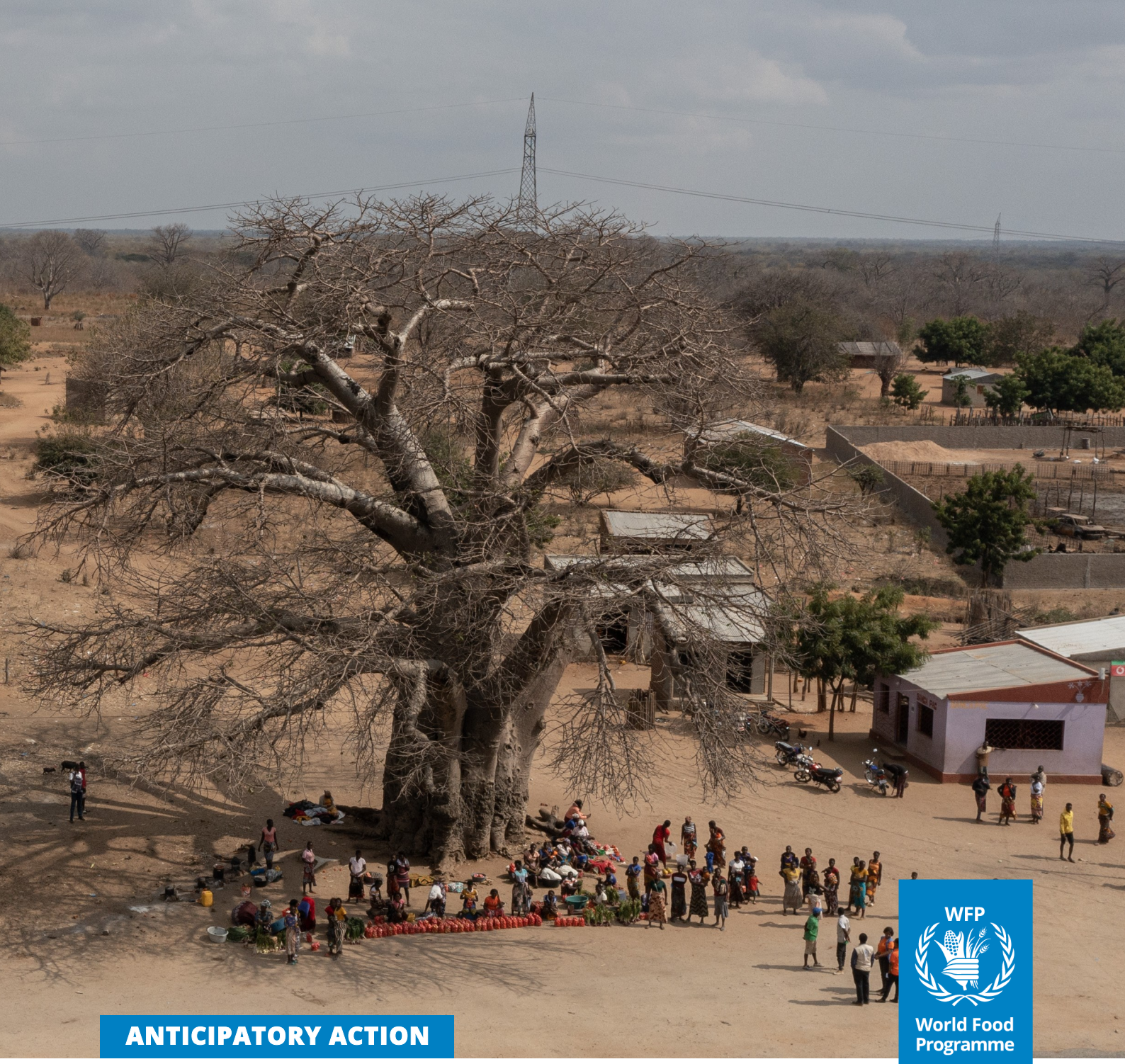


ANTICIPATORY ACTION

WFP
World Food Programme

SAVING LIVES
CHANGING LIVES

Building systems to anticipate drought in Mozambique

An impact assessment of WFP's capacity strengthening interventions on national systems

September 2023

Contents

Foreword

Anticipatory Action (AA) is defined as acting before predicted hazards affect lives and livelihoods to prevent or reduce humanitarian impacts. It requires pre-agreed plans, reliable early warning information, and the rapid release of prearranged financing when a forecast trigger has been reached. In doing so, it bridges the gap between longer-term disaster preparedness, life-saving emergency response, and recovery and resilience efforts (figure 1).

From 2019 to 2023, the WFP implemented the Multi-Country Programme-to scale up Anticipatory Action for Food Security (MCP-AA4SS Phase I), funded by the Norwegian Agency for Development Cooperation (NORAD). Under this programme, WFP delivered AA directly to drought-affected populations in the Southern African region, while also providing nationalc actors with AA capacity-strengthening for drought response[1].

In Mozambique, WFP works closely with the Government to strengthen national drought response by integrating proactive disaster-risk management (DRM) processes and tools into their existing systems. In the past four years, Mozambican institutions have become champions for AA at both national and regional scales: they have evolved from mostly reactive approaches and no drought Early Warning System (EWS) to a dedicated drought EWS, generating drought forecasts, monitoring triggers thresholds and a national Anticipatory Action Plan (AAP) for drought. Moreover, Mozambique 's meteorological agency has grown to be one of the strongest in the region for forecasting climate hazards.

Scope. The following case study analyses the impact of WFP's capacity-strengthening interventions on Mozambique's Disaster-Risk Management (DRM) systems and capacities. It aims to document impact, extract best practices and lessons learnt, and provide practitioners with recommendations on sustainably scaling-up and institutionalising AA in similar contexts.

Methods. This research is based on a monitoring and evaluation (M&E) guide for monitoring the results of AA-specific capacity strengthening programmes. It was jointly developed by WFP and the Red Cross Red Crescent Climate Centre. Capacities for drought AA are measured across four defining areas: policy, finance, science, and implementation (figure 2). Data was collected and analysed as objectively as possible to mitigate bias and interpretation.

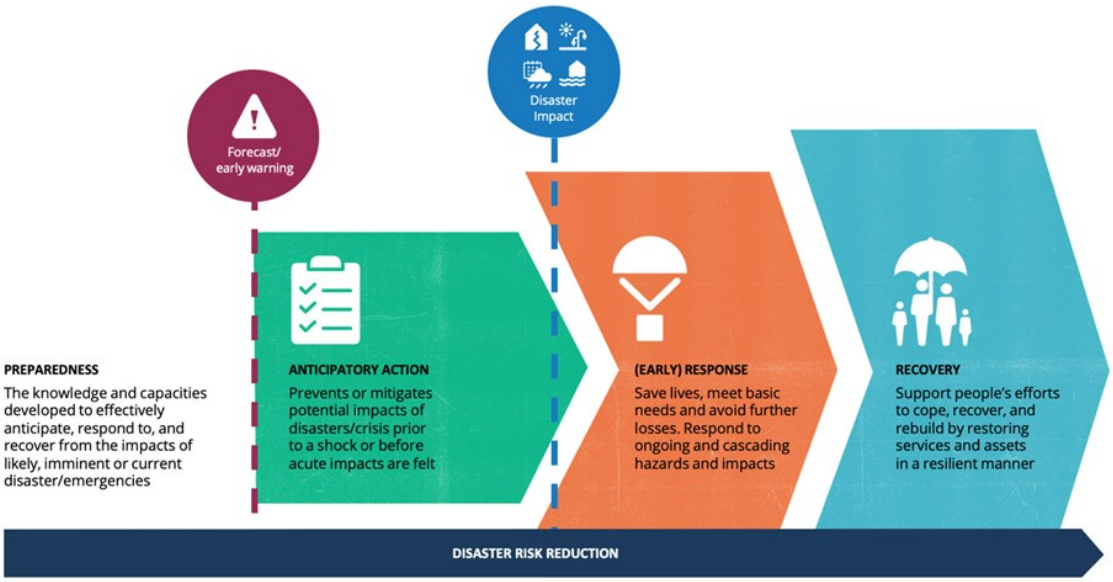


Figure 1: Anticipatory action bridging a gap within the disaster risk management cycle

