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RESILIENCE INTEL

Reality of Resilience: 2016–17 drought in East Africa

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The 2016–2017 drought across the Horn of Africa has contributed to failed harvests,extensive livestock deaths and food insecurity. Key informant interviews conducted with humanitarian and development actors, donors and forecasters in Ethiopia and Kenya reveal lessons on using forecasts to trigger early action for humanitarian and development practitioners.

KEY LESSONS

- Slow-onset disasters like drought have a built-in window of time after the rains fail but before widespread impacts are felt, when organisations can act early based on observations of changes in pasture or vegetation.
- Flexible funding and crisis modifiers make efficient use of existing non-governmental organisation (NGO) infrastructure and relationships. They should be accessed earlier to make it possible to anticipate and dissuade negative coping strategies before they happen.
- NGOs should engage with technical experts to ensure forecasts delivered as a climate service are genuinely useful, delivered to people who can take appropriate action and communicated in a way that triggers such action. Further work should focus on scalable climate service models that use existing government structures and enable government leadership to strengthen resilience.

1. EAST AFRICAN RAINFALL IN 2016–17

Rains widely failed across the Horn of Africa during the October to December 2016 season. In some regions, this was the second consecutive season of below average rainfall – a metric humanitarians often use to indicate when lack of rainfall becomes impactful for livelihoods in East Africa. It is also important to note that the relationship between lack of rainfall and drought impacts such as food insecurity and livestock deaths is not direct; many other factors, such as lack of access to markets, underlying structural inequalities and chronic vulnerability, also play important roles in determining risk.

Seasonal forecasts

In order to understand whether an impetus for action existed based on forecasts, we examine the forecasts that were available in advance on the October to December 2016 season. In East Africa, the IGAD Climate Predictions and Applications Centre (ICPAC) provides a regional seasonal forecast, which each country subsequently downscales into national seasonal forecasts. The regional forecast issued in September 2016 indicated a 40% chance of below-normal rainfall over south-eastern Ethiopia and most of Kenya. A key question is whether this forecast warranted action. An objective interpretation would say no. This forecast represented only a 7% increased chance of below-normal rainfall from a logical guess one would make without any information – that below-normal rainfall would occur about a third of the time. However, another interpretation can be made by looking at the history of conservative seasonal forecasts in East Africa. The strongest forecast issued through ICPAC is generally 45%; the last time a stronger forecast was issued (50% chance of below-normal rainfall) was in 2000. Based on this understanding, and organisational tolerance for risk, some agencies might have been inclined to take action as a result of this seasonal forecast. In February 2017, the forecast for the March–May season again showed a 40% chance of below-normal rainfall in the same regions that had already suffered from one or two below-average rainfall seasons. In context, this forecast provided a strong impetus for action.

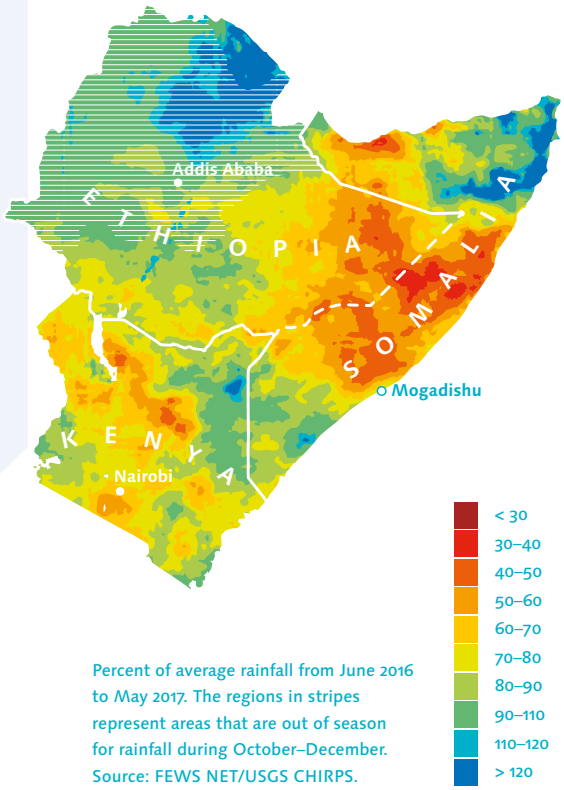
Forecasts of La Niña and the Indian Ocean Dipole

Another type of forecast advisory relates to the likelihood of the occurrence of climate phenomena like La Niña – the periodic cooling of waters in the eastern Pacific Ocean. La Niña is one of the best-studied meteorological drivers of reduced rainfall in East Africa. In early 2016, East Africa was still responding to the impacts of El Niño, the periodic counterpart to La Niña. Even before El Niño ended, forecasts indicated La Niña might be developing. However, La Niña did not gain the same attention as El Niño. Advisories for La Niña were initially issued in July but removed by the next month as climate scientists did not observe consistent indications of La Niña conditions. By November 2017, after the rainy season in East Africa had already started, a La Niña advisory was reinstated, and this continued through January 2017. The La Niña event was labelled 'weak' based on temperatures in the Pacific Ocean; this seemed to downplay its significance in the eyes of forecasters and practitioners in East Africa. Interviews revealed that many non-climate scientists understood this to mean 'weak impacts'.

