mid-March) and Haggai (July to mid-September) dry seasons.

Local Knowledge Integration:

- The use of local knowledge alongside scientific insights enhances disaster risk management by providing a more comprehensive understanding of hazards and vulnerabilities specific to each community. In terms of local indigeous knowledge, 62 per cent of respondents reported that it was integrated in understanding potential disasters. Bulo Burto and Balcad (98% and 97% respectively) had the highest integration of local knowledge, while Baardheere reported the least at 29%.

Monitoring and Early Warning:

- Monitoring and early warning systems are critical for forecasting short-term and long-term events and anticipating hazards. Community and district level government initiative in monitoring changes in weather were similar (31% and 30%, respectively) followed by NGOs. The perception of disaster risk priority varied across districts, signaling the need for tailored approaches to address specific community needs effectively. The majority of respondents (65%) expressed a neutral stance on the prioritization of disaster risk across the six districts. Balcad district stood out as the only one with the highest proportion of respondents (59%) considering disaster risk as a very high priority. In contrast, Bulo Burto respondents ranked disaster risk as a very low priority (58%). Doolow district had an almost unanimous proportion of respondents, both displaced and resident, taking a neutral stance.
- Only 47% of respondents confirmed that disaster risk assessments were conducted in the 6 districts.

Communication and Early Warning Systems:

- Radio stations and mass Short Messaging Service (SMS) were commonly used as communication channels, with the effectiveness of early warning information received for improved disaster preparedness and response at 29% and 22% respectively. Respondents consistently ranked radio stations (26%) and bulk SMS (18%) as their top preferred communication methods.
- Approximately 90% of respondents, 51% from displaced communities and 39% from host communities, reported receiving early warnings. Jowhar and Bulo Burto received these warnings 3 months ahead, while Balcad and Beledweyne had less than a week and slightly more than a week, respectively. The shortened preparation time in Balcad and Beledweyne increases risks for these vulnerable communities by limiting the time available to develop effective contingency measures.
- Overall, 95% of respondents confirmed the reliability of the early warning information, and 92% acknowledged its critical role in disaster preparedness and mitigation.

Response Capability and Disaster Management Plans:

- Linking forecast-based early action with early warning systems can help communities take targeted actions based on their needs, capacities, and priorities. There is a need to enhance the response capability of communities by implementing comprehensive disaster management and response plans, leveraging historical data and community-based capacities.
- Disaster management and response plans are crucial for disaster preparedness, enabling swift and effective response. Only 31% of respondents confirmed the existence of such a plan, with 15% from displaced communities and 16% from host communities. 37% of respondents did not know the existence of a plan, and 32% were unaware of whether a contigency plan existed. This highlights the need for greater awareness and implementation of comprehensive disaster preparedness strategies across all communities.
- 57% of respondents affirmed that past experiences in responding to disasters were considered into the current disaster planning and response, while 43% disagreed. The highest proportion of affirmative responses came from Bulo Burto (96%), followed by Balcad (77%), Doolow (55%), Beledweyne (53%), Jowhar (47%), and Baardhere (37%). This suggests varying levels of incorporation of historical disaster data across the districts, impacting the effectiveness of disaster response strategies.
- The most common capacity reported to aid flood response was accessibility to higher grounds (28%), followed by evacuation sites (21%) and volunteer groups (16%). 52% of participants acknowledged community involvement in response and recovery actions. However, 54% of respondents indicated a lack of public awareness campaigns, and 51% had no exposure to disaster response and recovery exercises.

Conclusions

The assessment on mapping of early warning systems was implemented during Somalia's El Niño in 2023, with the sole purpose of evaluating the existence of early warning systems (in line with key components of risk knowledge, monitoring and early warning, dissemination and communication, and response capabilities) for enhanced disaster risk monitoring and reduction in six flood-prone districts of Somalia. The findings from this assessment unveiled the critical need for further investments in robust, climate-related early warning systems, community engagement and awareness programs and the adoption of more proactive measures to address the evolving disaster risks in Somalia. By strengthening early warning systems and fostering proactive disaster management approaches, the country can better safeguard the lives and livelihoods of its vulnerable populations against the mounting challenges posed by the changing climate. Additionally, the findings from the assessment are expected to inform decision-makers, IOM programmes and other stakeholders in their preparedness, planning interventions and guide the development of comprehensive strategies for enhanced disaster risk reduction efforts in Somalia.

Recommendations for enhancement of early warning systems

1. Enhance Monitoring and Early Warning Systems:
    - Strengthen the partnership between communities, government, and organizations in monitoring weather patterns and refining early warning systems.
    - Ensure early warning information is communicated in a timely manner, with sufficient lead time for communities to prepare and respond effectively.
    - Improve the reliability and accuracy of early warning information to build trust and increase its utilization by communities.
2. Integrate Local and Scientific Knowledge:
    - Leverage the deep understanding that local communities have of their environment to enhance the comprehensiveness of hazard and vulnerability assessment while ensuring disaster risk management approaches are culturally relevant and resonate with the local context.
3. Conduct Comprehensive Disaster Risk Assessments:
    - Ensure regular and systematic disaster risk assessments are conducted across all districts to identify specific risks and vulnerabilities.
    - Utilize the data from these assessments to inform the development of tailored disaster preparedness and response plans.
4. Improve Communication and Dissemination of Information:
    - Leverage the most effective communication channels, such as radio stations and bulk SMS, to disseminate disaster-related information and early warnings while diversifying communication methods and improving collaboration between all stakeholders.
5. Strengthen Disaster Preparedness and Response Capabilities:
    - Develop and implement comprehensive disaster management and response plans in all districts, with a focus on community-level engagement and ownership.
    - Enhance public awareness campaigns to educate communities on disaster risks, early warning systems, and appropriate response actions.

OVERVIEW

Somalia's vulnerability to natural disasters and frequency profoundly impacts the lives of vulnerable populations. The escalating climate crisis, with its unpredictable weather patterns, amplifies the severity of natural disasters, introduces new risks, and fuels instability. This exacerbates conflicts over resources and further displacement of populations. Disaster risk and vulnerability assessments are vital for understanding and mitigating the impacts of both natural and man-made disasters. Despite the challenges, it is critical to gather data on anticipated disaster risks, exposure of populations, and the potential impacts of disasters that could cause displacements.