[1]See WFP, 2023: https://www.wfp.org/publications/2023-building-systems-anticipate-drought-southern-africa

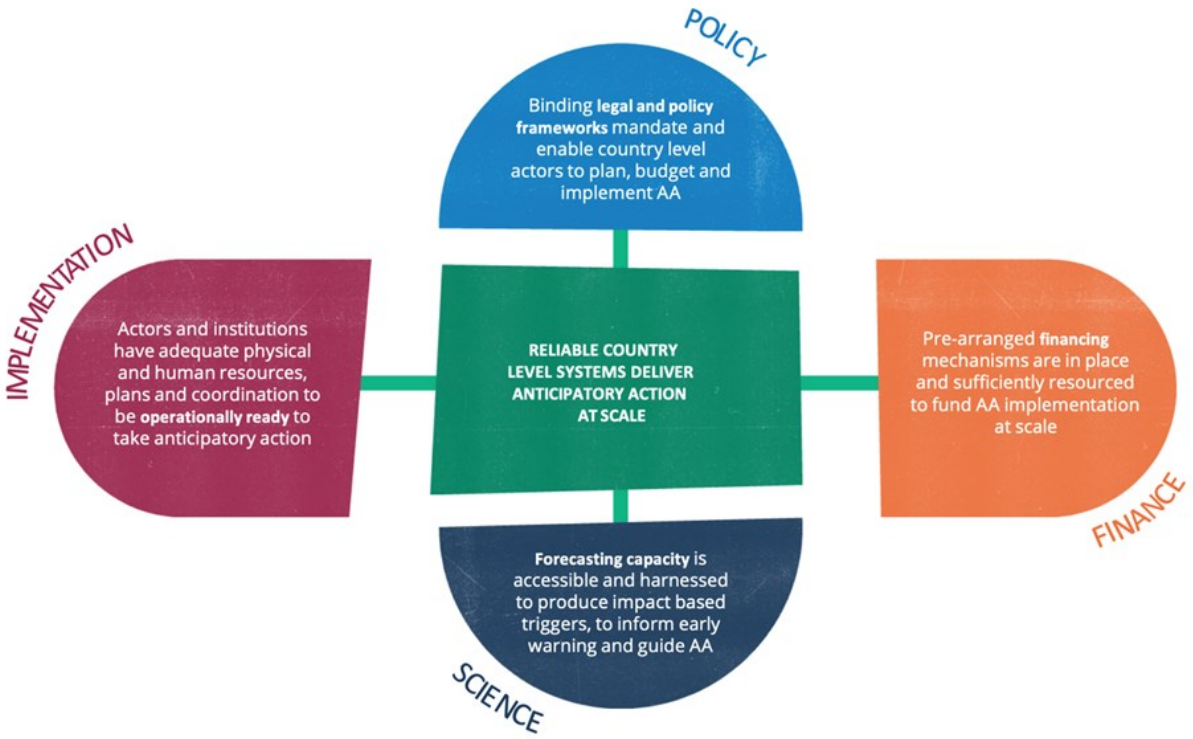


Figure 2: Main capacity outcomes required to achieve successful institutionalization of AA

Data sources. In addition to the existing literature referenced, the findings of this study are based on four primary data sources. An in-country mission helped collect primary data in January 2022:

- An anonymous questionnaire was sent out to government partners, WFP Mozambique staff and NGO staff (n=20) and analysed using standard quantitative analysis methods (pie chart and, bar charts) in Microsoft Excel.
- Key informant interviews (n=15) were conducted with staff of government institutions and NGOs, and analysed using the thematic network approach and MaxQDA software (2022).
- Interviews were conducted with WFP staff to establish the baseline capacities of national stakeholders in 2019 and the endline capacities in 2023.
- For more granular data on correlations between WFP interventions and capacity-results, the KII data was analysed through MaxQDA software following the Thematics Networks methodology (Attride-Stirling, 2001).

Terminology. We align with WFP terminology and principally use AA as defined above. In sections of key informant interviews quoted in the text, NGO partners may refer interchangeably to AA as “early action” or “forecast-based-financing”.

Executive summary

Context: Mozambique, situated on the south-eastern coast of Africa, is home to over 30 million people. Independence in 1975 was followed by a 16-year civil war which ended in 1992. Relative peace and stability allowed Mozambique to make progress in social and economic terms, and by 2015 the country had achieved its Millennium Development Goal of halving the number of hungry people.

However, challenges remain to ensure food security: between November 2021 and March 2022, the number of people facing high levels of acute food insecurity (IPC Phase 3 or above) was almost 2 million (WFP, 2023). Moreover, **most Mozambicans rely on subsistence agriculture (80%) which is rain-fed and climate sensitive.**

Challenge. In 2021, Mozambique was ranked at the top of the list of countries **most affected worldwide by extreme weather patterns** (Global Climate Risk Index, 2021).

Drought is one of the main drivers of food insecurity in Mozambique. In 2015-16, the country suffered from the **worst drought it had seen in 35 years**, decimating crops and livestock which caused 1.5 million people to become food insecure (UNDP, 2016).

Due to lack of resources and data, **institutional systems and policies for DRM focused on fast-onset hazards**, and there was no Early Warning System (EWS) in place to forecast or monitor drought conditions.

Opportunity. AA **pilots** were first initiated by the Mozambique Red Cross (CVM) in 2015, supported by the German Red Cross (DRK) and the Climate Centre.

Recognizing the importance of holistic DRM, the Government approved the **National Disaster Risk Reduction Master Plan 2017–2030** (*Plano Director para a Redução do Risco de Desastres* - PDRRD), that included drought mitigation as one of its key objectives.

In 2019, Cyclones Kenneth and Idai provided further momentum for the Government to invest in multi-hazard proactive DRM.

WFP's role & main partners. In 2020, WFP signed Memoranda of Understanding (MoUs) with the **National Institute of Meteorology (INAM)** the **National Disaster Risk Management Institute (INGD),** and the **Ministry of Agriculture (MADER),** with a view of connecting drought EWS to AA programmes. Shortly after, a Technical Working Group (TWG) for drought EWS and AA was established. It is composed of government and NGO partners and is led by the INGD's Department for the Development of Arid and Semi-arid Zones **(DARIDAS)**.

Through these MoUs, WFP has provided a range of capacity strengthening activities; such as technical trainings and support from a team of climate and earth observation experts. Staffing support and dedicated learning paths for each institution and TWG member.

Results. WFP's capacity strengthening activities has contributed to the following outcomes:

- **Clearer stakeholder understanding** on how to operationalise drought AA thanks to a climate risk profile, increased access to climate data, and the establishment of drought trigger thresholds.
- **A marked shift from reactive to proactive DRM policies and legislation**, which includes drought mitigation and response in national priorities and contingency plans.
- Increased **institutional capacity to monitor and forecast drought.** INAM are now able to generate state-of-the-art national and sub-national seasonal forecasts and monitor drought trigger thresholds using blended satellite and station data.
- Transformative change in institutional capacity to design , implement, and coordinate drought AA programmes, with **government-owned drought AAPs** , as well as **an umbrella framework** harmonizing all drought AAPs in the country.

Key success factors:

- Exceptional collaborative efforts from national stakeholders, such as DARIDAS who championed AA within government fora, and INAM who proactively invited WFP to participate in multi-partner discussions on EWS.
- A rich environment for DRM, with existing partnerships between the Govermnent and other stakeholders[3] for WFP to capitalize on.
- Advancements in the legislative area for DRM that opened the door for AA, notably notably in the PDRRD and the Law on Disaster Risk Management and Reduction of 2020.

Opportunities for Mozambique:

- **Test the AA systems and tools in place** by organizing simulations to fine tune the programme and boost operational readiness at both central and de-centralized levels.
- **Expand AA beyond drought,** leveraging WFP expertise in AA for floods and cyclones, exploring synergies with existing social protection systems, and integrating the conflict and insecurity dimension.
- **Connect Mozambique** with other actors in the region for South-South exchange of skills, knowledge, and boost visibility.
- **Pursue alignment** on indicators and triggers for drought and other hazard AA through the national TWG.