Another important driver of diminished rainfall entails unusually cold temperatures of the Indian Ocean near the Horn of Africa, which is explained by a natural climate phenomenon called the 'Indian Ocean Dipole' (IOD). This phenomenon does not get the same attention as La Niña or El Niño, but is a key local driver of rainfall variability. The IOD was very negative in mid- to late 2016, another sign of potentially depressed rainfall. When the IOD is in the negative phase, and a La Niña event is occurring, these two features reinforce one another, leading to stronger impacts.

Ethiopia

In early 2016, the humanitarian sector was in the depths of responding to an El Niño-linked drought in the northern and central highlands of Ethiopia. By the end of the year, however, the largely pastoral south-eastern parts of Ethiopia had begun experiencing the effects of extreme weather, including isolated floods and prolonged lack of rainfall. The back-to-back droughts coupled with growing crises in conflict-affected states like Somalia, Yemen and South Sudan further stretched global humanitarian resources (FEWS NET, 2017a).



Percent of average rainfall from June 2016 to May 2017. The regions in stripes represent areas that are out of season for rainfall during October–December. Source: FEWS NET/USGS CHIRPS.

National seasonal forecasts indicated normal to below-normal conditions for southern Ethiopia during the October 2016–January 2017 season. Seasonal forecasts in Ethiopia tend to over-forecast the near-normal category (Korecha and Sorteberg, 2013). Neither the seasonal forecast nor the La Niña advisories triggered widespread action in late 2016. Instead, most implementing organisations sought evidence of impact on livelihoods (e.g. observations of dry fields or poor livestock conditions) before intervening. Organisations that described their role as technical advisory did trigger awareness-raising and advocacy actions based on the forecast of La Niña, especially targeting donors. Forecasts and monitoring information were also presented in the government-convened Agriculture Task Force, which coordinated NGO action related to droughts. This Task Force initiated an emergency livestock working group based on observed impacts on pastoral livelihoods; the group mapped existing interventions and facilitated the coordination of response activities.

Humanitarian and development organisations looked for opportunities to re-programme existing funding to respond to the stress by undertaking activities such as destocking livestock, vaccinating animals, delivering animal feed and trucking water. Learning from past experiences, whereby development gains had been lost during shocks and stresses, some donors enabled flexibility in how funds were programmed. For example, a development project working on livestock management and health was able to divert funds towards destocking

livestock and providing fodder. Other donors allowed organisations to access additional funds in the form of crisis modifiers. For example, the United States Agency for International Development set aside a fund that NGOs that had already received development funding could apply to in the case of an emergency. Similarly, the United Nations Office for the Coordination of Humanitarian Affairs set up the Humanitarian Resource Fund to which NGOs could apply to fill gaps from the Humanitarian Requirements Document. In most cases, NGOs indicated they applied to this fund based on the needs discussed in the Agriculture Task Force, and after some impacts had already materialised. The government also diverted some of its budget from development to the crisis, and made distributions as early as late October. These actions forestalled the worst impacts of the drought.

Kenya

Rainfall was poor in the south-eastern and north-western parts of Kenya during the October–December 2016 season. For the south-eastern counties of Lamu, Kilifi, Mombasa and Kwale, this was the second consecutive below-average season. Scientists found the 2016 La Niña event had increased the likelihood of the drought (Uhe et al., 2017). In mid-March, the Kenya Red Cross Society convened government and civil society leaders to discuss these findings and the seasonal forecast for the March–May 2017 season, which indicated below-normal conditions were expected again. The predictions were correct: dry conditions continued for most of the country, with rainfall only about 60–70% of normal across most of the country (FEWS NET, 2017b). Also in March 2017, the Kenyan government declared the drought a national emergency, with at least 23 counties affected.

The National Drought Management Authority (NDMA) was established in Kenya following the 2010–2011 drought (another La Niña year) to ensure a coordinated effort to manage drought risk. The NDMA was a central source of information on the drought status, key indicators such as health, and food security projections. While few organisations acted before October 2016, many began tracking forecasts and impacts in October, when the rainy season typically begins. Some interview respondents reported associating the 2016 La Niña with the 2011 drought and credited this as spurring urgency to take action, including early coordination and contingency planning.