The strained humanitarian funding due to competing needs, coupled with ongoing crises, has pushed humanitarian actors to adopt a more proactive approach to humanitarian assistance, focusing on prevention, preparedness, and disaster risk management. In response, the establishment of Multi-Hazard Early Warning Systems (MHEWS) and the strengthening of community capacities have been priorities. Recognizing the importance of effective early warning systems in reducing disaster risk and adapting to climate change is becoming increasingly significant. IOM has been on the forefront in leveraging the Early Warning for All (EW4ALL) initiative to address disaster displacement. The initiative has the overarching objective "to ensure every person on earth is protected by early warning systems within five years" hence, to achieve universal coverage of Early Warning Systems (EWS) by 2027[1] .In recent years, disaster risk reduction has been mainstreamed in Somalia, leading to numerous initiatives by various governmental bodies.

A notable development was the creation of the Multi-Hazard Early Warning Center in 2020, by the Ministry of Humanitarian Affairs & Disaster Management of Somalia, managed by the Disaster Management Agency under the Ministry of Environmental Affairs and Climate Change. This center acts as a central hub for risk management activities in the country, managing early warning systems to deliver timely and effective information to those at risk[2]. Additionally, Somalia's Disaster Management Agency plays a key role in mobilizing and coordinating local and international emergency responses[3]. It supports the National Multi-Hazard Early Warning Center and the National Emergency Operations Center, which are tasked with undertaking emergency response actions. Furthermore, the Water and Land Information Management (SWALIM) program within the United Nations Food and Agriculture Organization (FAO) in Somalia offers early warning information focusing on drought and flood risk[4]. These initiatives underscore the fundamental importance of early warning systems in Somalia, by providing essential information that enables prompt and efficient responses to imminent natural threats.

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1. WMO. (2022) . Early Warning for All: The UN Global Early Warning Initiative for Implementation of Climate Adaptation. Executive Action Plan 2023-2027
2. UNDRR. (2024). Mapping good practices around the world. Retrieved from Multi-hazard early warning systems: https://www.undrr.org/words-into-action/guide-multi-hazard-early-warning/map#map-18.
3. UNDRR. (2024). Mapping good practices around the world. Retrieved from Multi-hazard early warning systems: https://www.undrr.org/words-into-action/guide-multi-hazard-early-warning/map#map-18.
4. UNDRR. (2021). Improving flood response in Somalia through remote sensing. Retrieved from Prevention Web: https://www.preventionweb.net/news/

OBJECTIVES

Recognizing the importance of preparedness and response in an effective early warning system, this assessment aimed to evaluate existing early warning systems in flood-prone areas along the Juba and Shabelle rivers in Somalia. The goal was to assess the communities' knowledge on disaster risks, monitoring systems, disaster risk knowledge, disaster preparedness through comunication of early warning information for early action and the response capabilities of vulnerable communities in mitigating impacts of natural disasters and climate-related hazards.

METHODOLOGY

Assessment Themes

The assessment was a quantitative tool designed by DTM Somalia to align with Somalia's context and its experience with disasters within the broader disaster risk management strategies. The major themes that correspond to early warning systems used were consistent with those applied by the United Nations Office for Disaster Reduction which were Risk knowledge; Monitoring and Early Warning; Dissemination and Communication; and Response capabilities[5]. In risk knowledge, it encompasses a thorough and locally-informed comprehension of various key factors, including hazards, vulnerabilities, livelihoods, social inclusion, and exposure. It delved into understanding the role of indigenous knowledge in interpreting risks and how are affected populations involved in disaster risk mitigation efforts.

Monitoring and early warning systems are essential for forecasting across all time scales and are particularly vital for predicting and monitoring hazards. These systems rely on continuous observations which act as their backbone. For these services to be duly effective, they need to be collaboratively developed with the communities they aim to serve and include mechanisms for feedback. It is essential that these warnings are relayed through channels that are trusted and preferred by the community, formulated in a way that prompts action, and issued in a timely manner to support efficient decision-making, underscoring the importance of robust dissemination and communication pathways for preemptive actions. Preparedness as a strategy and basis of response relies on ensuring that early warning are transformed into life saving actions. Generally, preparedness actions should be designed as 'no-regrets' interventions, which provide benefits to the exposed groups even if the anticipated hazard does not occur. This approach not only protects but enhances the resilience of these communities.

Sampling and coverage

Flood prone area dataset from FAO SWALIM was used to delineate areas that have been historically affected by floods. An assumed additional 1km buffer zone was included to better understand the exposure of vulnerable communities at risk of flooding. This approach aligned with the flood risk exposure analysis conducted by DTM along rivernine districts during the same period a shown in map 1. Out of the several districts that span along the Juba and Shabelle rivers, six districts were selected for this assessment: Balcad, Bulo Burto, Beledweyne, Doolow, Jowhar and Doolow. Their selection was guided not only by their history of recurrent flooding and flood risk exposure analysis but also by reported flood-induced population displacements, as reflected in the previous periodic DTM Emergency Trend Tracking analysis. These spatial datasets were then overlayed with settlement site data from Baseline 2 data to inform on the settlement sites, population figures and demographics at risk. Implemented by DTM Somalia mission, Baseline 2 is an area-based assessment which aims to quantify presence of population category[6].

5. UNDRR. (2006). Developing early warning systems, a checklist: third international conference on early warning (EWC III)., (pp. 1-10). Bonn, Germany.
6. IOM. (2024). DTM Somalia Baseline 2 Summary Report. International Organization for Migration
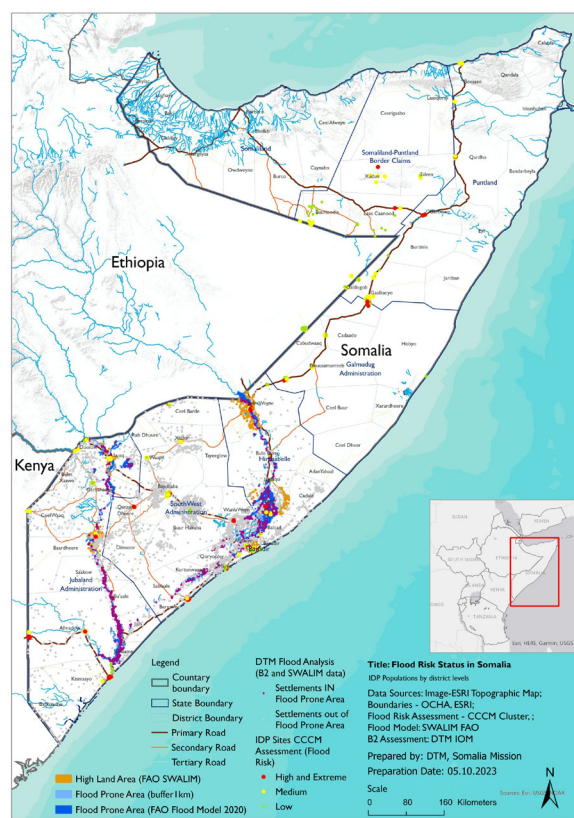
The baseline population data in this case was used to prioritize and select target sites for the assessment with high population figures. Furthermore, ease of accesibility to the settlement sites due to security was used to refine the final target settlements sites. The assessment was conducted at key informant (KII) level from the selected settlement sites. A KII in this case was a representative who is well versed with information about his/her community, its inhabitants either due to their personal experience, leadership or professional background they have.