Learn More:

Building systems to anticipate drought in the Southern African region

[3] To influence DRM policy and activities in favour of drought AA, WFP was able to build on the critical work the Government had initiated with World Bank, the UK Met Office, the African Development Bank (AfDB), CVM, the International Federation of Red Cross and Red Crescent Societies (IFRC), Save the Children International, COSACA (a consortium comprising the international aid agencies CARE International, Oxfam and Save the Children), Oxfam, Diaconie, WeWorld and the United Nations Food and Agriculture Organization (FAO).

1. Background

1.1. BASELINE AND ACTIVITIES PRE-2019

According to key informants, Mozambique already had moderate capacity to anticipate fast-onset climate hazards in 2019. However, according to the Risk-Informed Early Partnership (REAP), "the El Niño induced drought of 2015-2016 revealed shortcomings in the disaster risk management system, which was mostly focused on floods and cyclone-risks" (REAP, 2022).

Moreover, in 2019, AA was a relatively novel concept in Mozambique, and there was a discrepancy in institutional capacity to respond to slow-onset hazards compared to fast-onset ones. For example, the National Centre for Emergency Operations (CENOE) had a clear protocol for state response to floods and storms, but not for drought. There was also no national EWS for drought, so INGD and MADER could only act when the impacts of the drought had already become apparent. With the absence of an EWS, it was unclear to government stakeholders how drought anticipation could be operationalised through their existing institutional systems. Indeed, the creeping nature of drought makes it difficult for decision makers to pinpoint when exactly a drought "occurs". It is more complex to establish clear-cut benchmarks for droughts than for fast-onset hazards, yet these benchmarks are needed for decision-makers to justify levying resource-heavy responses, particularly in contexts with large funding gaps (Steimanis *et al,* 2022, Staupe-Delgado 2022)[4].

Furthermore, financial mechanisms for DRM were solely reactive: according to Decree No.53/2017 regarding regulation of the Disaster Management Fund (FGD), emergency funds can only be disbursed once a disaster "has occurred". Even if there had been an EWS, this decree effectively blocked the Government to practice forecast-based financing, which is at the core of AA programmes.

1.2. DEMYSTIFYING DROUGHT

Before the allocation of funds by NORAD in 2019, WFP had already supported key government stakeholders to produce a climate analysis in 2018. This support was in context of an application to the Green Climate Fund. The document establishes a risk profile of Mozambique, with clear evidence on the threat posed by drought: the temperature data suggested a trend of worsening climate conditions such as increased variability and intensification of drought in the coming years. It also revealed a gap in existing EWSs, that only monitored indicators for fast-onset hazards.

The climate analysis had two main effects: untangling the concept of "drought response" from other types of interventions, such as lean season assistance, and providing a basis for the establishment of a drought EWS*. The Government was already familiar with EWS for fast-onset hazards, which facilitated conversations.

WFP worked with INAM to determine which data the EWS would need to collect, and which indicators to use to define a drought and its impact on food security and livelihoods. These conversations contributed to a consensus on how to define a drought and indicators the future EWS would monitor**.

> *"A light switched on when we started talking about the EWS: the Government was familiar with early warning for floods, but not for slow-onset hazards. We had to have conversations about what is drought, how it differs from the lean season, … once we pinpointed these issues, we could connect it to what the EWS would do: normal monitoring of the season and the forward-looking forecasting aspect.* " - WFP

[4] "[F]or slow-onset hazards, there is no clear starting and ending point that allows measurement of an unbiased treatment effect". (Steimanis, *et al,* 2022).

**"This was pertinent because, prior to this 2018-2019 initial work, there was nothing in the disaster risk management infrastructure – be it policy, financing or programming – that really looked at drought in detail. There was no drought EWS at all. So that was made a priority, and we had to ask the main questions: how do we know when there is a drought, where it is, and who will it affect?" - WFP

1.3. A FOUNDATION OF TRUST AND TRANSPARENCY

After several workshops and trainings on AA , the Government showed a keen interest in Early Warning and AA for drought. In 2020, WFP signed three MoUs with INAM, INGD and MADER. Each of the MoUs specified the capacity-strengthening activities that WFP would implement to address government needs. These included:

- **On the job training** on the use of specialized software and platforms and **one-on-one support** conducted by a team of climate and earth observation experts in WFP HQ.
- **Dedicated learning paths** designed at the request of each institution's technical team and the broader audience of TWG members. Specifically, training on seasonal forecasts and monitoring for INAM staff; the definition of triggers for the activation of the anticipatory actions, drought indicators for all the members of the TWG, knowledge management, etc.
- **Staffing support** to strengthen technical capacities and improve inter-institution coordination. For example, WFP recruited an AA specialist to be seconded at INGD/DARIDAS, reinforcing the coordination of the TWG and the integration of AA within the existing national processes. Other institutions wer supported with the recruitment of interns or ad-hoc consultancies to bridge specific technical gaps.

The agreements were drafted collaboratively and provided a clear workplan, that was adjusted based on evolving needs*. This process helped to strengthen ownership contributed to the ownership of AA by their respective stakeholders stakeholders and foster trust and transparency between all partners. The worplans even attracted additional funding for the institutions concerned.

> "*What cemented a lot of these partnerships were the MoUs we signed clearly detailing the ways of working together and the financing that different partners could get. The objectives were laid out jointly... That really made subsequent work easier by building a foundation of clarity, trust and transparency.*" - WFP

**"It wasn't a one-year MoU that was left to die, but we kept on adding to it as the relationship and the work evolved. It was something concrete as a joint workplan (....): it was their activities, the budget they asked for and what they were willing to stand behind. They were really happy about that." - WFP*

KEY MILESTONES AND WFP ACTIONS IN MOZAMBIQUE'S JOURNEY TO INSTITUTIONALISE DROUGHT ANTCIPATORY ACTION

2. Impact of WFP's systems-building activities

2.1 IMPACT ON POLICY AND LEGISLATION FOR DISASTER-RISK MANAGEMENT

In 2017, Mozambique established a national master plan that also included drought mitigation commitments (the National Disaster Risk Reduction Master Plan 2017-2030). Another milestone was reached in 2020 with the Law on Disaster Risk Management and Reduction of 2020 (Law No. 10/2020) marking a major milestone by providing multiple entry points for AA, notably through:

- Article 36, that recommends that the Government should establish alert mechanisms to detect and address slow-onset hazards, such as droughts, in a timely manner. It also ascribes clear mandates and responsibilities for proactive disaster risk management within national DRM structures, notably: INAM, MADER and INGD.
- Article 40, that mandates the Government to establish a national Disaster Management Fund (Fundo de Gestao de Calamidades or FGD), to be funded through the state budget, donations, and other support.

The INGD was partnering with other stakeholders than WFP (such as the World Bank and the African Development Bank, AfDB) on revising its policy instruments for DRM. However, WFP was asked by INGD and common partners to participate as a technical advisor. WFP provided input or lead workshops that sensitised policy-makers and influencers to anticipatory action and the importance of including it in the country's policy framework for DRM for both fast and slow-onset hazards.

> *"We cannot neglect the fact that there were a lot of other stakeholders having discussions about DRM, preparedness and financing, which pushed the broader discussions. AfDB through the AGRIFID project had policy work that encouraged the Government to determine policies and plans for droughts for the agriculture sector. The Government asked us to help with that, so WFP was brought into those discussions"* – WFP

According to key informants, three significant policy changes that WFP influenced were 1) the integration of proactive and mitigative elements (as opposed to purely reactive) 2) the inclusion of drought, and 3) the explicit mention of the need to ensure affected populations participate in the DRM process.