Coordination groups, such as the Kenya Food Security Steering Group, were convened with NGOs and government to discuss the impacts already observed during the drought and actions that might be taken before widespread impacts would be observed. Actions taken by organisations included destocking livestock, cash transfers and vaccinations for livestock. The Hunger Safety Net Programme in Kenya also triggered cash transfers based on when a Vegetation Condition Index reached a 'severe' or 'extreme' threshold (Bin-Humam and Varghese, 2017). The government also released funds for drought response for various sectors, such as water, food and safety nets, health and nutrition. Some respondents indicated that it took time for money to trickle down through the devolved system to the county government. In Wajir county, Ward Adaptation Planning Committees were credited as being a successful way to advocate for funds and plan interventions to respond to the drought through the county government structure.

BRACED in focus: climate information services for the most vulnerable people

Some respondents highlighted concerns that, while they had received forecasts, those forecasts were not reaching remote communities.

In **Ethiopia** the BRACED CIARE project is an example of the National Meteorological Authority and intermediary organisations collaborating to deliver downscaled weather advisories to communities via local language radio programmes. Anecdotal evidence suggests these forecasts have triggered actions. *'During 2017, this year's drought, initially [communities] received information that there will be a shortage of rain. Then they started to harvest animal feed and store-up in their backyard. And when they heard also that there would be kind of rain after some time, they again started to prepare their fields for planting.'*

In **Kenya,** the BRACED PROGRESS project in Wajir county highlighted that most climate information is tailored for farming contexts, relating to the timing of the onset of rainfall. There is a need to identify the right information for pastoralists, which may include issues around mobility. Respondents from the project also highlighted the potential for climate information to lead to unintended conflicts. *'There have been a few incidents of conflict that are possibly related to these movements of people coming in depleting the resource that some clans may believe, "That's our resource" and "We are suffering", so you have to be careful in how you provide that information.'* This highlights how information and its provision are not neutral, and that a system thinking approach is required to anticipate potential unexpected consequences.

Key message: while there has been progress in developing forecast delivery models that connect farmers and pastoralists to scientific forecasts, still many challenges stand in the way of systematically strengthening anticipatory capacity. An important one is the central role of **trust** in the forecast and the messenger, which, in part, determines whether or not action is taken based on a forecast. Many projects have established initial trust by using familiar voices and languages to deliver forecasts, and some have been lucky in that the first forecasts delivered happened to be correct. However, trust takes time to build and is difficult to maintain. Fundamental to the climate services model is that forecasts are good enough that, in the long run, the benefits of acting based on a forecast will outweigh the inevitable costs of acting in vain (Coughlan de Perez et al., 2015). Not every forecast will deliver these results, and some are no better than a random guess. A widespread lack of technical verification of how often the specific forecasts that are being delivered are correct limits the transparency of the climate service, and in the long term erodes trust when forecasts are incorrect. Significant additional work needs to address issues of building trust through communicating uncertainty and forecast skill,[1] as well as other issues around the limited decisions accessible to vulnerable people and the sustainability of NGO-led climate service systems after projects end.

1 In forecasting, 'skill' indicates how accurate a forecast is (e.g. how often the prediction matches the observed reality).

2. DISCUSSION AND LESSONS

Act immediately when rains fail

Most humanitarian and development partners did not trigger action based on forecasts for below-normal seasonal rainfall. This could be for a number of reasons, such as low risk tolerance, lack of incentive to act and lack of trust in forecasts, among others. It was evident that most respondents sought evidence of impact to livelihoods (e.g. impact assessments) before they took action. **Slow-onset disasters like drought are different from extreme events in that there is a window of time after the rains fail, but before widespread impacts are felt, when organisations can still act early based on observations of changes in pasture or vegetation.** This satisfies risk-averse institutions that are not willing to take the chance of acting in vain, while also providing some lead time before the worst impacts are felt. The current wait-for-the-impacts mentality is no longer sufficient; **organisations must identify and monitor early signs of lack of rainfall in vulnerable areas so they can trigger appropriate action earlier.**

Flexible funding is necessary

In both Kenya and Ethiopia, respondents reported disaster fatigue: it was difficult to get the necessary attention from the international donor community, given the many concurrent crises, including in Yemen, Somalia and South Sudan. The recent impacts of El Niño meant humanitarians had already been preparing for and responding to climate-related shocks and stresses since at least 2015, leaving little downtime between emergencies. **Some donors increased the amount of flexible funding, and made crisis modifiers available to maintain development gains – an important success that respondents said enabled more timely action.** However, in most cases, crisis modifiers were used as part of a timely response based on assessed needs, instead of as an anticipatory mechanism. Research into the PHASE crisis modifier available to BRACED projects in the Sahel draws important lessons on the effective implementation of such crisis modifiers, including the need to act at a pace that reflects the urgency of a situation and to respond to the right signals (Peters and Pichon, 2017).