The assessment was administered across three regions (Gedo, Hiraan and Middle Shabelle) and six districts (Balcad, Beledweyne, Jowhar, Doolow, Bulo Burto and Baardhere). The coverage per district and settlements varied as visualized on the coverage map below.
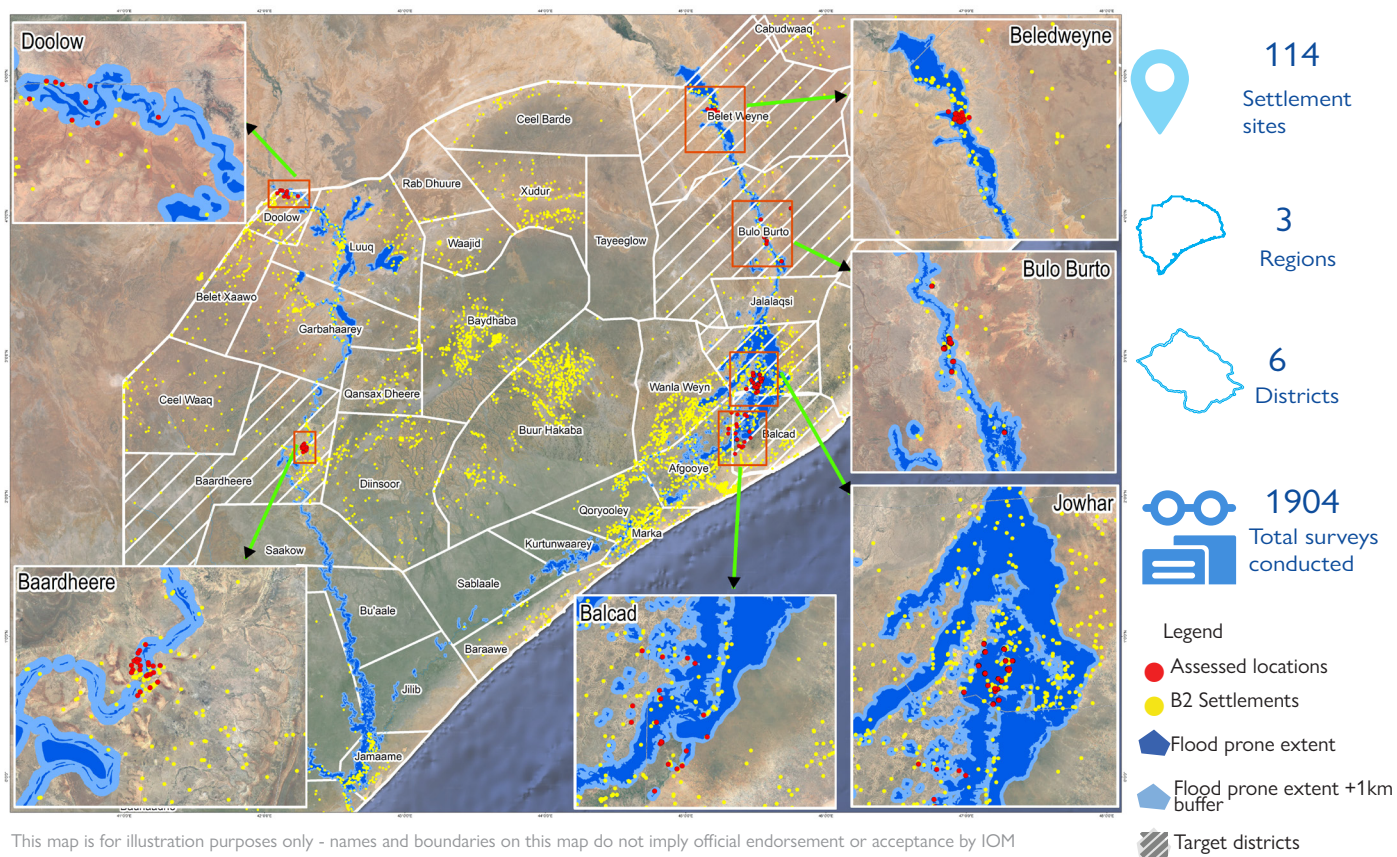
This map is for illustration purposes only - names and boundaries on this map do not imply official endorsement or acceptance by IOM

114 Settlement sites

3 Regions

6 Districts

1904 Total surveys conducted

Legend
- Assessed locations
- B2 Settlements
- Flood prone extent
- Flood prone extent +1km buffer
- Target districts

Prior to conducting field assessment, 18 enumerators and were taken through a 2-day virtual training in Mogadishu on the data quality requirements, broader assessment themes, field coordination and planning. Of the total enumerators, 66 per cent were male and 34 per cent were female. For each district, field companion maps as navigation guides were provided upon which trained enumerators used while visiting the sites and conducting the surveys using Kobo Toolbox mobile app on their phones. Additionally, the survey tool included a feature that allowed switching the language settings from English to Somali.

Demographics

A representative sample of 1,885 key informants were interviewed during the assessment from 111 settlement sites visited. These represent a total of about 58,845 households out of which 31,611 are displaced (54%) and 27,234 households are residents (46%) as summarized in the Table 1.