Outcome area: policy and legislation for AA for drought (Mozambique)		
Intermediate capacity parameter:	2019	2023
1.1 AA for drought is integrated into disaster risk management (DRM) policies, strategies, and plans at all levels, making AA a requirement when anticipated hazard conditions demand it	1	3
1.2 Mandates, roles and responsibilities for AA for drought are clearly defined and assigned at all levels	1	3
1.3 Accountability and participation mechanisms are established and ensure that at-risk populations are involved in defining and evaluating AA for drought	1	3
Average for this outcome area (out of 3)	1	3

Table 1: mapping of policy and legislation capacities o AA for drought in Mozambique 2019v s 2023

Capacities are measured using a "traffic light" rating system with 1 being absent, 2 being partially present, and 3 being fully present.

WFP further supported INGD and DARIDAS with updating of the National Plan for Protection against Disaster Risks, which now includes an early response window and marks a public commitment to allocate anticipatory finance: key informants from INGD/DARIDAS and members of the TWG specifically credit WFP's advocacy efforts for this outcome.

Moreover, the quality INAM's climate information products, such as drought risk profiles, provided policy makers with useful evidence to inform their policy revisions. Hence, WFP's support to INAM had a ripple effect on policy by empowering INAM to become a strong climate advisor for policymakers. WFP's collaboration with DARIDAS, a sub-division of the INGD dedicated to drought response, also helped push the AA and drought agenda forward. The director and staff of DARIDAS were "champions" for AA, channelling advocacy messages to other government actors. The director for pushed for the creation of a multi -stakeholder TWG for drought EWS and AA.

One way in which WFP developed this partnership was by seconding an AA specialist to INGD's DARIDAS (working part-time 80 percent with INGD -DARIDAS, and 20 percent with WFP). This was highlighted by key informants as a "best practice" in which WFP fostered trust, communication and coordination, and government ownership of capacity-strengthening results.

TAKE AWAY

Mozambique has witnessed a significant **shift from reactive to proactive policies and legislation for drought** and DRM in general (+2 average increase out of 3 in four years, cf table 1). The nation's DRM policies, strategies, and plans now firmly integrate drought AA, making it mandatory when hazard conditions require it. Notable milestones include the **National Disaster Risk Reduction Master Plan 2017-2030** and the **Law on Disaster Risk Management and Reduction of 2020**.

Since 2018, WFP directly **influenced ongoing policy revision processes through** evidence-based advocacy and technical advice. WFP also indirectly **empowered national entities** such as INAM to become strong climate advisors and facilitate **decision-making in the policy realm**. The **secondment** of an AA specialist within the INGD serves as a "best practice" in fostering trust, communication, coordination, and government ownership of capacity-strengthening results.

2.2 IMPACT ON DROUGHT MONITORING AND FORECASTING CAPACITIES

The ability to forecast drought, establish trigger thresholds and monitor triggers for AA activation is an essential component of functional AA systems.

Prior to WFP's capacity-strengthening interventions in 2020, INAM had already been working with the World Meteorological Organization (WMO) and UK Met Office to strengthen their seasonal rainfall forecasts. As such, INAM had moderate capacity to monitor indicators for fast-onset hazards, however there was a considerable gap in drought monitoring and forecasting. The UK Met Office, WMO and INAM consulted with WFP, who advocated for drought to be included in forecasting considerations*.

WFP's process for strengthening scientific capacities for AA includes enhancing the real-time data flow from the institution's observation network, improving internal station data handling and processing, and unlocking access to complementary satellite data streams.

With these capacities, National Hydro-Meteorological Services (NHMSs) such as INAM can generate highly accurate rainfall and temperature information. This information feeds INAM's seasonal forecasts, which predict the probability of a drought with a lead time of 3-6 months.

INAM produces two seasonal forecasts which are useful for DRM decision-makers: 1) a national seasonal rainfall forecast for the rainy season, which uses the Climate Predictability Tool and informs a wide rage of ministries and agencies on climate risks related to rainfall. This is aligned with the Southern African Regional Climate Outlook Forum (SARCOF). 2) A drought seasonal forecast, which seeks to inform government-led AA at the district levels and follows the AA timeline from May to February. The second one is a direct result of INAM's collaboration with WFP's climate and earth observation experts.

> *"Before this WFP project, there was no timely information flow on drought in Mozambique. But the way that we are receiving it now, we have monthly drought forecasts that can help INGD better prepare, they can use that information to plan interventions. The Met service is more capable of looking at Standard Precipitation Index (SPI)s and producing SPIs so that all different organisations can take anticipatory action. "* - Eduardo Mondlane University

Besides WFP, INAM also partners with the Climate Hazards Center at the University of Santa Barbara to access short-term forecasts (10-16 days lead time), which serve as a feedback loop to evaluate the accuracy of seasonal predictions.

WFP brokered partnerships among INAM, Eduardo Mondlane University in Mozambique, and the University of Reading in the UK. Eduardo Mondlane University assisted in defining scientific trigger thresholds and creating district profiles to reveal climate risks and AA trends. The University of Reading trained INAM climate analysts in 'R' coding and data management.

Outcome area: Science for AA for drought (Mozambique)		
Intermediate capacity parameter :	2019	2023
3.1 A comprehensive context, hazard and risk analysis informs the design of trigger mechanisms and the prioritization of actions to be taken.	1	3
3.2 Suitable forecasts are available or can be generated and meet requirements regarding timeliness, time scales, forecast skill, and granularity.	1	3
3.3 An impact-based trigger model is developed or co-created with third-party experts, based on reliable, high-quality data.	1	3
3.4 An EWS is in place and links providers of forecast information with implementers of anticipatory action and at-risk communities.	1	2
Average for this outcome area (out of 3)	1	2.75

Table 2: mapping of "implementation" capacities for AA for drought 2019 vs 2023

Capacities are measured using a "traffic light" rating system with 1 being absent, 2 being partially present, and 3 being fully present.

**"WMO had a big mission to assess the capacities in country (...) WFP played a big role on advocating on behalf of INAM to get more hardware and infrastructure that we know WFP couldn't give (...) It worked quite well. At first there was nothing there, then we were able to pursue the partnerships and continue to drive forward with the partners."* - WFP

In the past three years, **INAM** has seen the following outcomes for its drought forecasting and monitoring capacities:

- **Better spatial resolution of forecasts:** INAM's forecast are now downscaled to provincial and district level, with the first provincial-level forecasts presented during the 2021 National Climate Outlook Forum. INAM already produced a national seasonal rainfall forecast for the rainy season, which uses the Climate Predictability Tool and informs a wide rage of ministries and agencies on climate risks related to rainfall. This is aligned with the Southern African Regional Climate Outlook Forum (SARCOF). This forecast now has an enhanced spatial resolution to about 5 km.
- **Drought-specific forecasts :** In addition to the rainfall forecast, WFP also supported INAM in producing a drought seasonal forecasting **specifically designed to inform government-led drought AA** at district levels. This forecast is aligned with the operational AA timeline from May to February[5].
- This forecast enabled the development of an **operational trigger system for drought AA .** This was co-designed through the TWG platform, for mild, moderate, and severe droughts, as well as the capacities of national stakeholders to monitor and establish new triggers where needed.

> *"When we had the last big drought in 2015, the Government called us to know what was going on, and we could not answer the question because there was no capacity. Now (...) we can monitor and forecast drought. So we have come a long way since then."* - INAM

[4]Downscaling is obtained using a bilinear interpolation which remaps the forecasting from 100km to 30km. The remapped forecast is also bias corrected applying a methodology developed by WFP using El Nino/Southern Oscillation (ENSO) process-informed quantile mapping.

[5]"In the current set up of this system, droughts are defined through the Standardized Precipitation Index (SPI), and therefore focuses on detecting rainfall anomalies within key months of the growing season in the pilot areas. Currently, this trigger system uses the ECMWF 7-month rainfall as the source of forecast information, especially the data released between the months of May and February" (Guimarães Nobre et al., 2023)

- **Improved seasonal monitoring** that ensures full coverage of the Mozambican territory. INAM provides a monthly seasonal monitoring bulletin on their website.
- Strengthened **climate analysis**, thanks to the recovery and digitalization of 40 years of climate data. These records build new state-of-the-art climate datasets for Mozambique, enabling the extraction of district-specific climate information and informing the national *State of the Climate* report released by INAM.