Use impact forecasts instead of El Niño and La Niña events to anticipate drought

The occurrence of El Niño and La Niña alone is not a good indicator of impact on livelihoods in East Africa, because:

- droughts and floods can happen in years without El Niño and La Niña events
- each El Niño and La Niña event is different and in some cases the 'typical impacts' do not occur
- other factors like the IOD can play a greater role in the East African climate
- vulnerability and exposure factors dictate whether or not shifts in rainfall will have an impact on livelihoods

In addition, the strength of an El Niño or La Niña event in the Pacific Ocean is a bad indicator of the strength of impacts in East Africa. As long as this information continues to be communicated and covered by the media, it will affect how practitioners and donors perceive risk. Forecasters should devise strategies to

better communicate the implications of 'weak', 'moderate' or 'strong' El Niño Southern Oscillation events as they relate to impacts on people. **Humanitarian and development practitioners should place more emphasis on impact forecasts from sources like FEWS NET, which provide timely, regularly updated advisories of delayed, erratic or failed rainfall, which can serve as early indicators of impacts on people**. These forecasts synthesise information on vulnerability and exposure that bridges the gap from describing impacts on rainfall to impacts on people.

Innovate to develop early actions for stages of drought

Some respondents described the types of early actions available for organisations to take in advance of a drought as limited. One respondent also highlighted that commercial destocking and livestock vaccinations are useful only if they are done early enough before impacts to livelihoods are felt. Humanitarian and development organisations need to ensure they are **taking actions that are appropriate during different stages of drought**. Respondents also highlighted **the need to innovate, monitor and evaluate new actions that can be taken in advance of impacts to more effectively build anticipatory and absorptive capacity.**

Ensure forecasts are good and climate service delivery is sustainable

Forecast delivery methods have rapidly advanced as NGOs take on roles as climate information intermediaries. Future work on climate services will need to address challenges on the information provided (Is it fit for purpose? Is it better than a random guess?), its sustainability (What are the ethical implications of discontinuing dissemination?) and if it can be translated into appropriate action (Do vulnerable people have access to appropriate choices?). To address these challenges, **NGOs need to engage with technical experts to ensure forecasts are genuinely useful, delivered to people who can take appropriate action and communicated in a way that triggers such action. Further work should focus on scalable climate service models that use existing government structures and enable government leadership to strengthen resilience.**

REFERENCES

Bin-Humam, K. and Varghese, A., (2017) 'How to run an electronic cash transfer program: a Kenyan case study'. (https://dai-global-digital.com/how-to-run-an-electronic-cash-transfer-program-a-kenyan-case-study.html).

Coughlan de Perez, E., van den Hurk, B., van Aalst, M. K., Jongman, B., Klose, T. and Suarez, P. (2015) 'Forecast-based financing: an approach for catalyzing humanitarian action based on extreme weather and climate forecasts', *Nat. Hazards Earth Syst. Sci.* 15: 895–904.

FEWS NET (2017) 'Emergency food assistance needs unprecedented as famine threatens four countries'. (www.fews.net/sites/default/files/documents/reports/FEWS_NET_Global_FS_Alert.pdf).

FEWS NET (2017) 'Illustrating the extent and severity of the 2016/17 Horn of Africadrought'. (www.fews.net/sites/default/files/documents/reports/FEWS_NET_Horn_of_Africa_June%202017_Drought_Map_Book.pdf).

Korecha, D. and Sorteberg, A. (2013) 'Validation of operational seasonal rainfall forecast in Ethiopia', *Water Resources Research* 49: 7681–7697.

OCHA (2017) 'Regional outlook for the Horn of Africa and the Great Lakes region'. (https://reliefweb.int/sites/reliefweb.int/files/resources/Apr-June_Regional_Outlook_Draft_Doc_6July2017_PDF.pdf).

Peters, K. and Pichon, F. (2017) 'Crisis modifiers: a solution for a more flexible development-humanitarian system?' (www.odi.org/sites/odi.org.uk/files/resource-documents/11861.pdf).

Uhe, P., Phillip, S., Kew, S., Shah, K., Kimutai, J., Mwangi, E., van Oldenborgh, G. J., Singh, R., Arrighi, J., Jjemba, E., Cullen, H. and Otto, F. (2017) 'Attributing drivers of the 2016 Kenyan drought' *International Journal of Climatology (accepted).*

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