Of the total key informants, 51% of the respondents were male and 49% were female as shown in the Figure 1.
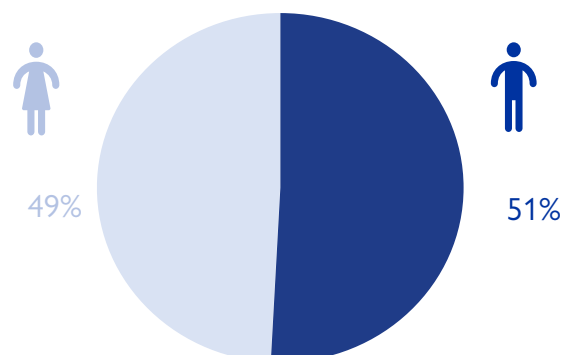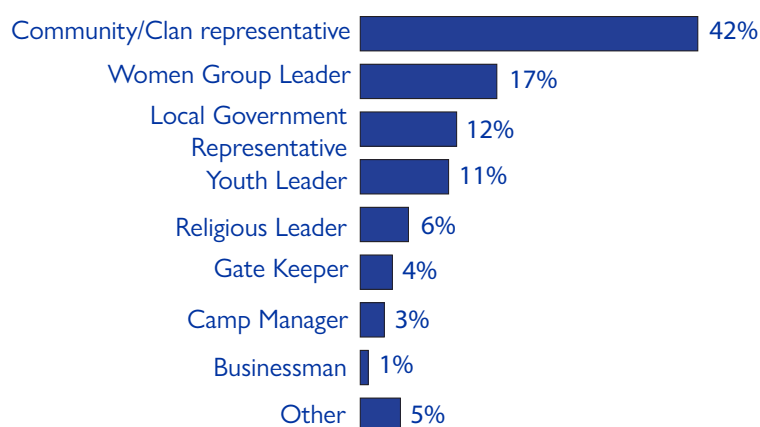

49%   51%

Figure 1: Respondents disaggregated by sex

Table 1:Targeted Sample Population

Districts	IDP Households	IDP Individuals	Resident Households	Resident Individuals
Baardhere	5,617	33,702	6,442	38,652
Balcad	1,820	10,920	10,203	61,216
Beledweyne	8,682	52,098	1,200	7,200
Bulo Burto	1,464	8,784	1,725	10,350
Doolow	8,628	51,770	876	5,256
Jowhar	5,400	32,400	6,788	40,728
Total	31,611	189,674	27,234	163,402
% Total	54%		46%	

Figure 2: Respondents disaggregated by sex

Community/Clan representative 42%
Women Group Leader 17%
Local Government Representative 12%
Youth Leader 11%
Religious Leader 6%
Gate Keeper 4%
Camp Manager 3%
Businessman 1%
Other 5%

Less than half (42%) of the total respondents were community or clan representatives, followed by women group leaders (17%), local government representatives (12%) and youth leaders (11%). The rest of the respondents who constituted below 10 per cent of the total respondents were persons running businesses, camp managers, gate keepers, religious leaders and professionals as shown in the Figure 2.

In terms of education level, more than three quarters (76%) of key informants had attained islamic education (madrasa/koranic), followed by primary school level at 16 per cent. Other educational levels such as secondary school, university, no education at all, vocational training and other education levels were all reported at rates below five (5%) per cent.

Knowledge of Disaster Risk

Top 3 Climate change trends

1st Trend
Increased rainfall

2nd Trend
Drought

3rd Trend
Increased temperatures

The top 2 common natural disasters are riverine floods (52%) and drought (30%).

52%

30%
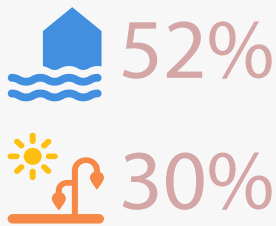
Figure 4: Common natural disasters per district

- Riverine floods
- Flash floods
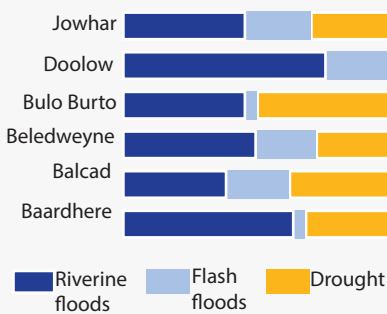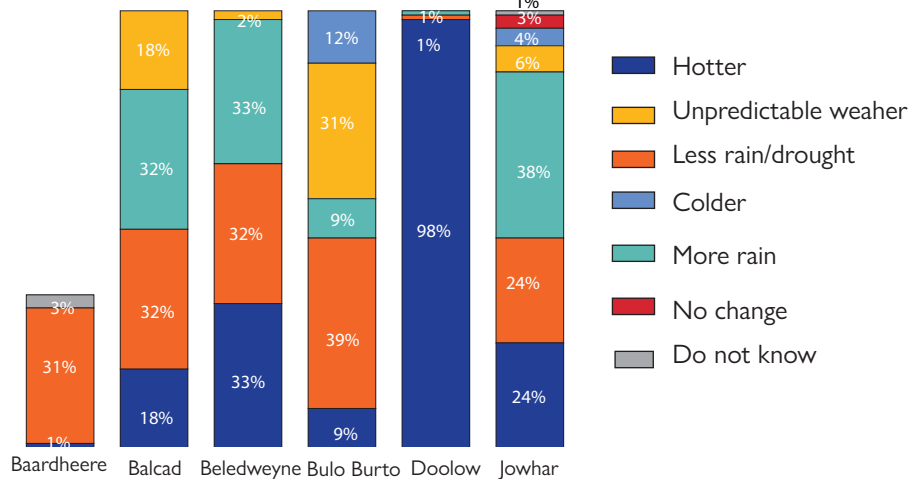- Drought

Table 2: Common natural disasters per district

District	Riverine floods	Flash floods	Drought
Baardhere	64%	4%	31%
Balcad	39%	23%	38%
Beledweyne	50%	22%	28%
Bulo Burto	46%	4%	50%
Doolow	76%	1%	23%
Jowhar	46%	24%	30%

ASSESSMENT FINDINGS

The top three climate change trends observed in the past 10 years were increased rainfall (33%), drought occasioned by less rain (29%) and rise in temperatures (26%). Others were unpredictable rainfall patterns (9%) and decreased temperatures (1%). Comparably, almost all the respondents reported an increase in temperature changes in Doolow District at 98 per cent followed by Beledweyne at 37 per cent. Increase in drought incidences were reported highest in Bulo Burto at 39 per cent then Beledweyne (32%), Balcad (32%) and lastly Baardhere (31%). Increase in rain associated with flooding was reported highest in Jowhar (38%) followed by Beledweyne (33%). A summary of comparable results is as shown in Figure 3 below.