Through its MoU with MADER, WFP also fostered greater coordination between the agricultural sector and national climate scientists, advocating for MADER to access and interpret INAM's data.

This helped MADER improve the quality agricultural models, such as the Water Requirement Satisfaction Index (WRSI), as well as additional satellite layers. WFP also trained MADER in using satellite and agronomic ground data to monitor crop conditions at district and provincial scales.

For **MADER**, the main outcomes of the past three years of work have been the development of **near-real-time data collection mechanisms** for agronomic information, that enables high-resolution crop mapping, as well as strengthened agricultural reporting.

TAKE AWAY:

INAM's capacities to monitor and forecast drought have significantly increased in the past three years, thanks to WFP and partners' support. The impact of WFP's support is evident in outcomes such as **drought-specific forecasts** , higher resolution **forecasts at provincial and district levels,** and **improved climate analysis** informed by historical data. The establishment of **drought triggers** through a co-designed TWG platform is another notable accomplishment. All of these provide AA implementers with the relevant scientific information for operational decision-making.

Collaborations with Eduardo Mondlane University and the University of Reading further strengthened technical capacities for climate data management and analysis. The collaboration extended to MADER, improving data collection, agricultural mapping, and reporting. WFP identified synergies with other climate adaptation activities*, which helped maximise results.

**"We timed trainings on R and coding, that were funded for climate insurance, so it would be directly followed up with a mission by WFP HQ on forecasting for AA. That helped us a lot in showing the added value of WFP, and how our operations allow us to work comprehensively in this space."* - WFP

2.3 IMPACT ON IMPLEMENTATION CAPACITIES AND OPERATIONAL READINESS

Implementation capacities relate to the ability to deliver activities that protect populations from the impact of drought. From an operational perspective, this requires logistical assets; coordination; qualified personnel; pre-agreed AAPs, etc.

Table 3 below shows that there has been an increase (+0.75 points) in implementation capacities for drought AA, resulting in an average score of 2,75/3 in 2023. While Mozambique had strong DRM structures in place for drought *response*, WFP contributed significantly to supporting the INGD in boosting preparedness to make these systems more proactive.

Currently, human resources (parameter 4.1) are not fully sufficient for AA to be autonomously implemented by INGD/DARIDAS, and thus cannot be rated 3/3, WFP did support the seconding of additional staff dedicated for drought EW and AA, and provided equipment such as laptops. This support did contribute to increase understanding and capacity of the INGD, as noted in section 2.1

On the other hand, financial challenges remain and continue to prevent the INGD from employing new staff and providing them with the right equipment.

WFP had the most significant impact by supporting the INGD in establishing a national "manual of operations" for AA for drought. The manual is owned by the INGD and provides a clear protocol on who does what for AA (cf figure 4), how to design an AAP, and creates consensus by providing a mandatory guideline against which all AA actors in the country must align. This, in turn, reinforces the Government's leadership and coordination capacities for AA nation-wide. This is critical, according to key informants, as AA actors are steadily multiplying which poses the risk of fragmentation. Hence, the manual is frequently mentioned by informants as the biggest milestone for institutionalising AA coordination and alignment in Mozambique.

> *"The approval of the manual of operations for EWS and AA was a big milestone for our country (…) it is the bible for anticipatory action."* -INGD Gaza province

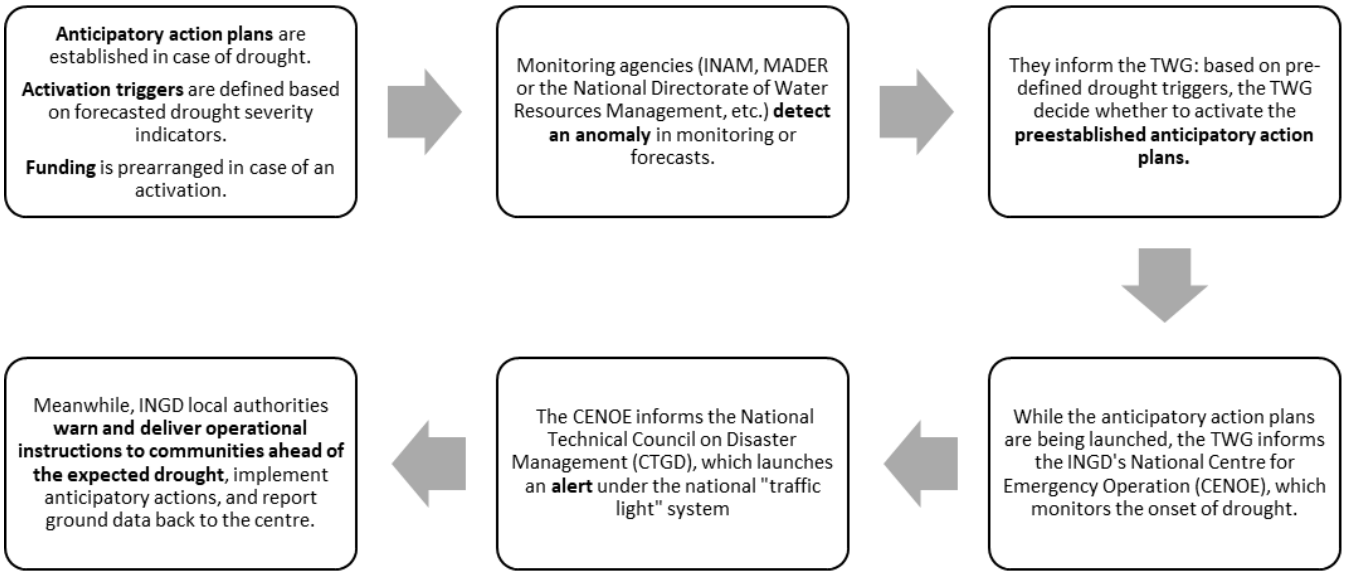


Figure 4: summary of the AA systems and processes included in the national manual of operations for AA

Outcom area: implemenation and operational readiness for AA for drought		
3.1 Human resources to deliver AA at scale	2	2
3.2 Logistical capability and physical resources	2	2
3.3 Criteria-based targeting of beneficiaries ensures impact- and needs-based assistance	2	2
3.4 An Anticipatory Action Plan (AAP) is established and validated by all stakeholders, including affected communities	1	3
3.5 Stakeholder engagement, participation and inclusion: All at-risk population groups are included in AA intervention design; formal and transparent mechanisms for civil society and community monitoring and feedback are in place at the local and national levels.	2	2
AVERAGE RATING FOR THIS OUTCOME AREA (out of 3)	1.8	2.2

Table 3: mapping of "implementation" capacities for AA for drought 2019 vs 2023

Capacities are measured using a "traffic light" rating system with 1 being absent, 2 being partially present, and 3 being fully present.

In the process of drafting the manual, WFP provided technical advice and training activities to the TWG on how to design and implement drought AAPs. This has boosted the operational readiness of the government and TWG members for AA, as evidenced by the TWG's regular meetings to analyse multi-sectoral data, review and monitor triggers, revise contingency plans for anticipatory action, etc.

Since 2022, the INGD and TWG members are also able to define new AAs if needed to add to the existing plans, which are already funded with pre-allocated resources in case of an activation.

To downscale operational readiness, WFP also trained staff in six pilot districts (Chibuto, Guija, Marara, Changara, Caia and Chemba) on how to develop their AAPs in alignment with the national manual for drought EWS and AA, and how to activate them based on the different level of drought severity forecast.

Despite this, key informant interviews revealed a discrepancy between central capacities for implementation and local ones; with local representatives of INGD feeling less confident about their readiness to implement in case of activation than their national counterparts. According to them, there is a lack of consensus around trigger levels which makes it unclear when they are expected to activate. Furthermore, there has not yet been an activation in Mozambique, which means the district AA protocols have not yet been tested in practice.

> *"It would be good to test it, if WFP can provide support [for] some sort of simulation, because probably there will be a need to refine the triggers or other which is normal, but if we test it then we can refine and have proof that it works."* - INAM

TAKE AWAY:

WFP's technical advice and training sessions with the Technical Working Group (TWG) have fortified the operational readiness of the Government and TWG members. Regular meetings, data analysis, and the creation of district Anticipatory Action Plans (AAPs) are testament to the **heightened state of readiness** facilitated by these efforts. A key outcome of WFP's support to INGD and the TWG has been the **national manual of operations** for drought AA. This manual has solidified all AA protocols and processes, creating a unified framework embraced by all DRM stakeholders in the country. This marks a pivotal shift towards **aligned action** and cemented the Government's **leadership** of AA.

Despite these advancements, challenges at the local level persist, particularly in achieving consensus on trigger levels and untested district AA protocols. Recognizing this, **calls for testing and simulation** have emerged to refine and solidify mechanisms.

2.4 IMPACT ON FUNDING MECHANISMS

Having pre-allocated funds is a necessary condition for AAPs to work, as it allows rapid implementation. In Mozambique, the allocation of funds in case of a hazard such as drought is ruled by the Article 40 of the Law on Disaster Risk Management and Reduction of 2020, which establishes the national Disaster Management Fund (FGD).

According to key informants, continuity of funding is the biggest challenge not only for scaling up AA but for all WFP and Government DRM activities (cf figure 5), though WFP continuously also explores ways to diversify funding sources.

Barring the issue of insufficiency of funds, the manual for the FGD only enables DRM stakeholders to release funds after emergency alerts are issued or a disaster has occured, effectively preventing the „forecast-based financing" approach.

Hence, WFP is supporting the INGD in revising the national financing strategy and tying it to a forecasted drought trigger model. INGD is pushing for this revision to the Ministry of Economy and Finance at the time of writing (May 2023), and WFP provides technical inputs and data to support INGD in their advocacy efforts.

To ensure operational readiness, WFP has found an alternative solution to enable AA programmes. The INGD has opened a project bank-account in which pre-approved funding for the drought AAP is deposited. Hence, if a trigger threshold for drought is met, and the activation is confirmed, the INGD has a functional disbursement mechanism, albeit only for this specific drought AAP, while waiting for sovereign financial instruments to systematically allow AA.

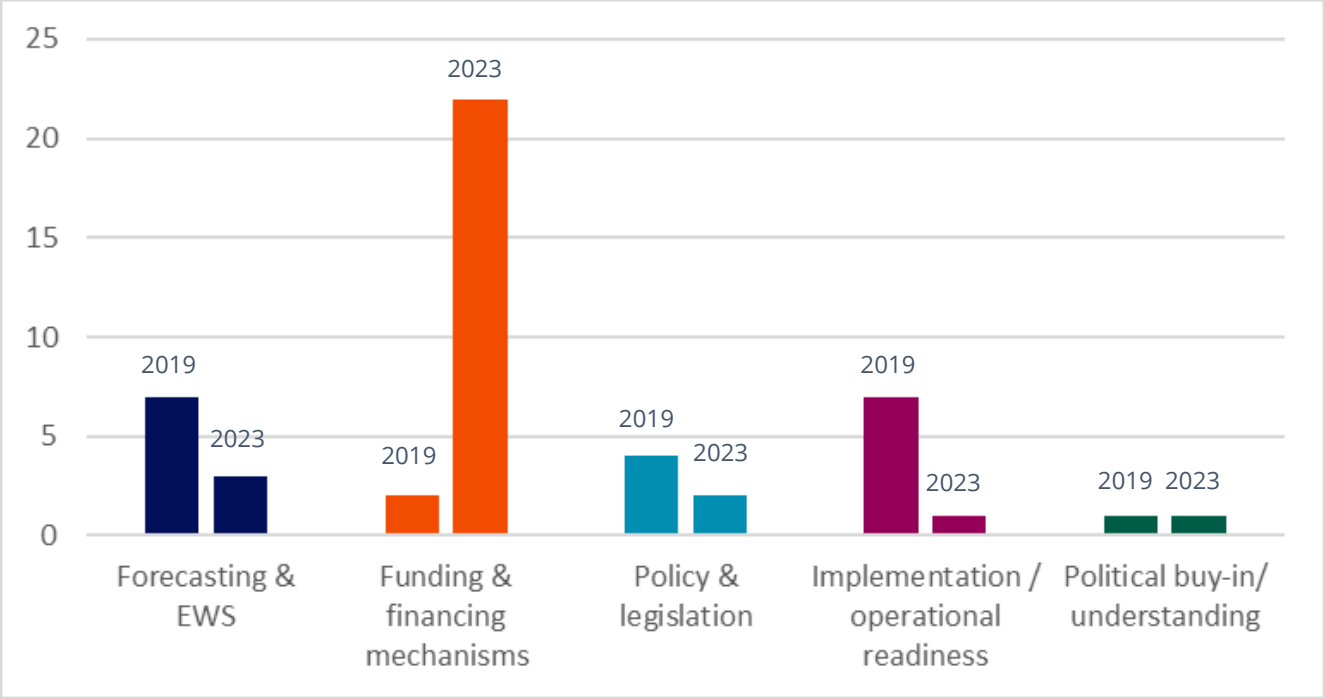


Figure 5: Greatest challenges to institutionalizing AA in 2019 and 2023 (survey)

Outcome area: funding and financing mechanisms for AA for drought (Mozambique)		
2.1 Budget planning: A comprehensive budget for AA is developed based on an analysis of – and adequate for – the scale of actions to be taken in relation to the hazard context and at-risk population.	1	2
2.2 Resources are allocated to the AA budget	1	2
2.3 Disbursement mechanisms are established, well defined and ensure a rapid flow of resources to implementers in case of an activation.	1	3
2.4 Continuity: Even in the absence of an activation, consistent availability of operational funding maintains essential ongoing activities, including updating forecasts, trigger models, and AA plans	1	2
2.5 Resource mobilization is diversified and linked with other sovereign climate and disaster risk financing instruments.	1	2
AVERAGE FOR THIS OUTCOME AREA (out of 3)	1	2.2

Table 4: *mapping of "finance" capacities for AA for drought 2019 vs 2023*

Capacities are measured using a "traffic light" rating system with 1 being absent, 2 being partially present, and 3 being fully present.

TAKE AWAY:

For shifting institutional funding mechanisms so that they can accommodate forecast-based financing, WFP and the INGD have taken a two-speed approach. For sustainability, WFP and the INGD are engaged in a long-term process of advocating for the revision of the national financing strategy to enable AA –- this will hinge on a solid institutional trigger model for drought, as well as the ability to earmark DRM funding for AAPs to ensure their availability in case a trigger is reached.

In the short term, the INGD has opened a project-bank account, tied to a trigger model co-developed with the TWG, through which WFP channels pre-arranged funding for existing AAPs. This ensures funds are ready in case a drought AAP activation occurs. Both processes emphasise institutional ownership of the forecast-based funding component of AA.

3. Conclusion

3.1 IMPACT AND BEST PRACTICES

According to key informants WFP's capacity-strengthening activities were critical to achieve stronger DRM policies, drought monitoring and forecasting capacities; increased implementation capacities for drought AA, and stronger understanding and awareness for drought AA (figure 5)

Key informants agree that WFP's biggest contribution to institutionalising AA for drought was either the technical support to INAM, or WFP's support to INGD in establishing the national manual for drought AAPs. Both of these outcomes contribute to the durable integration of AA within national systems, according to the institutions themselves:

The two best practices that stand out from WFP's partnership with Mozambican institutions relate to ownership and communication (figure 5).