Figure 3: Climate change trends as observed over 10 year period

Legend:
- Hotter
- Unpredictable weaher
- Less rain/drought
- Colder
- More rain
- No change
- Do not know

Common natural disasters incidence and cycle

Riverine floods (52%) and drought (30%) are the top two common natural disasters affecting the six districts. Frequency of riverine flooding was consistent the Somalia seasonal calender with peak month being Mid-April and Mid-May in Gu Season; Mid-September to Mid-October in Deyr season. It was reported most in Doolow (76%) and Baardheere (64%). Flash flood incidences (18%) which came in as third was reported mostly in Jowhar (24%) ,Balcad (22%) and Beledweyne (22%) as shown in Figure 4. 86% of the respondents collectively affirmed that the drought cycle occurs every 1-3 years cycle, affecting most months of the year. The peak periods of less rain associated with dry season were highlighted between transition periods of dry season to the wet seasons as in line with the Jilaal (December to Mid March) and Haggai (July to Mid September) dry seasons in Somalia.
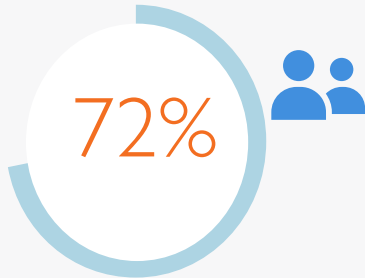
Figure 5: Seasonal calendar

Dry season

Wet season

| Jan | Feb | Mar | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec |
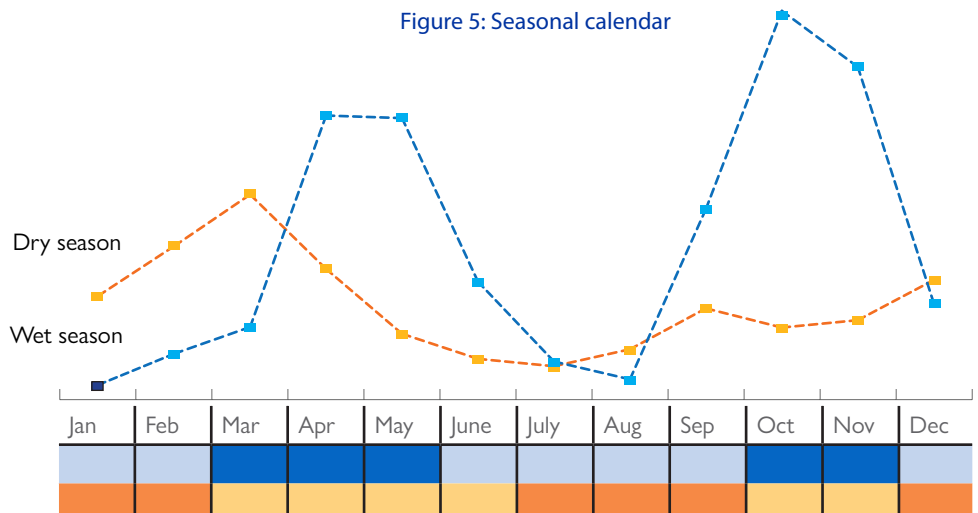
Knowledge of Disaster Risk

62%

Integrate indigenous knowledge in Disaster Risk Assessment

72%

Host communities

50%

Displaced communities

47%

Disaster Risk Assessments Conducted in the Districts

Table 3: Disaster risk assessments per distritcs

District	Yes	No	Do not know
Baardhere	64%	4%	31%
Balcad	39%	23%	38%
	50%	22%	28%
Bulo Burto	46%	4%	50%
Doolow	76%	1%	23%
Jowhar	46%	24%	30%

Use of indigenous knowldege in understanding disaster risks

Besides understanding climatic patterns and weather trends using scientific knowledge, the use of local knowledge in understating potential disasters from the common hazards were used in the assessed area. Local communities usually possess a profound understanding of their environment, enabling them to observe subtle changes that might be overlooked by conventional scientific methods. Integrating this traditional wisdom can lead to a more comprehensive assessment of hazards and vulnerabilities. By embracing these local insights, disaster risk management becomes more culturally relevant and effective, ensuring that strategies are not only scientifically sound but also resonate with the local context and history.

In the assessed area, a majority of the respondents of about 62 per cent upheld that local knowledge was integrated with the most respondents coming from host communities (72%) and 50% from displaced populations as shown in figure 5 below. The districts with the most respondents using local knowledge were Bulo Burto (98%) and Balcad (97%). The least was Baardheere at 29%.
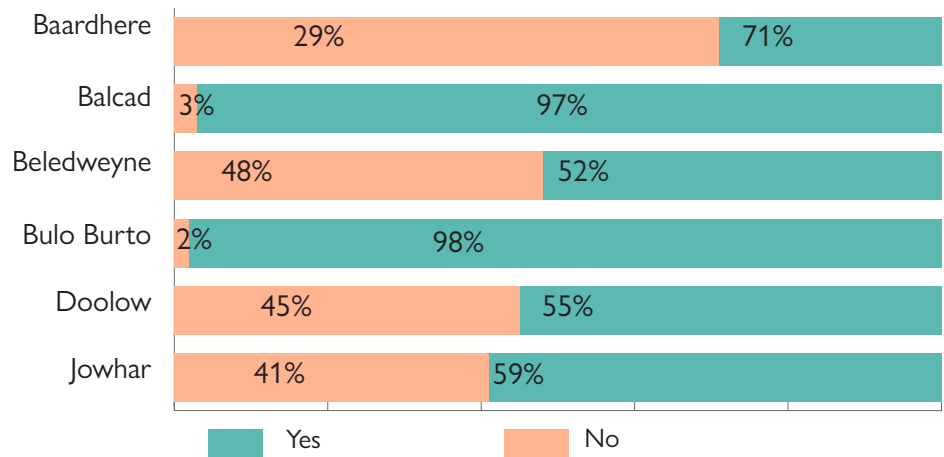

Figure 6: Intergration of indigenous knowledge across the districts

Disaster risk asssessments

Conducting disaster risk assessments in an area is essential for understanding the specific risks and vulnerabilities that region faces. These assessments provide crucial data that informs the identification and evaluation of potential hazards. This proactive approach not only helps in mitigating the impact of potential disasters but also strengthens community preparedness, ensuring that both resources and response mechanisms are aligned effectively with the actual risks present. Such tailored assessments are key to safeguarding lives, properties, and the environment, enhancing the overall resilience of communities to adverse events. As part of disaster risk preparedness, respondents were asked if any form of disaster risk assessment was done as basis for understanding risk across the assessed 6 districts. Only 47% of respondents affirmed that disaster risks assessments have been conducted in their respective districts. Thirty two per cent of respondents refuted that it has been done and 20% of respondents had no idea of whether it was done or not. The summary of the responses per district is as shown in Table 3.