> *"The biggest change was the manual with a protocol and triggers, which now allows Mozambique to implement at different levels of severity of drought. This is something that was just started last year [2022]."* -Eduardo Mondlane University

> *"I would say the most useful WFP intervention] has been the technical support given to INAM. Before we didn't have the capacity to provide early warning to the population about drought; now we can predict drought at national level thanks to WFP's support."* - CVM

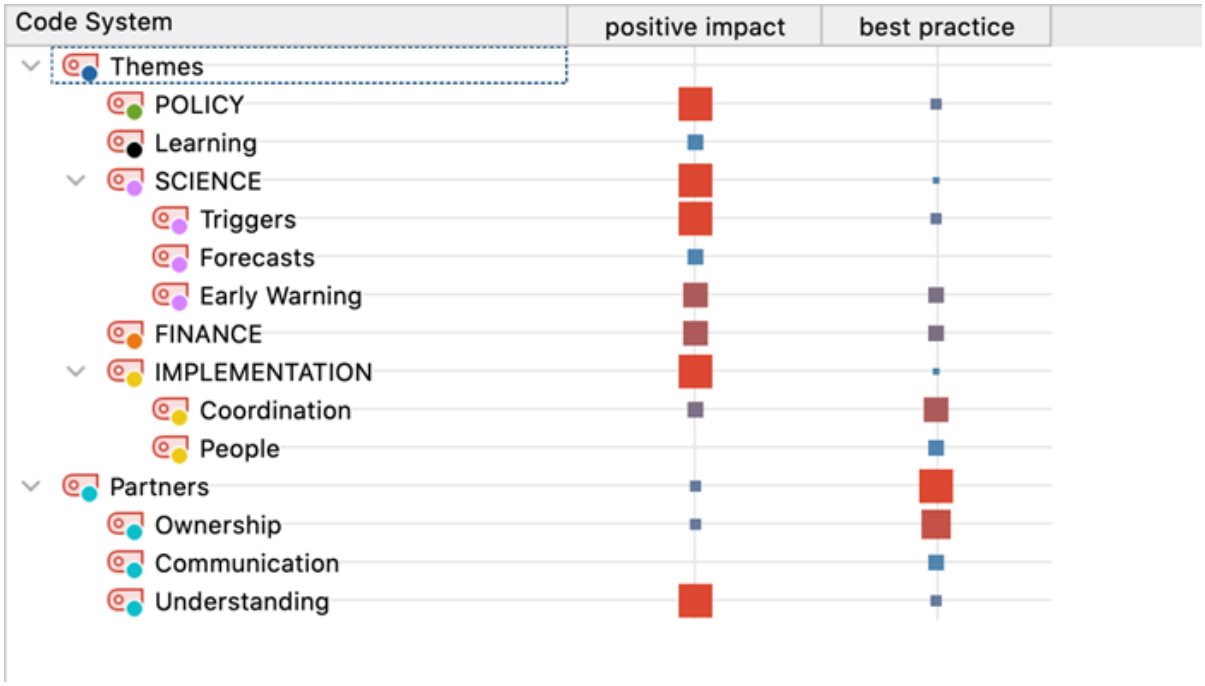


Figure 3: Analysis of all themes marked as "positive impact" or "best practice" in key informant interviews

Generated in MaxQDA from key informant interviews (n=15). The larger and the redder the square, the more frequently a "code" (column 1) intersects with a theme (column 2 and 3).

Key informants were impressed by WFP's efforts to put the **government in a leading position** of AA processes and **share the results** and/or **open ongoing discussions** about drought AA to relevant partners wherever possible. The **secondment** of a staff to INGD/DARIDAS further facilitated communication channels.

> "*WFP really helped increase the Government's capacities. All the invitations for any TWG activity come from the Government, not directly from WFP. That shows that the Government is buying the idea and leading the process*." - FAO

The strategic and collaborative way in which the MoUs were written with each agency also contributed to a strong sense of ownership (cf section 1.3). All these efforts helped ensure the results of capacity strengthening activities are sustainable, so that institutions can implement capacity gains beyond the project duration.

> "*Once the knowledge is with us here the programme will end, but we will continue to develop those same activities because we have the technical and scientific capacity for this. To me, this is the greatest contribution*." - INAM

3.2 OPPORTUNITIES FOR MOZAMBIQUE

In 2022, Mozambique's president was appointed champion for DRM by the African Union. The country also held a Ministerial Meeting on Integrated Early Warning and Early Action System Initiative in September 2022, leading to the adoption of the Southern African Development Committee (SADC)'s Ministerial Declaration on Bridging the Gap Between Early Warning and Early Action.

To capitalize on this momentum, it is recommended that implementers continue the institutionalization of AA by:

Building confidence among implementers, for instance through simulation exercises using historic drought events to test and refine the trigger model.

Aligning trigger models, recognizing this is an iterative process, as it takes "a lot of trial and error" (KII, WFP) to find the right balance between the forecast skill and realistic timeframes for intervention.

Investing time and resources in coordination of AA actors to **avoid fragmentation**. It is probable the INGD will need support to ensure coherence as the AA landscape in Mozambique becomes more complex.

Mozambique can leverage its growing community of practice, to scale up AA and provide populations with more protection and preparedness in the face of intensifying climate hazards. To support this, WFP will:

Continue supporting INAM towards performant sub-seasonal forecasting, so that it can provide enhanced climate services for government partners, the humanitarian community, with the long-term vision of connecting INAM to private-sector clients.

Scale-up and integrate AAPs into social protection systems, in collaboration with for Social Action (INAS) and the Ministry of Gender, Children and Social Action. WFP allocated more than 60 percent of the AAPs for cash-based transfers to be disbursed through social safety nets.

Connect drought AAPs to AAPs for fast-onset hazards, building on WFP's expertise in the Southern African Region. WFP has identified funding opportunities through FCDO and ECHO to connect Mozambique's AAPs for droughts to AAPs for floods and cyclones where feasible.

Expand the scope of AA beyond climate shocks, by designing conflict-sensitive AAPs in the northern provinces of Cabo Delgado and Nampula. This presents a prime learning opportunity for AA practitioners but also conflict and migration agencies as well as research centres currently working on forecasting displacement movements (Save the Children, 2018; Bazzi *et al*, 2019).

ANNEX 1 : CAPACITY LEVELS OF NATIONAL SYSTEMS TO IMPLEMENT ANTICIPATORY ACTION FOR DROUGHT IN MOZAMBIQUE

	2019	2023
POLICY		
1.1 AA for drought is integrated into disaster risk management (DRM) policies, strategies, and plans at all levels, making AA a requirement when anticipated hazard conditions demand it	1	3
1.2 Mandates, roles and responsibilities for AA for drought are clearly defined and assigned at all levels	1	3
1.3 Accountability and participation mechanisms are established and ensure that at-risk populations are involved in defining and evaluating AA for drought	1	3
AVERAGE FOR THIS OUTCOME AREA (out of 3)	1	3
FINANCE		
2.1 Budget planning: A comprehensive budget for AA is developed based on an analysis of – and adequate for – the scale of actions to be taken in relation to the hazard context and at-risk population.	1	2
2.2 Resources are allocated to the AA budget	1	2
2.3 Disbursement mechanisms are established, well defined and ensure a rapid flow of resources to implementers in case of an activation.	1	3
2.4 Continuity: Even in the absence of an activation, consistent availability of operational funding maintains essential ongoing activities, including updating forecasts, trigger models, and AA plans	1	2
2.5 Resource mobilization is diversified and linked with other sovereign climate and disaster risk financing instruments.	1	2
AVERAGE FOR THIS OUTCOME AREA (out of 3)	1	2.2
SCIENCE		
3.1 A comprehensive context, hazard and risk analysis informs the design of trigger mechanisms and the prioritization of actions to be taken.	1	3
3.2 Suitable forecasts are available or can be generated and meet requirements regarding timeliness, time scales, forecast skill, and granularity.	1	3
3.3 An impact-based trigger model is developed or co-created with third-party experts, based on reliable, high-quality data.	1	3
3.4 An EWS is in place and links providers of forecast information with implementers of anticipatory action and at-risk communities.	1	2
AVERAGE RATING FOR THIS OUTCOME AREA (out of 3)	1	2.75