Monitoring and Early Warning

Top 3 Monitoring Leads

31%
Community

30%
Non govermental organisations

30%
District level goverment

⚠️

65% of the respondents were neutral in terms of disaster risk prioritization

13% of the respondents prioritize disaster risk very highly

11% of the respondents prioritize disaster risk highly

6% of the respondents prioritize disaster risk low

Existence of an early warning system and its accessibility

Monitoring and early warning systems play a critical role in forecasting both short-term and long-term events and are especially crucial for anticipating hazards. The success of these systems hinges on continual monitoring, which forms the foundation for accurate predictions. To enhance the effectiveness of these systems, it is necessary to develop them in partnership with the communities they are designed to protect.

The community took lead in monitoring changes in weather patterns (31%) while being followed closely by district level government (30%); Non govermental organisations (NGO's) and community-based organizations (21%). The results clearly demonstrate the role and the opportunity the communities have in working alongside governments, organizations and people who live and work in vulnerable locations in understanding historic, current, and changing weather patterns in assessing and refining the accuracy of forecasts.

Disaster risk prioritization

Regarding the prioritization of disaster risk across the six districts, the majority of respondents (65%) expressed a neutral stance. This was followed by very high (13%), high (11%), low (6%), and very low (5%) priorities. Balcad district stood out as the only one with the highest proportion of respondents (59%) considering disaster risk as a very high priority owing to the frequency of floods. In contrast, Bulo Burto respondents ranked disaster risk as a very low priority (58%). Within Balcad district, 61% of the host community respondents recognized disaster risk as a very high priority. However, in Bulo Burto, both displaced communities considered it as the very least priority, with 73% and 50% of the respondents, respectively.

Notably, Doolow district had an almost unanimous proportion of its respondents, both displaced and resident populations, taking a neutral stance at 99.89% and 99.52%, respectively. These findings suggest that while disaster risk remains a priority for a significant portion of the population, there could be other more pressing needs in districts like Doolow, Baardhere, Beledweyne, and Jowhar. However, the overall trend indicates a general recognition of the importance of disaster risk, with a sizable proportion of respondents leaning towards the very high and high priority categories.

Table 4: Disaster risk prioritization levels districts

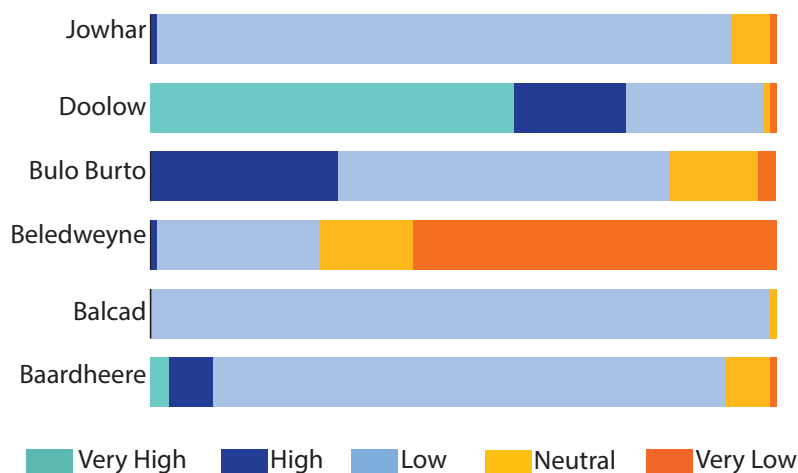| District	Very High	High	Neutral	Low	Very Low
Jowhar	3%	7%	82%	7%	-
Doolow	-	-	99%	1%	-
Bulo Burto	-	2%	26%	15%	58%
Beledweyne	-	30%	54%	14%	3%
Balcad	58%	18%	22%	1%	1%
Baardheere	-	1%	92%	6%	1%

Figure 7: Disaster risk prioritization levels districts

Communication and Dissemination

Used Communication channels

📻 **29%**
Radio Stations

📱 **22%**
Bulk SMS
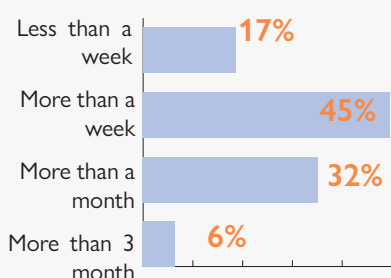
👥 **11%**
Word of Mouth

👨‍👩‍👧 **10%**
Family

Lead times

90% of the respondents report to receive early warning information in good time

45% of the respondents report to receive early warning information in less than a week

Figure 8: Early warning lead times

Less than a week	**17%**
More than a week	**45%**
More than a month	**32%**
More than 3 month	**6%**

Communication channels

Across the six districts, radio stations are the predominant mode of communication, used by 29% of the population, followed closely by phone alerts via bulk SMS at 22%. Communications via word of mouth and family follow, with respective usage rates of 11% and 10%. Notably, 56% of radio station users are from displaced communities, whereas 44% are from resident communities. Newspapers rank as the least utilized communication channel in these areas.

For the districts of Doolow and Balcad, radio stations are the primary communication tool, preferred by 53% and 50% of the respondents, respectively. The least favored method in Doolow is through international organizations, which only 6% of people use, whereas 33% of the community in Doolow depends on information from government sources. In Balcad, residents equally value social media platforms, radio stations, and bulk SMS, each being used by 29% of the population.

When asked about their preferred methods of communication, respondents consistently ranked radio stations (26%) and bulk SMS (18%) as their top choices. Government and social media platforms emerged as the third and fourth preferred options at 11%. Other methods like newspapers, word of mouth, voluntary groups, family or friends, and local and international organizations accounted for less than 10%.

📻 **26%**
Radio Stations

📱 **18%**
Bulk SMS

🏛 **11%**
Government

Reliability of early warning received and lead times

Reliable early warning information is vital for effective disaster preparedness because it provides the necessary data to anticipate potential hazards and implement proactive measures. With accurate and timely warnings, communities can mobilize resources, evacuate dangerous areas, and safeguard vital infrastructure, ultimately reducing potential damage and saving lives. Shorter lead times, while challenging, push for more efficient and rapid response mechanisms. They necessitate well-established, robust disaster response strategies that can be activated almost immediately. The linkage between early warning and anticipatory action reveals that approximately 90% of respondents, notably 51% from displaced communities and 39% from host communities, reported receiving early warnings.

Table 5: Early warning lead times across the districts

Early warning lead times				
District	Less than a week	More than a week	More than a month	More than a 3 months
Baardheere	1%	-	98%	1%
Balcad	95%	3%	2%	95%
Beledweyne	0%	98%	2%	-
Bulo Burto	1%	11%	43%	1%
Doolow	7%	37%	53%	7%
Jowhar	20%	20%	-	20%

Communication and Dissemination

95%
of the respondents report to receive realiable early warning information

92%
of the respondents affirm that early warning information received helps in decision making process in disaster preparedeness

Response Capability

Disaster management and response plans

31%
of the respondents have disaster management and response plans in place

37%
of the respondents do not have disaster management and response plan

32%
of the respondents are not aware of a disaster managementand response plan

Table 6: Existence of disaster management and response plan across the population groups

Response	Host Community	IDP Site	Grand Total
No	18%	19%	37%
Yes	16%	15%	31%
Don't know	20%	12%	32%

Sixty per cent and forty five per cent of the respondents from Jowhar and Bulo received early warning information ahead of potential disasters. However, ninety eight percent of the respondents from both Balcad and Beledweyne, had far less time to prepare, with less than a week and slightly more than a week respectively as shown in the Table 5. This shortened preparation time significantly increases risks for vulnerable communities by curtailing the time available to develop effective contingency measures. This situation starkly contrasts with areas that receive earlier warnings, which have a better chance to enact preventative measures and boost survival rates. Overall, 95% of the respondents confirmed the reliability of the early warning information, and 92% acknowledged its critical role in facilitating key decisions related to disaster preparedness and mitigation strategies.

Disaster management and response planning

Early warning is only as useful as the response taken when it is received. The capability of stakeholders to respond to a warning is limited by complex factors meaning that that many households or communities simply may not have the resources to take action to protect themselves, their homes, or their livelihoods when a hazard event occurs . A major advantage of linking forecast-based early action with early warning systems is that by using the additional time provided by a longer-term lead time early warning, targeted actions can be taken that are relevant for specific communities at risk, based on their needs, capacities, and priorities.

Disaster management and response plan is amongst capacities that can be entrenched within the community and is part of disaster preparedness. It prepares both individuals and organizations to respond swiftly and effectively which not only mitigates the impact of disasters but also enhances the safety and resilience of communities, enabling a quicker recovery and reducing overall vulnerability to future disasters.

Based on the assessment across the 6 districts, only 31% of respondents confirmed the existence of a Disaster Management and Response Plan. Of this 31%, 15% were from displaced communities and 16% were from host communities. In contrast, 37% of respondents reported that there was no contigency plan of such a plan, with 19% from displaced communities and 18% from host communities.
Furthermore, 32% of the respondents were unaware of whether a Disaster Management and Response Plan existed or not. This group was primarily comprised of 20% from the host community population and 12% from displaced populations. These findings highlight the need for greater awareness and implementation of comprehensive disaster preparedness strategies across all communities, ensuring equitable access to critical information and
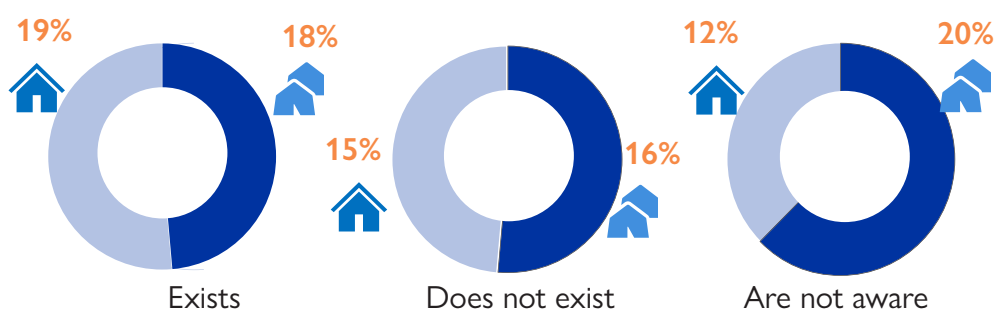
19%   **18%**   **12%**   **20%**

15%   **16%**

Exists   Does not exist   Are not aware

Table 7: Response Capability or capacity levels

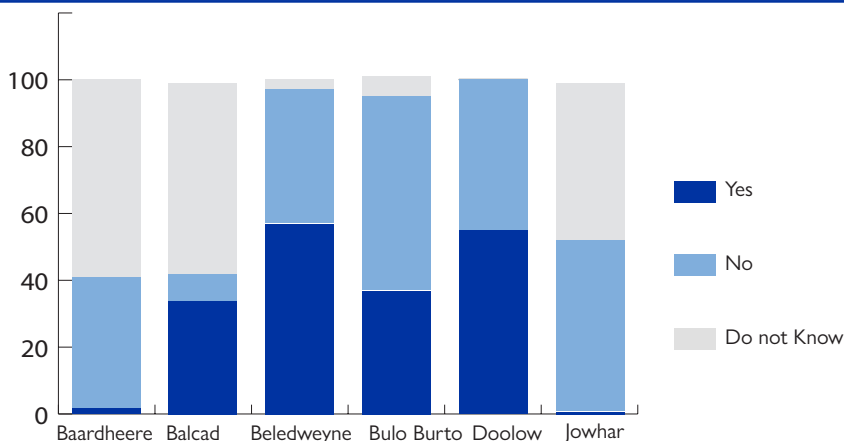| District	Yes	No	Do not Know
Baardheere	2%	39%	59%
Balcad	34%	8%	57%
Beledweyne	57%	40%	3%
Bulo Burto	37%	58%	6%
Doolow	55%	45%	-
Jowhar	1%	51%	47%

Figure 8: Existence of disaster reponse and management plan

57% of the respondents use past disaster knowledge to inform their disaster and response plan

Figure 9: Use of past disaster knowledge

Capacities at community level

37% of the respondents have existing capacities at community level to aid in disaster response