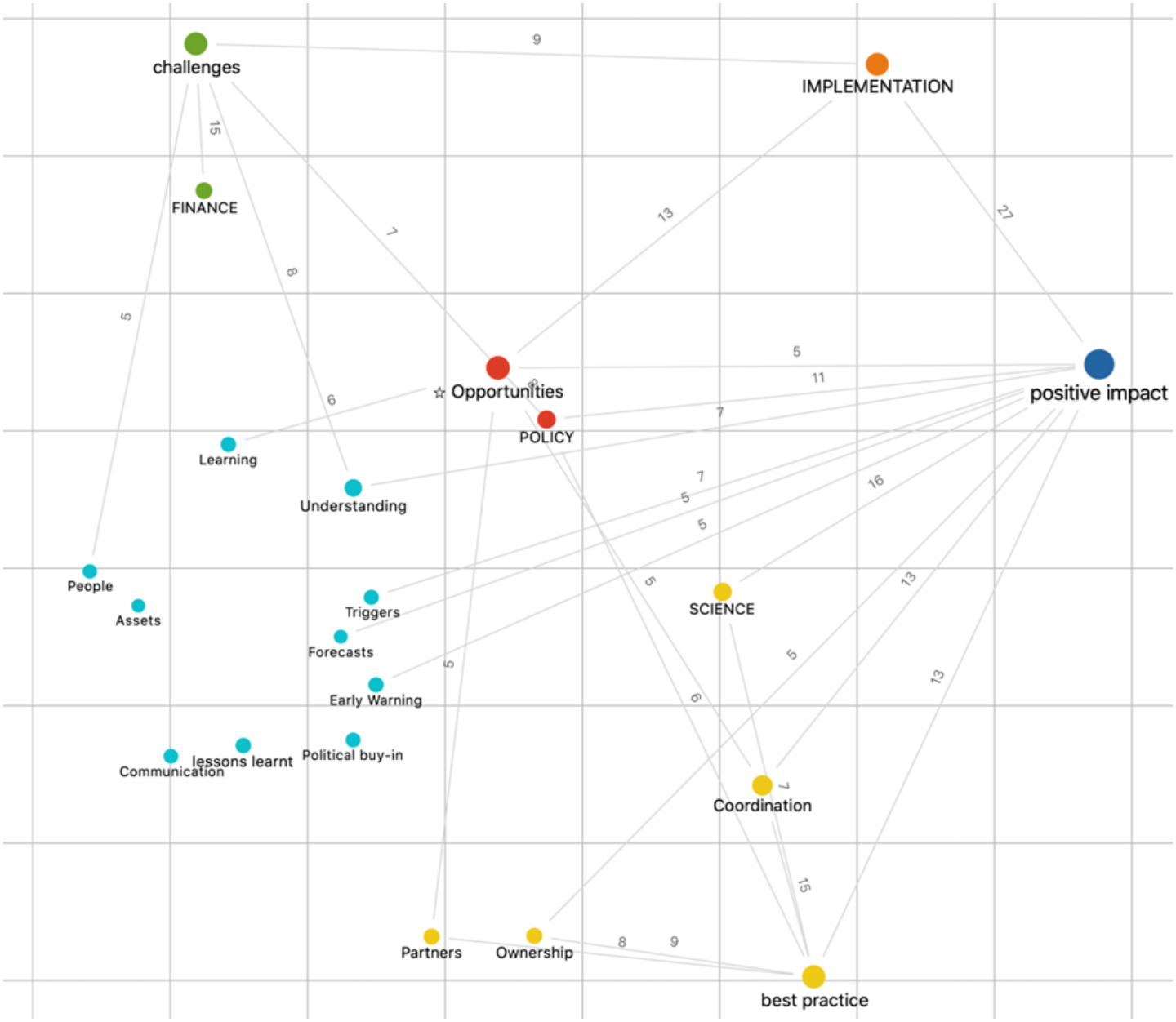
IMPLEMENTATION & OPERATIONAL READINESS		
3.1 Human resources to deliver AA at scale	2	2
3.2 Logistical capability and physical resources	2	2
3.3 Criteria-based targeting of beneficiaries ensures impact- and needs-based assistance	2	2
3.4 An Anticipatory Action Plan (AAP) is established and validated by all stakeholders, including affected communities	1	3
3.5 Stakeholder engagement, participation and inclusion: All at-risk population groups are included in AA intervention design; formal and transparent mechanisms for civil society and community monitoring and feedback are in place at the local and national levels.	2	2
AVERAGE RATING FOR THIS OUTCOME AREA (out of 3)	1.8	2.2
CROSS-CUTTING		
5.1 Stakeholder engagement, participation and inclusion	2	2
5.2 Planning is evidence based and risk informed	2	3
5.3 Coordination is institutionalized	2	3
5.4 Risk management is practiced consistently	2	3
5.5 Routine evidence generation and learning built into the programme planning and management cycle; AA implementation is accompanied by rigorous M&E to assess the extent to which actions were effective and what can be improved.	1	1
AVERAGE FOR THIS OUTCOME AREA (out of 3)	1.8	2.4

This table shows the capacity of national DRM systems and its actors to implement anticipatory action programmes that protect households' food security and livelihoods from the impact of drought. Capacity levels for each parameter are measured using a traffic light system (1: red/absent, 2: yellow/partial, 3: green/ fully present)[3]. This gives a birds-eye view of the different components required for a national AA system to work (policy, finance, science, implementation), and the evolution of capacities for each component between 2019 and 2023 .

Measures were attributed based on a desk review and complimented with data from key informant interviews. The data for 2019 and 2023 collected in 2023 (retroactively for 2019). To complement this table, key informant interviews with members of Government and the TWG were also analysed to extract more granular information on the evolution of different capacities and contributing factors.

[3]See: *Short Guidance for M&E Practitioners: Planning and Monitoring Capacity Strengthening for Anticipatory Action* (WFP,2022)

ANNEX 2: THEMATIC MAP OF KEY INFORMANT INTERVIEWS CONDUCTED IN MOZAMBIQUE



This map was generated in MaxQDA from key informant interviews held with Government, TWG members, and WFP officers in Mozambique (n=15). It shows how frequently different themes intersect in key informant interviews. It complements the analysis by visualising the most frequently occuring words, themes and their correlations, using the thematic networks mehod developed by Attride-Stirling for qualitative data analysis.

The different colours represent clusters, where themes often intersect among themselves. For instance, the yellow cluster shows the themes that most frequently intersect with “best practices”, whereas the turquoise cluster shows themes intersecting around “lessons learnt” (lines are only visible if the intersection happens more than 5 times).

Acronyms

AA	Anticipatory Action
AAP	Anticipatory Action Plan
AfDB	African Development Bank
CENOE	(Mozambique) National Centre for Emergency Operations (Centro Nacional Operativo de Emergência)
CENOE	United Nations Central Emergency Response Fund
CVM	Mozambican Red Cross (Cruz Vermelha de Moçambique)
DARIDAS	(Mozambique) Department for the Development of Arid and Semi-arid Zones (Direcção das Zonas Áridas e Semi Áridas)
DRM	Disaster Risk Management
DRK	German Red Cross (Deutsches Rotes Kreuz)
ECHO	European Commission Humanitarian Aid
ECWMF	European Centre for Medium-Range Weather Forecasts
EU	European Union
EWS	Early warning system
FAO	(United Nations) Food and Agriculture Organization
FCDO	United Kingdom) Foreign, Commonwealth and Development Office
GCF	Green Climate Fund
IFAD	International Fund for Agricultural Development
IFRC	International Federation of Red Cross and Red Crescent Societies
INAM	Mozambique National Institute of Meteorology (Instituto Nacional de Meteorologia)
INAS	National Institute for Social Action (Instituto Nacional da Acção Social)
INGD	Mozambique National Institute of Disaster Management (Instituto Nacional de Gestão de Calamidades. Todos os Direitos Reservado)
MADER	Ministry of Agriculture and Rural Development (Ministério da Agricultura e Desenvolvimento Rural)
MoU	Memorandum of understanding
NGO	Non-Governmental Organization
NHMS	National Hydro-Meteorological Services
NORAD	Norwegian Agency for Development Cooperation
SADC	Southern African Development Community
TWG	Technical Working Group
UNDP	United Nations Development Programme
WFP	World Food Programme
WMO	World Meteorological Organization

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