Use of past disaster trends in informing disaster preparedness

Understanding the patterns of past disasters can greatly enhance preparedness and aid in the creation of viable response plans. When queried about the integration of such historical knowledge, 57% of respondents stated that past experiences were indeed considered in current planning, while 43% disagreed. Among those who confirmed the integration, the largest proportion came from Bulo Burto district at 96%, followed by Balcad at 77%, Doolow at 55%, Beledweyne at 53%, Jowhar at 47%, and Baardhere at 37%. Baardhere also recorded the lowest percentage of affirmative responses at 63%. This suggests varying levels of incorporation of historical disaster data across the districts, impacting the effectiveness of disaster response strategies.
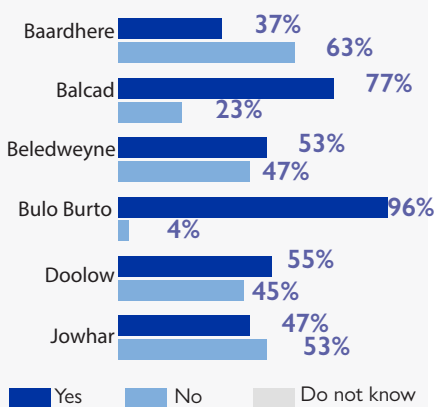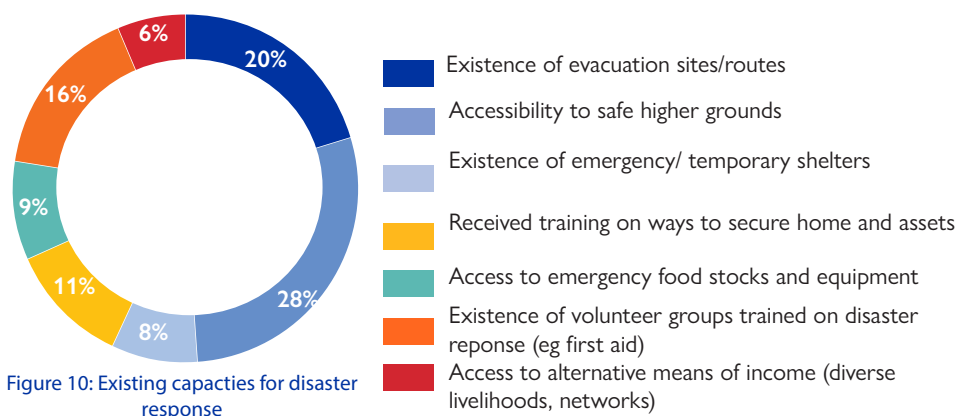
Awareness of disaster preparedness capacities

Community-based capabilities ensure a quicker, culturally sensitive, and more targeted response, which is essential when time is critical. Moreover, empowered communities foster a sense of resilience and self-sufficiency, enabling them to manage and recover from disasters more independently. Strengthening local capacities also enhances overall disaster preparedness, ensuring that communities are not only ready to face emergencies but are also active participants in their own protection and recovery processes. In the event of flooding, the most common capacity reported that exists to aid the response of disaster was accessibility to higher grounds (28%). These are known sites that are always used by communities temporarily to seek refuge when flooding occurs leveraged by their elevation over the flood plains. Existence of evacuation sites was reported as 21% and existence of volunteer groups at 16%. Other available capacities are as summarized in Figure below.

Figure 10: Existing capacties for disaster response

- Existence of evacuation sites/routes
- Accessibility to safe higher grounds
- Existence of emergency/ temporary shelters
- Received training on ways to secure home and assets
- Access to emergency food stocks and equipment
- Existence of volunteer groups trained on disaster reponse (eg first aid)
- Access to alternative means of income (diverse livelihoods, networks)

Community Engagement in Disaster Response

37% of the respondents are involved in disaster reponse planning and recovery

54% of the respondents lack any form of access to public awareness campaigns

51% of the respondents have partcipated in any form of disaster and response exercise

Impact of early warning on response capacity

51% of the respondents have partcipated in any form of disaster and response exercise

48% of the respondents affirm that early warning information has led to some level of improvement in their response capacity

Regarding community involvement in response and recovery actions, 52% of participants acknowledged their involvement, comprising 34% from host communities and 18% from displaced populations. Conversely, 48% of respondents, including 21% from host communities and 27% from displaced populations, reported no involvement.

Moreover, a significant portion (54%) of respondents indicated a lack of public awareness campaigns. Similarly, 51% of respondents have had exposure to and participated in some type of disaster response and recovery exercise.

The modest levels of community engagement in recovery initiatives, familiarity with disaster management plans, and participation in disaster response exercises might be attributed to inadequate public awareness about the critical role that at-risk communities play within the existing disaster management frameworks of their respective districts. Where awareness campaigns were conducted, leadership was primarily held by the district government (32%), followed by the community itself (30%), local NGOs (21%), and both international organizations and the federal government at 9%. These figures underscore the need for more robust and widespread outreach efforts to ensure inclusive and effective disaster preparedness and response.

Effectiveness of early warning information on response capacity

When evaluating the impact of the available early warning systems on enhancing the response capabilities of at-risk communities, respondents were asked if they had gained a better comprehension of disasters and the necessary response measures based on the early warnings received thus far. According to the responses, only 48% of the participants overall reported some level of improvement. Notably, Balcad district recorded the lowest level of reported improvement at 17%. In contrast, more significant improvements were observed in Beledweyne (17%) and Baardhere district (13%), as shown in Figure below.
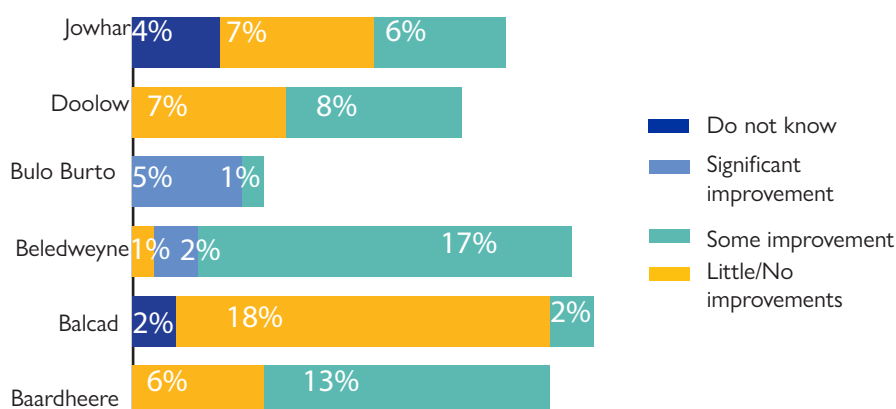
Figure 11: Impact of early warning information on response capability

DTM IN SOMALIA

IOM's Displacement Tracking Matrix (DTM) is a system to track and monitor displacement and population mobility. It is designed to regularly and systematically capture, process and disseminate information to provide a better understanding of the movements and evolving needs of displaced populations. DTM has been implemented in Somalia since 2016 with contextualized forms and tools for disaster and crisis responses.

Supported by: