

# Preparing for the 2015-2016 El Niño: Humanitarian Action in Zambia, Somalia, Kenya, Ethiopia and Malawi

A Report for DFID By  
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Photo: Charlotte Flocas/NLRC



Red Cross Red Crescent Climate Centre

Final Report | October 2017



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# Table of Contents

|  |    |
|--|----|
| Acronyms   | 8  |
| Acknowledgements   | 10 |
| Executive Summary  | 11 |
| Chapter 1: Introduction                                    | 15 |
| Purpose & Objectives                                       | 15 |
| Research Team  | 16 |
| Case Study Selection & Informant Sampling                  | 16 |
| Methodology  | 17 |
| Limitations  | 19 |
| Chapter 2: Zambia Case Study                               | 21 |
| Background   | 21 |
| Zambian Forecast Production                                | 21 |
| El Niño Impacts in Zambia                                  | 22 |
| Response to the 2015–2016 El Niño Forecasts in Zambia      | 23 |
| Linking Social Protection to Climate Shocks                | 25 |
| Conclusion   | 26 |
| Chapter 3: Somalia Case Study                              | 28 |
| Background   | 28 |
| Forecasts in Somalia                                       | 28 |
| Impacts of El Niño in Somalia                              | 29 |
| Response to 2015–2016 El Niño Forecasts in Somalia         | 30 |
| Early Warnings   | 30 |
| Determining Likely Impacts                                 | 31 |
| Contingency Plans  | 31 |
| Funding for the Early Action                               | 32 |
| Actions by Organization                                    | 32 |
| ICRC and SRCS  | 32 |
| BRCiS  | 33 |
| WFP  | 34 |
| FAO  | 34 |
| CARE International Somalia                                 | 34 |
| Forecasts in the Context of Insecurity & Protracted Crises | 35 |
| Conclusion   | 35 |

|   |           |
|---|-----------|
| <b>Chapter 4: Kenya Case Study</b>  | <b>38</b> |
| Background  | 38        |
| Forecasts in Kenya  | 39        |
| Impacts of El Niño in Kenya   | 40        |
| Response to 2015–2016 El Niño Forecasts in Kenya                            | 41        |
| First warning   | 41        |
| Contingency plans   | 41        |
| Response  | 43        |
| Social Protection in Kenya  | 44        |
| Taking Advantage of Opportunities: Seed Distribution<br>in Kitui County     | 44        |
| Conclusion  | 45        |
| <b>Chapter 5: Ethiopia Case Study</b>                                       | <b>48</b> |
| Background  | 48        |
| Forecasts in Ethiopia   | 49        |
| Impacts of El Niño in Ethiopia  | 49        |
| Response to 2015–2016 El Niño Forecasts in Ethiopia                         | 50        |
| Obstacles to Acting on Forecasts  | 52        |
| Conclusion  | 52        |
| <b>Chapter 6: Malawi Case Study</b>   | <b>54</b> |
| Background  | 54        |
| Forecasts in Malawi   | 54        |
| Impacts of El Niño in Malawi  | 55        |
| Response to El Niño Forecasts in Malawi                                     | 56        |
| Contingency Planning  | 56        |
| Response  | 57        |
| Forecast Limitations  | 59        |
| Social Protection and El Niño Response in Malawi                            | 60        |
| Conclusion  | 61        |
| <b>Chapter 7: Measuring Impacts</b>   | <b>64</b> |
| Attributing Severe Weather Events to El Niño                                | 64        |
| Framework for Measuring Impacts: Options and Considerations                 | 65        |
| Framework for Measuring Benefits  | 65        |
| Measuring Benefits in Kitui   | 66        |
| Quantifying Value: Attributing Event Outcomes to Mitigating Harmful Impacts | 68        |
| Framework for Measuring Impacts Avoided                                     | 68        |
| Comparing to Analogue Years   | 68        |
| Comparing Against Other El Niño Events                                      | 68        |
| Measuring Impacts Avoided in Somalia  | 69        |

|  |           |
|--|-----------|
| <b>Chapter 8: Summary of Recommendations</b>   | <b>72</b> |
| Salient Recommendations  | 72        |
| <b>Chapter 9: Detailed Write-up of Conclusions and Recommendations</b>               | <b>74</b> |
| Forecast Production, Dissemination, and Use  | 74        |
| Which Sources Are Most Used?   | 75        |
| There Can Be Too Much Information  | 75        |
| Which Information is Most Useful? The More Localised and Specific the Better         | 76        |
| Limitations of Scale   | 77        |
| Probabilities & Uncertainty  | 77        |
| Confusion Over Terciles and Probabilities Was Widespread Among the Informants        | 78        |
| Interpretation Facilitates Action  | 79        |
| Forecast Production, Dissemination, Use, and Content — Conclusions & Recommendations | 81        |
| Trust  | 82        |
| Did the 2014 “False Alarm” Affect Early Actions in 2015?                             | 83        |
| Trust — Conclusions & Recommendations  | 84        |
| Gradual Action   | 84        |
| Supplement Forecasts with Real-time Information                                      | 85        |
| Gradual Action & Monitoring — Conclusions & Recommendations                          | 86        |
| Funding  | 86        |
| Slow Funding Slows Early Action in Response to Forecasts                             | 86        |
| Flexible Funding Facilitates Early Action  | 87        |
| Funding in the Context of Competing Disasters  | 88        |
| Impact Studies   | 88        |
| Funding — Conclusions & Recommendations  | 89        |
| Triggers and Standard Operating Procedures   | 89        |
| Risks of (De)Politicising Forecasts  | 89        |
| Triggers and SOPs — Conclusions & Recommendations                                    | 90        |
| No-regrets Actions   | 90        |
| No-regrets — Conclusions & Recommendations   | 92        |
| Social Protection Systems  | 92        |
| Social Protection Systems — Conclusions & Recommendations                            | 93        |
| Political Considerations   | 94        |
| Political Considerations — Conclusions & Recommendations                             | 94        |
| Other Influences and Findings  | 94        |

|   |     |
|---|-----|
| Contingency Planning  | 94  |
| Negative Experiences with El Niño Motivate Action           | 95  |
| Realising Potential Benefits                                | 95  |
| Collaboration Facilitates Early Action and Response         | 96  |
| Prioritising Action Based on Consecutive Events             | 96  |
| Forecasts Can Narrow Humanitarian Focus Too Much            | 96  |
| Flood Forecasts Prompt Faster Action than Drought Forecasts | 97  |
| Other Considerations — Conclusions & Recommendations        | 98  |
| References  | 99  |
| Annex A: Overall Timeline                                   | 101 |
| Annex B: Terms of Reference                                 | 104 |
| Annex C: Interview Instruments                              | 109 |

## Acronyms

|                 |  |
|-----------------|--|
| <b>APES</b>     | Agricultural Production Estimate Survey                          |
| <b>BRС</b>      | British Red Cross  |
| <b>БRCiS</b>    | Building Resilient Communities in Somalia                        |
| <b>CARE</b>     | Cooperative for Assistance and Relief Everywhere                 |
| <b>CERF</b>     | Central Emergency Response Fund                                  |
| <b>Cesvi</b>    | Cooperazione e Sviluppo  |
| <b>CHF</b>      | Common Humanitarian Fund   |
| <b>COF</b>      | Climate Outlook Forums   |
| <b>DAG</b>      | Development Assistance Group                                     |
| <b>DCCMS</b>    | Department of Climate Change and Meteorological Services         |
| <b>DFID</b>     | Department for International Development                         |
| <b>DMMU</b>     | Disaster Management and Mitigation Unit                          |
| <b>DoDMA</b>    | Department of Disaster Management Affairs                        |
| <b>DRC</b>      | Danish Refugee Council   |
| <b>DRM</b>      | Disaster Risk Management   |
| <b>DRMTWG</b>   | Disaster Risk Management Technical Working Group                 |
| <b>ECHO</b>     | European Civil Protection and Humanitarian Aid Operations        |
| <b>ECMWF</b>    | European Centre for Medium-Range Weather Forecasts               |
| <b>ENSO</b>     | El Nino Southern Oscillation                                     |
| <b>ERSC</b>     | Ethiopia Red Cross Society                                       |
| <b>EU</b>       | European Union   |
| <b>EWEA</b>     | Early Warning Early Action                                       |
| <b>FAO</b>      | Food and Agriculture Organization                                |
| <b>FEWS NET</b> | Famine Early Warning Systems Network                             |
| <b>FIRP</b>     | Food Insecurity Response Plan                                    |
| <b>FISP</b>     | Farm Input Subsidy Program                                       |
| <b>FSNAU</b>    | Food Security and Nutrition Analysis Unit                        |
| <b>FSNWG</b>    | Food Security and Nutrition Working Group                        |
| <b>GFCS</b>     | Global Framework for Climate Services                            |
| <b>GFCS-APA</b> | Global Framework for Climate Services Africa Program             |
| <b>GHACOF</b>   | Greater Horn of Africa Climate Outlook Forum                     |
| <b>HCT</b>      | Humanitarian Country Team  |
| <b>HSNP</b>     | Hunger Safety Net Program  |
| <b>HRD</b>      | Humanitarian Requirements Document                               |
| <b>IASC</b>     | Inter-Agency Standing Committee                                  |
| <b>IAWG</b>     | Inter-Agency Working Group                                       |
| <b>ICPAC</b>    | IGAD Climate Prediction and Application Centre                   |
| <b>ICRC</b>     | International Committee of the Red Cross Red Crescent            |
| <b>IEC</b>      | Information, Education and Communication                         |
| <b>IFRC</b>     | International Federation of Red Cross and Red Crescent Societies |
| <b>IGAD</b>     | Intergovernmental Authority on Development                       |
| <b>IPC</b>      | Integrated Food Security Phase Classification                    |
| <b>IRC</b>      | International Rescue Committee                                   |
| <b>IRI</b>      | International Research Institute for Climate and Society         |
| <b>JFM</b>      | January, February, March   |
| <b>KSh</b>      | Kenya Shillings  |
| <b>KIRA</b>     | Kenya Inter-Agency Rapid Assessment Tool                         |
| <b>KMD</b>      | Kenya Meteorological Department                                  |
| <b>KRSC</b>     | Kenya Red Cross Society  |

|                |   |
|----------------|---|
| <b>LEAP</b>    | Livelihoods Early Assessment Protection   |
| <b>Met</b>     | Meteorological  |
| <b>MNSP</b>    | Malawi National Social Programme  |
| <b>MoAIWD</b>  | Malawi Ministry of Agriculture, Irrigation and Water Development                        |
| <b>MRSC</b>    | Malawi Red Cross Society  |
| <b>MVAC</b>    | Malawi Vulnerability Assessment Committee   |
| <b>NDMU</b>    | National Disaster Management Unit   |
| <b>NDOC</b>    | National Disaster Operations Centre   |
| <b>NDVI</b>    | Normalized Difference Vegetation Index  |
| <b>NGO</b>     | Non-Governmental Organization   |
| <b>NMA</b>     | National Meteorological Agency  |
| <b>NMS</b>     | National Meteorological Services  |
| <b>NMHSs</b>   | National Meteorological and Hydrological Services                                       |
| <b>NOAA</b>    | National Oceanic and Atmospheric Administration   |
| <b>NRC</b>     | Norwegian Refugee Council   |
| <b>NSNP</b>    | National Safety Net Program   |
| <b>OFDA</b>    | Office of US Foreign Disaster Assistance  |
| <b>OND</b>     | October, November, December   |
| <b>PDNA</b>    | Post-disaster Needs Assessment  |
| <b>PICSA</b>   | Participatory Integrated Climate Services for Agriculture                               |
| <b>PSNP</b>    | Productive Safety Net Programme   |
| <b>RC / RC</b> | Red Cross Red Crescent  |
| <b>RCAT</b>    | Red Cross Action Team   |
| <b>RUTF</b>    | Ready to Use Therapeutic Food   |
| <b>SADC</b>    | Southern Africa Development Community   |
| <b>SARCOF</b>  | Southern Africa Regional Climate Outlook Forum  |
| <b>SCI</b>     | Save the Children International   |
| <b>SCT</b>     | Social Cash Transfer  |
| <b>SIDA</b>    | Swedish International Development Cooperation Agency                                    |
| <b>SMS</b>     | Short Message Service   |
| <b>SomRep</b>  | Somalia Resilience Programme  |
| <b>SOPs</b>    | Standard Operating Procedures   |
| <b>SRCS</b>    | Somalia Red Crescent Society  |
| <b>SWALIM</b>  | Somalia Water and Land Information Management System                                    |
| <b>TAMSAT</b>  | Tropical Applications of Meteorology using Satellite data and ground-based observations |
| <b>ToR</b>     | Terms of Reference  |
| <b>UKMO</b>    | United Kingdom Meteorological Office  |
| <b>UN</b>      | United Nations  |
| <b>UNDP</b>    | United Nations Development Programme  |
| <b>UNICEF</b>  | United Nations Children's Fund  |
| <b>UNOCHA</b>  | United Nations Office for the Coordination of Humanitarian Affairs                      |
| <b>USAID</b>   | United States Agency for International Development                                      |
| <b>VAM</b>     | Vulnerability Assessment and Mapping  |
| <b>WASH</b>    | Water, Sanitation and Hygiene   |
| <b>WFP</b>     | World Food Programme  |
| <b>WHO</b>     | World Health Organization   |
| <b>ZMD</b>     | Zambian Meteorological Department   |
| <b>ZRCS</b>    | Zambia Red Cross Society  |
| <b>ZVAC</b>    | Zambia Vulnerability Assessment Committee   |

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# Executive Summary

The Department for International Development (DFID) commissioned the Red Cross Red Crescent Climate Centre to conduct the following study of humanitarian preparedness measures for the 2015–2016 El Niño event in five countries: Zambia, Somalia, Kenya, Ethiopia, and Malawi. Chapters 2–6 of this study detail country-level measures to prepare for potential El Niño related impacts. Chapter 7, addresses the challenges to and benefits of early action as experienced by two organizations working in Somalia and Kenya. Based on common themes trending across the case studies, Chapter 8 provides recommendations to improve preparedness actions, before a potential disaster, following El Niño forecasts in the future. The study concludes with Chapter 9, which provides detailed recommendations.

## Summary of Case Study Findings

Organisations operating in all five countries found El Niño event messaging and associated forecasts to be timely and credible. Not surprisingly, downscaled forecasts that include detailed descriptions of potential impacts across sectors are considered more useful than vague seasonal forecasts (above normal, normal, below normal precipitation). Informants also noted that the gradual accumulation of information from many sources is more important than any one warning or source. Stakeholders expressed a desire for better information (see Chapter 9), but that did not hinder early action. What enabled or impaired early action by organizations in each country was not information but the strength of coordination mechanisms, funding mechanisms, the nature of the hazard, access to forecast experts or intermediaries and the political climate.

Nearly every organization used forecasts to update its internal and national contingency plans (often using data from analogue years to anticipate potential impacts). In many cases, organizations had contingency plans but were not able to fully execute them for lack of funds.

While organizations could access impact data from analogue years, they did not have access to forecast experts or intermediaries. This was another oft-touted challenge. Stakeholders desperately needed and requested help to interpret forecasts, anticipate impacts, and plan for action. Unfortunately, these resources were scarce.

Initial El Niño forecasts triggered the first stages of response; they allowed humanitarians to begin contingency planning. As seasonal forecasts became more relevant (localised), organizations would gradually escalate their response accordingly. The most common response to forecasts was pre-positioning staff and supplies.

Informants from every country credited access to flexible funding and programme modification with their organization's ability to act sooner. In particular, crisis modifiers empower organizations to modify existing programmes and take action more urgently.

Because uncertainty is inherent in forecast predictions, organizations and donors are adopting a no-regrets approach to forecast-based early action. No-regret activities are those that will build resilience or provide valuable benefits regardless of whether or not a disaster occurs. No-regret actions based on forecasts can, therefore, reduce potential, negative, political consequences of acting based on a forecast.

Of the countries in this study, only Kenya successfully used their existing safety net system to deliver timely aid in response to forecasts. This is likely because, unlike Kenya, Ethiopia, Malawi, and Zambia had not developed protocols for scaling their systems in response to forecasts (or climate shocks) in advance. If social protection is to be a mechanism for quickly delivering emergency aid, the work of registering beneficiaries, verifying bank accounts, and coordinating donor funding is imperative before there is an immediate need.

A summary of the recommendations most relevant to early action can be found in Chapter 8, and the full analysis of lessons regarding the El Niño event is available in Chapter 9.

## **Chapter 2: Early Action in Zambia**

International predictions of a possible El Niño event reached stakeholders in Zambia between March and June in 2015. However, seasonal forecasts for normal to below-normal rainfall in Zambia were not issued by international and national forecasting groups until September and October 2015 when predictions could reliably be made. None of the NGOs interviewed in Zambia reported mitigating the effects of El Niño through forecast-based early action, and many felt they were unable to take early action. Although Zambia's Social Cash Transfer (SCT) programme was not able to provide early relief based on forecasts in 2015, government ministries and several NGOs are now testing options for scaling it up in response to climate shocks in the future.

## **Chapter 3: Early Action in Somalia**

In Somalia, SWALIM and FSNAU provided humanitarian organizations with precise, timely information regarding potential El Niño-related flooding, enabling successful early action and mitigation. Because organizations and communities have extensive experience responding to floods, and because floods in Somalia are relatively localised events, organizations used historical flood information, SWALIM and FSNAU reports, and flexible humanitarian funding to pre-position supplies and reinforce riverbanks. Although precipitation was not as intense as predicted, early action prevented significant flooding in several areas. Concern Worldwide in Somalia estimated that for every dollar spent on early action it saved \$USD 28 in later aid and \$USD 91 in farmer profits. Flexible, no-regrets funding was essential to these responses. Response to drought forecasts in the North was far slower, beginning only after the impacts were felt. This is likely because El Niño events are typically associated with flooding in much of East Africa.

## **Chapter 4: Early Action in Kenya**

Because of the devastation caused by the 1997–1998 El Niño, the Kenyan government was quick to respond to El Niño forecasts. It set up a Multi-Sectoral Task Force and provided a platform for KRCS and other stakeholders to coordinate their preparedness and response efforts. Organizations updated contingency plans, pre-positioned supplies, led communities in flood mitigation efforts, and disseminated flood warning messages via SMS. KRCS and BRC were also able to provide farmers in Kitui with seeds to take advantage of the additional rain. Because distribution systems were already in place, Kenya's Hunger Safety Net programme successfully disbursed £GBP 3 million in emergency preparedness funds to 190,000 households to help them prepare for potential flooding. The rains were not as damaging as they had been in 1997–1998, but actors believed they were better prepared when the rains arrived.

## **Chapter 5: Early Action in Ethiopia**

As in Malawi, Ethiopia experienced two season failures, the second of which was due to the El Niño event. Early action in Ethiopia was hindered by a variety of factors including the timing of the rains in relation to the timing of the El Niño event, political constraints and discrepancies over funding sources. Organizations could only reallocate funds to expedite action once authorised by the government. Of the organizations interviewed, only one was able to take early action, which it did by using crisis modifiers to adapt existing programmes to emerging conditions. The PSNP, which was entering a new phase in 2015, was not able to facilitate early action — but it was used to deliver benefits to some households in March 2016.

## **Chapter 6: Early Action in Malawi**

Malawi experiences regular climate stresses and is the beneficiary of ongoing efforts to develop better climate services. Despite these efforts, respondents in Malawi often cited the limitations of forecast information. Because the 2015–2016 El Niño followed a season of severe flooding, a large disaster response effort was already underway. Some organizations were able to modify or scale ongoing response efforts based on forecasts, but others were too overwhelmed responding to pre-El Niño flooding to shift their focus to preparations for potential El Niño impacts. Lack of funding was also a significant barrier to scaling activities and implementing activities in contingency plans. Although Malawi has two social protection programmes, neither was set up to deliver additional emergency aid. Efforts are under way to adjust the programme for future events. As in other locations, flood preparations were more readily adopted than early action to mitigate the impacts of drought.

## **The Benefits of Intervention, Impacts Avoided, and a Framework for Assessing Early Action**

Only two of the 58 organizations consulted for this study reported any efforts to track benefits provided or impacts avoided because of early action. BRCiS in Somalia demonstrated that early action to mitigate flooding provides significant value for money; and, KRCS showed that forecasts could be used to help farmers.

The overarching theory of change underlying promotion of forecasts is that early action and mitigation efforts based on forecasts will reduce the need for disaster response and improve overall outcomes in the future. Because the indicators to be evaluated depend upon the specifics of the project and a programme's anticipated benefits, it would be impossible to outline a single method for evaluating early action. Taking care to collect baseline data or to establish the basis of a counterfactual, as elaborated in Chapter 7 can, however, help establish the benefits of early action in the future.



# Chapter 1: Introduction

Interest in the use of forecasts for decision-making has grown in recent years due to improved forecasting capacity and changing climate conditions. Advocates of forecast based decision making posit that monitoring seasonal predictions in conjunction with shorter-term forecasts can help disaster managers and responders to prepare for and mitigate the impacts of climate shocks.

This study explores the use of forecasts for El Niño, a phenomenon that results from the interaction between the atmosphere, ocean and air currents, and warmer-than-average waters in the Eastern and Central Equatorial Pacific (ICPAC 2016). El Niño occurs periodically, every 2–7 years.

During El Niño years, different regions of the world are likely to experience increases or decreases in precipitation — often resulting in floods, drought, and associated humanitarian impacts. In Kenya and the southern areas of Somalia, for example, El Niño is strongly correlated with more precipitation, whereas, in southern and western Zambia, El Niño often causes less precipitation. These correlations (known scientifically as teleconnections) allow forecasters to issue seasonal forecasts in particular regions with greater certainty than is possible in non-El Niño years.

The strongest and longest-lasting El Niño event since 1997–1998 (WFP 2016a), when many countries around the world experienced its destructive force, occurred in 2015–2016. In the two decades, scientists have increased their forecasting capacity significantly and invested considerable resources in improving communication between those who produce the forecasts and the humanitarian practitioners that prepare for and respond to those severe climate shocks. The improved accuracy of these predictions has led donors, NGOs, and governments across the world to incorporate El Niño forecasts into their contingency planning exercises.

This study examines actions in five countries, in East and Southern Africa, to prepare for potential impacts from the 2015–2016 El Niño forecasts; it assesses the challenges and successes associated with those efforts; and, it posits improvements to future efforts to reduce the impacts of El Niño events.

## Purpose & Objectives

In early 2015, climate professionals predicted a formidable El Niño. As the year progressed, international, regional and national agencies issued forecasts and advisories to warn disaster management stakeholders around the world of the potential impacts. In theory, these early warnings allowed governments, United Nations (UN) agencies, and non-governmental organizations (NGOs), to plan, prepare, and implement early actions, thereby reducing damage or harm. In practice, successful implementation of early action measures varied across countries due to a number of reasons unrelated to specific forecasts.

To determine whether forecasts (a) prompted early actions and (b) reduced the need for additional disaster response, the Department for International Development (DFID) commissioned the Red Cross Red Crescent Climate Centre to “review how climate forecasts were used in preparing for and responding to the impacts of the 2015–2016 El Niño” (DFID 2016). Using interview data from five countries — Zambia, Somalia, Kenya, Ethiopia, and Malawi — this study addresses the following primary research questions<sup>1</sup>:

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<sup>1</sup> Each question had a number of sub-questions. A full list of the research questions proposed in the ToR can be found in Annex B.

- Which information was used?
- How did that information influence the decisions?
- What was the role of communication, trust, and dissemination?
- How have innovations in disaster preparedness and response since the 2011–2012 droughts led to earlier action and how has this mitigated the impact of the El Niño?
- Is there evidence that information led to earlier action and avoided losses?
- What is the perception of key actors on the value of information to the response?

Answers to these questions will inform the reader's understanding of how and when — if at all — information regarding El Niño is considered and incorporated into the country's planning and preparedness. Readers will also takeaway factors that enabled or constrained early action. And lastly, this study includes a timeline of the decision-making processes employed in each of the five countries.

## **Research Team**

The research team consisted of four researchers Eddie Jjemba (interviews in Kenya, Ethiopia, and Zambia), Shaban Mawanda (interviews in Malawi), Stephen McDowell (interviews in Somalia), and Arielle Tozier de la Poterie (coordinated research design, analysis, and synthesis of the results with support from the other partners). This team was supervised by Julie Arrighi at the Red Cross Red Crescent Climate Centre.

## **Case Study Selection & Informant Sampling**

Five countries were chosen based on the following criteria:

1. They received DFID funding;
2. They reported different responses to forecasts or varying degrees of early action; and,
3. They experienced different weather patterns and impacts from El Niño teleconnections.

Within each country, the research team selected organizations based on their significant presence in the country, their involvement in El Niño response, and the availability of staff for interviews.

Interviews with key humanitarian and disaster management personnel prepared researchers to reconstruct overall response to forecasts in each of the five countries. A common narrative emerged across all organizations within each country, which is why four of the country case studies detail the response in a single narrative. However, in Somalia, some respondents provided significant detail of their early action, warranting more explicit separation of activities according to each organization.

## Methodology

This study uses data from semi-structured, key-informant interviews to reconstruct responses to El Niño forecasts in each of the five countries. The team interviewed informants working in NGOs, UN agencies, government agencies, and national and international forecasting centres to obtain the perspective of both information producers and the users who were expected to respond to forecasts. Interviewers conducted a total of 66 interviews with 69 informants. Interviews were conducted in-person or over Skype, depending on informants' availability. An additional five informants preferred to receive the interview guide and fill it out in writing bringing the total number of informants to 74. All interviews were recorded (with permissions from the informants), transcribed, and qualitatively coded to identify case-specific details and cross-case themes. To respect the privacy and anonymity of the informants, citations are attributed to broad categories of actors (Humanitarian, Forecaster, Government – see footnote for key) rather than by organization or interview number.<sup>2</sup> The semi-structured interview guideline used for humanitarian actors can be found in Annex D of this report.

Given the large number of questions, researchers elected to ask informants to reconstruct their organization's response to El Niño forecasts as they remembered it, thereby focusing a discussion on the factors each informant found to be most important to explain their reaction. Whenever possible, interviewers spoke to multiple contacts within each organization to corroborate information and construct more accurate narratives and timelines. However, because of respondent (un)availability and time and travel constraints, the team was only able to interview one person from many organizations. A breakdown of the informants for this study by country and organization is provided in Table 1 (on pages 18 to 19). To the extent possible, interview data was supplemented and corroborated by documents and reports provided by informants or available on the organization's public website. When this was not feasible, the details of specific organizational responses are based on only one or two individuals within each organization. Fortunately, similar themes emerged across organizations — and often across countries — increasing the research team's confidence in their conclusions.

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2 Interview informants are quoted according to four categories:

1 = Government officials

2 = Humanitarian (NGO, UN agency, consultant, or academic)

3 = Scientists, forecaster, or information providers (as in SWALIM or FEWS NET).

4 = Donors

**Table 1: Breakdown of Informants by Country and Organization**

| Country / Informant   | Organization                         | Number of Informants |
|-----------------------|--------------------------------------|----------------------|
| <b>Zambia</b>         | UNICEF                               | 2                    |
|                       | Save the Children                    | 1                    |
|                       | World Vision                         | 1                    |
|                       | Zambia Red Cross Society             | 2                    |
|                       | Oxfam Great Britain                  | 1                    |
|                       | FAO                                  | 1                    |
|                       | Zambia Met                           | 1                    |
|                       | WFP                                  | 1                    |
|                       | FEWS NET                             | 2                    |
|                       | CARE international                   | 1                    |
|                       | Concern Worldwide Zambia             | 1                    |
|                       | DFID Zambia                          | 1                    |
| <b>Zambia Totals</b>  | <b>12 Organizations</b>              | <b>15 Informants</b> |
| <b>Somalia</b>        | DFID Somalia                         | 1                    |
|                       | CARE                                 | 1                    |
|                       | UNICEF                               | 1                    |
|                       | Somalia Red Crescent Society         | 1                    |
|                       | BRCiS                                | 2                    |
|                       | Concern                              | 1                    |
|                       | WFP                                  | 2                    |
|                       | FAO                                  | 2                    |
|                       | ICRC                                 | 2                    |
| <b>Somalia Totals</b> | <b>9 Organizations</b>               | <b>13 Informants</b> |
| <b>Kenya</b>          | DFID Consultant                      | 1                    |
|                       | Kenya Red Cross Society              | 3                    |
|                       | UNOCHA                               | 1                    |
|                       | British Red Cross                    | 1                    |
|                       | KMD                                  | 1                    |
|                       | WFP                                  | 1                    |
|                       | UNICEF                               | 1                    |
|                       | Save the Children                    | 1                    |
|                       | Kenya Hunger Safety Net Programme    | 1                    |
| <b>Kenya Totals</b>   | <b>9 Organizations, 1 Consultant</b> | <b>11 Informants</b> |
| <b>Ethiopia</b>       | Ethiopia Meteorological Service      | 1                    |
|                       | Disaster Risk Reduction Department   | 1                    |
|                       | WFP                                  | 1                    |
|                       | University of Ethiopia               | 1                    |

| Country / Informant              | Organization                            | Number of Informants |
|----------------------------------|---|----------------------|
|                                  | Disaster Management                     | 1                    |
|                                  | Ethiopia Red Cross Society              | 1                    |
|                                  | UNOCHA                                  | 1                    |
|                                  | CARE                                    | 1                    |
|                                  | DFID                                    | 1                    |
|                                  | USAID                                   | 1                    |
| <b>Ethiopia Totals</b>           | <b>10 Organizations</b>                 | <b>10 Informants</b> |
| <b>Malawi</b>                    |   |                      |
|                                  | DFID                                    | 1                    |
|                                  | WFP                                     | 3                    |
|                                  | DoDMA                                   | 1                    |
|                                  | FAO                                     | 1                    |
|                                  | Malawi Red Cross Society                | 3                    |
|                                  | MoAIWD                                  | 1                    |
|                                  | DCCMS                                   | 1                    |
|                                  | UNICEF                                  | 1                    |
| <b>Malawi Totals</b>             | <b>8 Organizations</b>                  | <b>12 Informants</b> |
| <b>Global Level Informants</b>   |   |                      |
|                                  | UNDP                                    | 1                    |
|                                  | WFP                                     | 1                    |
|                                  | UNOCHA                                  | 1                    |
|                                  | CARE International                      | 1                    |
| <b>Global Informant Totals</b>   | <b>4 Organizations</b>                  | <b>4 Informants</b>  |
| <b>International Forecasters</b> |   |                      |
|                                  | NOAA                                    | 2                    |
|                                  | ICPAC                                   | 2                    |
|                                  | UKMO                                    | 1                    |
|                                  | IRI                                     | 3                    |
|                                  | Red Cross Red Crescent Climate Centre   | 1                    |
| <b>Forecaster Totals</b>         | <b>5 International Organizations*</b>   | <b>9 Informants</b>  |
| <b>Study Totals</b>              | <b>58 Organizations, 1 Consultant**</b> | <b>74</b>            |

\* International forecast totals do not include National Hydro-meteorological Services, as those are included in country totals.

\*\* The organization totals treat informants from different levels within the same organization as separate organizations. For example, because they received information at different times and responded at different scales, WFP headquarters, WFP Regional headquarters, and WFP Malawi would be counted as separate organizations in this tally.

## Limitations

Because of the study's emphasis on understanding people's perceptions of the value of information to early action, the majority of the analysis draws on interview data. Relying on informant recall presents problems, as people may not remember details or sequences of events properly. Assigning precise dates and reconstructing the exact details of each organization's timeline presented a particular challenge, as people often did not remember

dates. As several informants explained, the El Niño warnings “seem[ed] like a long time ago now” (3); therefore, many informants found it “hard to pinpoint where [they] heard” of El Niño (2) or how exactly events unfolded. To the extent possible, dates were confirmed through documents or additional informants, but because of the numerous organizations included in this study (57 in total), it was not possible to corroborate every detail. When verification was not possible, we reconstructed events based upon the memories of study participants. For these reasons, some of the dates or the details of particular programmes may be slightly subjective. The researchers have done their best to resolve any discrepancies or to note them in the footnotes.

Finally, although government actors were shown to have a significant influence over early actions in many countries, the majority of respondents for this study were from UN agencies and NGOs, as this was the focus of the study. Only nine of the 74 informants came from government agencies (one in Zambia, two in Kenya, three in Ethiopia, three in Malawi, and none in Somalia). In Zambia and Kenya, informants were from the National Hydro-meteorological services. As a result, the findings came from humanitarian actors primarily and may overstate the humanitarian community’s willingness and ability to respond to forecasts while overstating governmental or political obstacles.

# Chapter 2: Zambia Case Study

## Background

In Zambia, disaster management is supervised by the Disaster Management and Mitigation Unit (DMMU) within the Office of the Vice-President. As in most countries, donors and NGOs do not have a mandate to distribute forecast information to the public or to act upon it independently. Zambia has an SCT programme that began around 2003 and has been scaled up since 2010 (2). As of 2014, the programme was prepared to serve approximately 190,000 people in 50 of Zambia's 105 districts. According to informants for this study, by 2016 services had again been expanded, reaching people in 78 districts. The SCT programme focuses on assisting households with elderly, disabled, and orphaned members (Ministry of Community Development, Mother and Child Health 2014). At the time of the 2015–2016 El Niño, the SCT system was not able to quickly scale up in response to climate shocks.

## Zambian Forecast Production

The Zambian Meteorological Department (ZMD) has the responsibility for producing and distributing localized forecasts to the DMMU and other government ministries. As with other national meteorological offices, the ZMD relies on forecasts from international models which it then downscals to the Zambian context. ZMD issues a seasonal rainfall forecast by the end of September each year, one or two months ahead of the planting season.

Throughout the season, ZMD also issues ten-day Crop Weather Bulletins summarizing rainfall conditions around the country after the fact, in addition to seven- and three-day forecasts. These bulletins are available on its website and distributed via email to institutional stakeholders. They reach the broader public through newspapers, television, email, the internet, and radio. Radio is the most effective means of reaching the general population, but programming does not reach the entire country. In September 2015, ZMD's seasonal forecast indicated an increased chance of normal to below-normal rainfall over most of the country for the October to December period. This forecast also indicated that most of the country would return to normal rainfall by the December to February period. In addition to the seasonal forecast ZMD also created a crop calendar showing farmers planting and harvesting dates for typical crops to help them select drought-resistant varieties. Because ZMD employs meteorologists primarily, it coordinates with technical experts within other ministries or sectors to determine the likely implications of the rainfall forecast based on these predictions.

ZMD meteorologists also participate in numerous forums to help disseminate and interpret their forecasts. Every year, DMMU convenes government, UN, and NGO stakeholders on the Zambian Vulnerability Assessment Committee (ZVAC) to conduct an in-depth study of vulnerability in the country (see ZVAC 2015 for a complete list of participants). At these meetings, participants share forecasts and early warnings as well. During the 2015–2016 El Niño, ZVAC data was collected in April and May of 2016, and the report published in June. ZMD also presents forecasts to the Disaster Management Consultative Forum, a national platform chaired by the DMMU, which is called on as needed to prepare for and respond to emerging threats. To help translate their forecasts into action, meteorologists interact with sector representatives at the provincial level and in districts where ZMD has employees.

In an effort to further improve their services, ZMD is in the process of asking stakeholders for feedback on their forecast products. One of their desired improvements is employing sectoral experts to help translate forecasts into sector-relevant advisories and recommendations. They would also like to develop new and stronger dissemination channels to reach people at the village level who may not have access to the internet or the radio.

## **El Niño Impacts in Zambia**

Zambia's climate is comprised of two seasons. The warmer wet season occurs between October and April, and the colder dry season occurs between May and September. El Niño events typically result in an increased number of dry spells during December, January and February — the peak of the rainy season.

The 2015–2016 El Niño came immediately after a dry spell during the 2014–2015 rainy season; it affected over 400,000 households in the Western, Southern, and Eastern Provinces primarily (OCHA, Zambia VAC results, 2015). In other parts of the country, El Niño meant higher than normal rainfall, though no one interviewed for this report cited problems with flooding. Although seasonal forecasting skill increases during El Niño years, rainfall forecasts over Zambia were inconsistent for the peak of the rainy season. The September 2015 ZMD forecast for Zambia predicted that El Niño would lead to normal to below-normal rainfall in the Western, Southern, and Eastern Provinces of Zambia during the October to December period, returning to normal by the December to February period. Regional and global forecasts generally concurred toward the beginning of the season and differed toward the peak and end of the season, as detailed in the next section. Forecasters around the world are unable to predict the onset of the rainy seasons or how that rainfall will be distributed. As a result, humanitarian stakeholders in Zambia “knew overall there would be a problem of rainfall, but there wasn’t that level of sensitivity” to tell them exactly how and where the problems would manifest or allow them to make specific recommendations regarding planting times (2). This common feeling of impending disaster may have been a result of perceived risk as a result of global El Niño warnings and the increase in vulnerability due to the past below-normal rainy season, rather than the seasonal forecasts issued in September – which did not indicate a significantly elevated risk at that time.

During the 2015–2016 El Niño, the rains started several months late in much of southern Zambia, causing farmers there — who planted according to the usual cropping calendar — to lose their crops. The lack of rain also caused problems with access to clean water for household use and consumption. Nevertheless, farmers who planted late or were able to replant after initial losses were able to get reasonable harvests.

Significant rainfall later in the season diminished the severity of feared impacts. In February 2016, FEWS NET reported that despite high demand and above-average prices in some areas, “maize availability is adequate in Zambia”; “[government] Assistance to food insecure populations in mostly western and southern regions has continued”.

The ZVAC report published in June 2016, which surveyed 42 districts in five provinces, indicates that at a national level yields for most crops were better than expected with sufficient yields to meet domestic needs. At a sub-national level however, this report concludes that nearly one million people in the provinces of Lusaka, Central, Western, Southern, and Eastern Zambia would require food support between August 2016 and March 2017 because of El Niño's impacts, with southern districts being most effected (ZVAC 2016).

On 15 June 2016, a Southern African Development Community press release that reported more than 40 million people were in need to food assistance region wide in “the worst [El Niño-induced drought] in 35 years, said: “Zambia is the only country currently forecasting a cereal surplus (556,000 tons) during the 2016/17 marketing year.”

## **Response to the 2015–2016 El Niño Forecasts in Zambia**

By most accounts, El Niño forecasts reached stakeholders between March and June 2015. These forecasts were most likely global El Niño warnings however, since international and national forecasts for normal to below-normal rainfall in Zambia did not occur until September and October 2015. This includes forecasts from FEWS NET, ZMD, SADC, IRI and ECMWF. Organizations, in general, received information from their global offices, international forecasters, and institutions like FEWS NET, SADC, and OCHA. Communication channels ran relatively smoothly; most organizations first heard warnings from their global or regional headquarters and then supplemented that information with other sources of information. For partners like Concern Worldwide, “monitoring forecasts and being aware of potential risks is something that is embedded in the organizational culture” (2). Despite the global warnings of El Niño in 2014 which did not pan out, Zambian stakeholders continued to monitor forecasts diligently.

Most partners in Zambia found the information from FEWS NET, OCHA, and other international sources to be most reliable and useful. In contrast, several stakeholders expressed concern that “local forecasts are weak, and the information can be quite questionable” (2). Of the 11 organizations interviewed, only the Zambian Red Cross Society (ZRCS) explicitly mentioned using ZMD forecasts; however, with “no actionable messages within the forecasts” (2), it was up to ZRCS to determine the actions.

It is important to note that rainfall forecasts over Zambia were inconsistent for the peak of the rainy season. The September 2015 ZMD forecast for Zambia predicted that El Niño would lead to normal to below-normal rainfall in the Western, Southern, and Eastern Provinces of Zambia during the October to December period, returning to normal by the December to February period. The SADC regional forecast also indicated a slightly elevated chance of normal to below-normal rainfall during the October to December period, changing to normal to above-normal rainfall by December to February. International forecasts, such as the seasonal forecast from the IRI, began indicating normal to below-normal seasonal rainfall in October 2015, with increasing risk of below normal rainfall during the peak of the rainy season, then returning to normal conditions by the February to April period.

The warning of likely drought in the coming seasons was enough to raise concerns. The 2014 and 2015 seasons were also quite dry and contributed to decreased electricity generation, load shedding, bore holes running dry, and agricultural setbacks. In response to forecasts, humanitarian partners and the government began talking about the likely impacts in 2015–2016.

In August 2015, DFID met with the DMMU (the government department in charge of emergency response) and in September staff began speaking to the Ministry of Community Development about responding to the impacts of El Niño using the Social Cash Transfer programme. Starting with the first warnings, FAO, ZRCS, CARE, and UNICEF incorporated El Niño related drought predictions into their organizational contingency plans. As is customary, those plans eventually informed the national contingency plan coordinated by DMMU; it published in November of 2015.

Zambia's 2015–16 National Contingency Plan did not explicitly mention El Niño, outlining in general terms what is to be done before, during, and after anticipated dry spells and flash floods in each of the following sectors: agriculture and food security; health; WASH; nutrition; habitation and human shelter; early warning; alert systems and communication; and logistics (Government of Zambia, 2015). According to the ZVAC, assessments are to be coordinated by government and some NGO interviewees expressed concerns with such requirements for government permission and coordination of all assessments. They also expressed a need for stronger coordination and increased access to information, specifically additional details in the government's annual crop and vulnerability assessments to aid in fund-raising. Most NGOs are able to access funding based on government's declaration of an emergency. As a result, some NGO interviewees also felt that the potential political repercussions of requesting international assistance delayed and diminished potential early actions. Early actions which did take place included advising farmers to practice conservation agriculture and plant drought-resistant crops.

In January or February 2016, DFID and several NGOs with programmes in the Southern and Western Provinces — Concern Worldwide Zambia, WFP, Oxfam, Save the Children, and World Vision — came together to “start thinking about how they could possibly adapt their programmes to respond to El Niño effects” (4). With DMMU authorization, and funding from DFID through the Start Fund, these organizations conducted four studies: (1) Concern Worldwide conducted a market assessment to understand how markets might respond to cash transfers to mitigate El Niño's impacts; (2) Oxfam conducted a study on El Niño's likely gender impacts; (3) World Vision evaluated community-based disaster risk management; and (4) Save the Children conducted a capacity assessment of District Committees and Infrastructure in Western Province. These results were presented to the government during the Consultative Forum hosted by DMMU in February or March.

As the rainy season ended in April 2016 and the impacts of drought became clear, DFID allocated money through the Start Fund to NGOs for a trial of the emergency cash transfers. The project began in earnest in mid-September 2016 and, as of October 2016, was working with DMMU to determine the most food insecure districts according to the most recent vulnerability assessment. Registration of households had not yet begun, but the first cash transfer was anticipated to reach approximately 25,000 households in December 2016.

## **Linking Social Protection to Climate Shocks**

Stakeholders have now begun researching how Zambia's Social Cash Transfer programme might be expanded to help cope with climate shocks such as the last El Niño. Zambia's SCT programme targets the elderly and disabled but does not incorporate measures for food insecurity. The Ministry of Social Welfare also distributes funds in cash rather than electronically. Following assessments carried out by Oxfam, Concern Worldwide and others, the government approved registering households in communities badly affected by El Niño but not yet part of the social protection system.

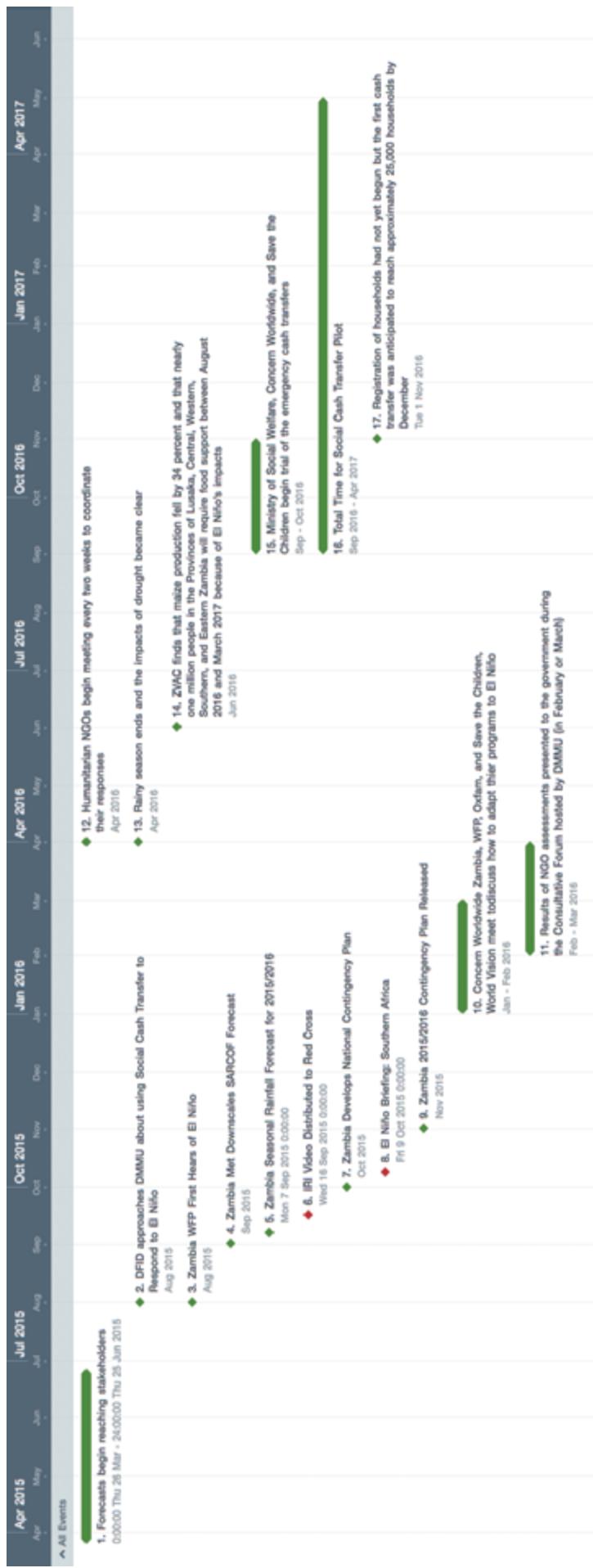
DFID funded a pilot project to five districts suffering from El Niño-related food insecurity, and the Ministry of Social Welfare, Concern Worldwide, and Save the Children began distributing funds in September and October 2016. The pilot will continue through April 2017. In the future, the government may also consider increasing the cash transfer value in response to higher food prices.

Stakeholders in Zambia expressed a commitment to learning from more advanced social protection systems elsewhere, and expressed the desire to use forecasts as a trigger to register vulnerable households or deliver cash before impacts are felt. Most important, the organization would like to ensure that scaling up social protection for El Niño is not "a one-off action, like only the humanitarian response" but instead builds capacity to make the whole cash transfers and social protection system more responsive to shocks (2). These discussions demonstrate that while Zambia's Social Cash Transfer programme was not yet advanced enough to cope with the 2015–2016 El Niño, El Niño's impacts prompted dialogue about how such shocks might be addressed through social protection programmes in the future.

## **Conclusion**

The chief lesson from the 2015–2016 El Niño in the Zambian national context is that for humanitarian stakeholders to be able to respond to forecasts in the absence of an officially declared emergency, the system would have to change to allow them to adapt or initiate programmes with a different form of governmental acquiescence. Such a system would also benefit from a consultative and robust process to identify forecast thresholds that trigger action well in advance of any particular forecast.

## Timeline of Response to El Niño Forecasts in Zambia



# Chapter 3: Somalia Case Study

## Background

Humanitarian response to climate shocks in Somalia is complicated by 25 years of civil war and the ensuing uncertainty about the governance and security situation. It has been the site of ongoing humanitarian action since famine and conflict struck in 1991. When it comes to disaster preparedness and response, the government of Somalia relies largely on financial contributions from the international community of donors and services provided by NGOs and UN agencies. Among these organizations, World Food Programme (WFP) and International Committee of the Red Cross (ICRC) are the two humanitarian players; USAID and DFID are the most flexible donors.

In addition to WFP and ICRC, representatives of two NGO consortia — Building Resilient Communities in Somalia (BRCiS) and Somalia Resilience Programme (SomRep) — were interviewed for this study. These consortia emerged to help coordinate funding and action after the 2011 famine. BRCiS is a DFID funded consortium of five NGOs lead by the Norwegian Refugee Council; they include Concern Worldwide, Cooperazione e Sviluppo, International Rescue Committee, and Save the Children International. They coordinate humanitarian intervention in response to shocks with the need for longer-term resilience and development (BRCiS 2015). Through SomRep, an additional seven international agencies (Oxfam, Adventist Development and Relief Agency, Action Contre la Faim, Danish Refugee Council, CARE, Coopi and World Vision International) also coordinate common efforts to build household and community resilience (Danish Refugee Council n.d.).

In addition to security challenges, the 2015–16 El Niño in Somalia followed two years (four consecutive seasons) of below-average rainfall in many areas of the country, including areas that have suffered from protracted political and economic instability (UNOCHA 2016). The impact of El Niño, therefore, compounded already precarious livelihoods situations.

Historically slow reaction to early warnings also influenced the overall response to the 2015–2016 El Niño in Somalia. In 2011, Somalia experienced a severe drought, for which “a lot of early warning information was available, but the action to respond to the drought came much later” (2). This failure to act resulted in “probably the biggest humanitarian failure” (2) in recent times and concern among NGO stakeholders in Somalia about “replicating the same mistake” (2) in 2015–2016 (also expressed by 43).

## Forecasts in Somalia

Although Somalia’s meteorological (Met) service is small (and was not mentioned by any informant), Somalia hosts two well-developed monitoring partnerships with the Food Security and Nutrition Analysis Unit (FSNAU) and Somalia Water and Land Information Management System (SWALIM). NGO partners working in Somalia, therefore, largely depend on the combination of international forecasts and the more detailed, localised information provided by FSNAU and SWALIM. FSNAU is a monitoring effort funded by SIDA, OFDA/USAID, DFID, the EU, and Common Humanitarian Fund (CHF). The Met seeks to provide “timely and relevant” food security and livelihood information to support “evidence-based” programmes (FSNAU.org) and is regarded as one of the best famine monitoring systems in the world. It classifies food security according to the Integrated Food Security Phase Classification (IPC) — the same system used by FEWS NET — developed in the last decade to harmonise food security classifications across organizations and contexts.

SWALIM is an information management group managed by FAO and funded by the EU, UNICEF, and CHF. SWALIM acts as would a government ministry of water, providing advice regarding irrigation, river management, monitoring, hydrological modelling, and other issues related to land and water to emerging government institutions, NGOs, development actors, and UN bodies. SWALIM's May–August 2015 update warned of the likelihood of increased rains and associated flooding, particularly of infrastructural concerns (SWALIM, 2015).

By all accounts, the information provided by these two organizations was essential to planning efforts. During the 2015–2016 El Niño, SWALIM provided FSNAU and the broader humanitarian community with detailed information on areas that were likely to flood. Informants for this study found SWALIM's maps of river locations along the Juba (21) and Shebelle (47) particularly useful in their planning and recommendation to address these weak points through river control activities. FSNAU then took the lead in estimating the likely impacts of floods at these points, and humanitarian organizations then combine the SWALIM and FSNAU information with their logistical expertise to determine how to act.

## **Impacts of El Niño in Somalia**

The effects of El Niño in Somalia depend on the region. During El Niño, the northern areas may realize lower than usual rainfall (or a continuation of dry conditions that typically prevail), whereas the southern regions often experience increased rainfall and flooding along the country's two major rivers, the Juba and the Shabelle. Several organizations faulted themselves for not adequately understanding the possibility of drought in the North (UNICEF & WFP). They focused on the prominence of flood impacts during the 1997–1998 and 2006 El Niños as well as other similar years to determine effects. The flooding in Somalia was likely not as bad as anticipated because it "fell nicely" in comparison to past El Niño years when intense rains in a short time lead to higher rivers (2).

During the 2015–2016 El Niño, southern and central "equatorial" regions of Somalia and the western region experienced flooding in October and December (IGAD & ICPAC 2016). Much of the flooding comes from increased rains in the Ethiopian highlands and tributaries originating in Kenya which then drain to Somali rivers, affecting water levels and potentially causing flooding (2). The impacts of flooding events include losses of crops, livestock, and property.

Flooding was not as widespread or severe as forecast originally (WFP 2016); many agreed that flooding was only slightly higher than what one would expect during the rainy season. Nevertheless, international reports attribute many impacts in Somalia to the 2015–2016 El Niño. In January 2016 WHO estimated that the drought in the North had affected up to 2.3 million people, the majority of whom were already internally displaced, increasing food insecurity by 400,000 people. In response to warnings, "partners agreed to pre-position humanitarian relief items to assist at least 50,000 people for eight weeks in all potential hotspot areas" (IASC 2015: 4). In November of 2015, flooding impacted 145,200 people (OCHA 2016b). FAO was able to help with flood mitigation, including sandbag diversions and elevated structures to protect grains from heavy rains or floods. They also distributed fishing kits to allow people to take advantage of higher waters, but it is not clear from the reports when precisely these efforts occurred (FAO 2016). Overall, early action was hindered by a lack of funding (UNOCHA 2016b). As of March 2016, aid organizations estimated that 385,000 people in Somalia were acutely food insecure, and another 1.3 million were at risk of becoming so — approximately 37 per cent of people living in Puntland and Somaliland (OCHA 2016b).

In an arid environment such as Somalia, increased rains can also bring benefits, including increased water for domestic use, farming, and livestock (IGAD & ICPAC 2016; FAO El Niño Update Jan 2016). Several actors — Somalia Red Crescent Society (SRCS) and members of the BRCiS Consortium — reported that they were able to help people plant crops to take advantage of potential “bumper” harvests. Because it is relatively inexpensive to provide seeds and farming support, these initiatives were seen as positive “no-regrets” actions; the potential benefits outweighed the risk of loss if rains were insufficient (21; 28; 32; 43). The benefits, however, were never quantified.

Concern Worldwide Somalia is the only organization consulted for this study that attempted to measure and quantify the benefits of their early action. Their estimates of benefits and a discussion of their methods are provided in Chapter 7, which discusses options and challenges to impact assessment at greater length.

## **Response to 2015–2016 El Niño Forecasts in Somalia**

Response to El Niño forecasts in Somalia followed a similar pattern across organizations. Upon first hearing of El Niño between March and October, stakeholders began researching the consequences of El Niño in previous years. These likely impacts were then integrated into contingency plans, the details of which were implemented as funding became available. Activities were made possible by rapidly available DFID and OFDA funds, the ability to reallocate OFDA funds from other initiatives, and capacity to coordinate with other actors to move and store supplies. This section details how each organization proceeded and concludes with some final observations.

### **Early Warnings**

Organizations in Somalia first heard of the potential El Niño from international sources as soon as March 2015. Some organizations, like CARE, were not informed until October 2015. SWALIM began providing Somali-specific information about river breakages in July, which was received by FSNAU, WFP, FAO, SRCS, and BRCiS partners. Before that formal advisory, WFP employees had heard vague references to El Niño via the news and in informal discussions with donors. Partners working for Somali Red Crescent Society (SRCS) and the ICRC first heard of the possibility of an El Niño through IFRC warnings in April or May of 2015. Because of the drought that began several seasons earlier, SRCS staff were already monitoring FEWS NET and Relief Web websites and reading briefings from UN Cluster meetings. By late August and early September, NGOs within the BRCiS consortium had substantial data from different sources addressing the increasing probability of El Niño, which would result in flooding in the southern and central regions of Somalia and pockets of drought in the northern part of Somalia” (2). Overall, because of the high level of coordination among the Humanitarian Country Team (to which UN Cluster organizations report), UN Clusters themselves, and the two NGO consortia within Somalia, most NGOs were made aware of the El Niño and its likely impact in time to coordinate their early actions.

## Determining Likely Impacts

Upon learning of a possible El Niño, several partners began investigating its potential implications. WFP officers began conducting their research, also looking for analogue years to get a better understanding of the potential impacts. They identified the 1997–1998 and the 2006–2007 El Niños as analogue years and noted that flooding had been the primary effect in those years. FAO directed SWALIM to look through the historical archive to determine what kinds of flooding had occurred in Somalia during previous six El Niño events in Somalia, providing a sense of what was likely to happen. Once the analyses were complete, FAO and SWALIM presented the possible implications of El Niño at the Humanitarian Country Team (HCT) meeting in early–mid July. They put significant effort into translating the forecasts into layman’s terms and connecting it to potential actions for all the members of the HCT. There was widespread agreement from all the stakeholders that SWALIM “did an amazing job. They really dug down into the archives; they started to map and show us what the impacts were etc. I mean the power of SWALIM was really harnessed in that case. I want to say, it took quite a lot of leadership from [sic] our part” (2).

Following that meeting, ICPAC and SWALIM continued to provide regular updates on the likely El Niño scenarios; by August, after the ICPAC meeting, partners had a relatively accurate picture of what would later unfold (2). Because of these efforts to produce and share information, “by the time the rains started up in the Ethiopian highlands we were able to monitor it people knew what to expect” (2).

## Contingency Plans

In response to the detailed SWALIM and FSNAU information, most organizations began planning and coordinating early actions. When the initial forecasts were received, SRCS was understaffed and did not have a disaster management coordinator because of staffing transitions. Nevertheless, SRCS used these forecasts of heavy rain to update contingency plans in August and identify what additional resources would be needed to respond to potential El Niño-related flooding. WFP began planning their responses and coordinating with ICRC, looking at the kinds of air and water transport they would need to move supplies and the kinds of disaster response that would be required. During this planning process, they identified triggers to initiate action, and by the end of July, WFP had reviewed past events and developed an internal, unfunded, action plan. The CARE senior management team met to decide how to address projections of floods and droughts. They sent teams to do field visits and rapid assessments of the areas where SWALIM predicted riverbanks would burst and then combined field information with lessons from flooding in 1997 and 2006 to devise action plans.

In contrast to other countries in this study, the Somali government combined these plans to create a national contingency plan. When and where each organization would intervene was determined through the HCT and NGO collaborations. These decisions were determined by geographical considerations and who had secure access and the connections to get things done in different areas (2).

## Funding for the Early Action

Informants widely cited flexible DFID and OFDA funding as essential to early response to the forecasts. CARE International also used the information to solicit funding from SIDA. DFID first learned of the possible El Niño in March or April. Upon receiving the forecast, DFID contacted partners like FAO and Humanitarian Country Team to find out what the likely impacts would be. As DFID has 20 million pounds per year pre-approved for Somalia, they were able to direct it toward early warning, preparedness, and early action. DFID agreed with their implementing partners on several no-regrets actions that DFID could fund. DFID is firmly committed to the no-regrets approach, believing it “cannot be in a situation of — if an event doesn’t materialize, but the expertise and evidence points to the fact that it should have happened — we shouldn’t be in a position of questioning the fundamental principle of ‘no-regrets’ type finance” (4). Without such funding and a no-regrets attitude, many of the early actions outlined below would not have been possible.

## Actions by Organization

Once plans were developed, organizations began taking early actions and implementing their plans with the funding available. Because they took slightly different actions, each organization’s response to El Niño forecasts is outlined separately below.

### ICRC and SRCS

Because SRCS was interested in working with ICRC to expand their activities in Somalia, ICRC and SRCS worked together in their early action and response efforts. Because of the lack of security in Puntland, on 10 September, 2015, IFRC reached an agreement with ICRC to coordinate radio-based awareness campaigns there. In the beginning of October, the two held a joint meeting to discuss the supplies and delivery systems already in place. In October and November, SRCS began raising funds to support their contingency plan. Unfortunately, the majority of the funds initially pledged for SRCS’s contingency plan were never received. Therefore, most implementation of the SRCS contingency plan stopped in late December, and from January through March, the SRCS was unable to provide assistance. Official appeals for funds were made in January and February, allowing disaster response efforts to resume in March.

Because ICRC was already well established in Somalia, it responded to forecasts primarily by pre-positioning additional supplies and continuing to provide support for health and other programmes. Because floods occur every year and flooding in 2015–2016 was not as severe as in past El Niños, the scale of the ICRC disaster response once the flooding occurred was no larger than usual.

## BRCiS

BRCiS partners were able to mobilise International Relief Response crisis modification funds from DFID, as well as flexible funding from other programmes in Somalia, which can be reallocated to emerging needs provided the overall objective is similar to the funding's original intent. Whereas many actors in Somalia were unable to use their funding for procurement and pre-positioning supplies, Concern Worldwide procured and positioned supplies using flexible funding that could be used for awareness or preparedness (2). The ability to quickly access funds, and to reallocate existing funds from existing projects to the areas of greatest need were considered essential to these early actions as, according to our informants, lack of access to such funds prevented other NGOs from pre-positioning supplies in response to El Niño warnings.

Using these funds, BRCiS partners undertook numerous flood preparedness and mitigation measures: repairing river embankments; pre-positioning sandbags and WASH materials in various hubs around the country to expedite their use immediately before the flooding; and, positioning inflatable boats for the transport of supplies after the flooding had occurred. Concern Worldwide employees used the forecast to estimate which villages in insecure areas were most likely to flood. They then used their community ties to locate local, reliable merchants whose facilities could be utilised as "hubs" for storing low-value flood response supplies like rope and sandbags. It was then up to Concern's partners within each community to coordinate distribution of supplies in the event of an actual disaster.

These supplies proved quite useful for a community-led response once the rains began. According to community reports, people were able to access the supplies in 50 villages and coordinate amongst themselves to set up water blockades, and to improvise solutions as the water patterns changed. Because the community has experienced this kind of flooding before "they know the water's coming, they've been through this before, so when you say hey 'I got list things here for you guys to set up', you don't have to ask them twice" (2). Communities' ability to access the supplies and act proactively depended upon who controlled the area, as in some places Al-Shabaab limited when and how people were allowed to act. Despite these successes, based on satellite imagery, Concern estimates that only half of the locations they prepared for flooded.

Concern also used its contacts to bring the El Niño forecasts to the attention of local radio stations, who then — largely of their own initiative — developed and broadcast a series of nearly 20 radio programs on Voice of America, one of the most listened to shows in Somalia. The shows, which aired beginning in early October, just before the rains started, featured experts who could discuss the various implications of El Niño. These broadcasts reached an estimated 10.5 million people across Somalia, Djibouti, Kenya, and Ethiopia (2).

## **WFP**

In accordance with its internal contingency plan, WFP began using DFID funds in October to pre-position supplies, helicopters, and boats because they would likely need to move supplies during potential floods as well as the logistical needs of other UN clusters (WASH, nutrition, etc.). As with BRCiS, the availability of flexible funds and “very good contacts with the authorities and partners in the areas” were essential to successful pre-positioning of supplies (2).

## **FAO**

Early support from DFID and OFDA allowed FAO to initiate several preparedness and mitigation activities in response to the forecasts. In keeping with the donors’ philosophies, FAO’s approach to response planning was to look for no-regrets actions and to act quickly so as not to replicate the mistakes of 2011. Among their early actions were warning communities of the potential for flooding, distributing inputs, and helping communities to construct platforms to protect seeds and other assets. FAO also conducted animal health campaigns, vaccinating animals against diseases associated with flooding and worked to protect and reinforce riverbanks, which are often damaged by farmers seeking to use river water for irrigation to decrease the risk of flooding. Many of these somewhat temporary fixes have survived into subsequent seasons, continuing to protect nearby land from flooding.

## **CARE International Somalia**

In response to the forecasts, CARE hired new personnel to help with coordination of the EU Funded SomRep Consortium programme. Most of CARE’s team in Somalia is made up of Somalis, many of whom have experienced the impact of flooding and drought related to El Niño in past years and are intimately familiar with the villages and local context. They were able to mobilise villagers in response to the flooding quickly, and the very specific “river breakage points” identified in SWALIM reports. In particular, communities evacuated children to protect them from the flood waters and the dangerous animals they bring (crocodiles and snakes).

## **Forecasts in the Context of Insecurity & Protracted Crises**

Not surprisingly, security concerns factored into the ability to respond to El Niño forecasts in Somalia. Response, for example, was limited to the four districts for which humanitarian actors have safe access. In such security situations, all partners emphasized the importance of good working relationships with local officials and communities. In some instances, partners were only able to act through partnerships with ICRC.

Because of the security situation in Somalia, real-time monitoring can be a challenge, as organizations do not always have access to affected areas. As one informant explained, “We were getting information from areas that were not accessible so one of the things would be how do you verify or validate the information? So we are stuck at that point. So you would work with the same secondary information in terms of planning. You could have a good plan, but you cannot verify the information. How do you verify the current situation in an area that’s prone to conflict? This was a big challenge for the Somalia context” (2).

In the context of chronic insecurity and perpetual crises, some informants questioned the value of forecasts for triggering action. As one informant put it, “El Niño should not matter to Somalia — El Niño and La Niña forecasting — because the things that happened during La Niña or El Niño year are only 10 per cent less likely to happen in any other year anyway. Therefore, we should be doing this stuff every year no matter what, and especially when you look at the drought” (2). Another informant echoed this sentiment, stating that humanitarians should “consider El Niño as a way of life and not as a kind of sudden thing, basically meaning that two times a year, this is what we have ... droughts in the north and floods in the south” (2). In an ideal world, where there are sufficient resources to do everything every year, this may be true. However, as indicated the anecdotes above, in the context of inevitably limited resources, well-interpreted forecasts in conjunction with flexible funding can help actors to initiate preparedness and mitigation measures based upon where a disaster response is most likely to be needed.

## **Conclusion**

These responses to El Niño forecasts demonstrate that in Somalia the information, the funding, and the activities related to flooding were relatively straightforward. SWALIM and FSNAU information clearly identified where to repair riverbank breakages and pre-position supplies. Donors were willing and able to provide the necessary funds, and different actors had the necessary access to provide these actions in different areas. UN agencies and NGOs consulted with each other to coordinate the response. There was also agreement among donors and practitioners that regardless of whether flooding eventually occurred in 2015, these interventions would benefit people in the near future, as floods happen even in non-El Niño years.

In contrast, response to drought forecasts was almost an afterthought. Informants believed that the lack of early action on droughts occurred because El Niño forecasts drew attention to flooding, which is easier to address. During droughts, the risks are more widespread, and the actions to be taken are less well defined.

Timeline of Response to El Niño Forecasts in Somalia



- ♦ 22. UNHCR Update Awareness in Puntland Communities via Radio  
Aug - Sep 2011
- ♦ 23. Somalia El Nino Contingency Plan Issued  
Sep 2011
- 24. WRCOS Technical Working Group Decides to Launch El Nino Preparedness Activities**  
Eng - Oct 2011
  - ♦ 25. Regional Ensemble Forecast Update Regional Update for East Africa and Indian Ocean Islands #2  
Thru 10 Sept 2011 (00000)
  - ♦ 26. Agreement of Multisectoral Coordination Between GRCOS, IFRC, and OCHA  
Thru 10 Sept 2011 (00000)
  - ♦ 27. Somalia RCs, with IFRC and ICRC, Begin Awareness Raising via Radio in Puntland  
Thru 10 Sept 2011 (00000)
- 28. Ad Agencies Ramp up Ad**  
Oct 2011
  - ♦ 29. Launch of El Nino Contingency Plan  
Oct 2011
  - ♦ 30. Some organizations, like CARE, were not informed until this time.
- ♦ 31. IFRC seeking DRC funds to pre-positioning supplies and transportation  
Oct 2011
- ♦ 32. held a joint meeting to discuss the logistics and delivery systems already in place.  
Oct 2011
- 33. Email Red Crescent Raise Funds for El Nino**  
000000 Thu 1-24 Oct 2011 (Thru 30 Oct 2011)
  - ♦ 34. Use of Somalia Air radio above Haradh experts discussing the service implications of El Nino.  
Thu 1-31 Oct 2011
- 35. WRCOS meeting hosts to support their contingency plan.**  
Oct - Nov 2011
  - ♦ 36. In October and December's southern and central equatorial regions of Somalia and the western region experienced flooding  
Oct - Dec 2011
    - ♦ 37. Regional Ensemble Forecast Update Regional Update for East Africa and Indian Ocean Islands #3  
Thru 10 Oct 2011 (00000)
- 38. IFRC/RC Partners Meet in Nairobi to discuss regional preparedness**  
Sat 11 Oct 2011 (00000)
  - ♦ 39. El Nino planning meeting between 7 NGOs present at the El Nino IAD meeting in Nairobi and the IFRC HQ/RC  
Went 21 Oct 2011 (00000)
    - ♦ 40. All El Nino update Regional Update for East Africa and Indian Ocean Islands  
Thru 30 Oct 2011 (00000)



First responder, a Kenya Red Cross Society volunteer from Malindi helps fellow community members during a flood

Credit - Kenya Red Cross

## Chapter 4: Kenya Case Study

### Background

El Niño has strong teleconnections in Kenya, and its impacts are comparatively well known by government officials and citizens alike. This is primarily because the 1997–1998 El Niño had severe impacts and still looms large in the public consciousness. This El Niño caused heavy rains — damaging infrastructure, killing and displacing many people, cutting communities off from disaster response (FAO 1998), and causing \$USD 236 million in damages to the agricultural sector (Karanja and Mutua 2000). Because of this experience, most Kenyans understand El Niño to mean the potential for serious flooding.

“When people heard there is such a strong El Niño [forecast in 2015], everybody was ready for it ... because they didn’t want to repeat what happened in 1997, and even 2006. People actually took some precautions because they knew. When people in Kenya hear there is El Niño, they don’t want to take things for granted. They think ‘let’s not ignore like we ignored that other time and so many people died.’ (3).

The Kenyan Government takes a substantial role in coordination, though precise procedures for disaster management are still in flux following devolution policies that passed in 2010.<sup>1</sup> The decentralisation process created county governments responsible for basic service delivery. Following the 2006 El Niño — which at least one respondent

<sup>1</sup> Decentralisation began in 2010, but was not functional until 2013, when local elections were held. See <http://www.worldbank.org/en/country/kenya/brief/kenyas-devolution>

said brought more intense rains than this 2015 (2) — the government has changed its structure, devolving powers to 47 counties, who now have greater responsibility for disaster coordination. Because the transition to local control only began in 2013, there is still work to be done on establishing connections and coordination at the county level (2); the roles and responsibilities of national, county, and NGO officials remain somewhat unclear.

Actors expressed confusion about how much disaster preparedness should come from local governments and how much from the national government. Current policy states that “disaster management is a shared function between the county and national government,” but rather than clarifying duties, the policy “just ends at that” (2). The national government has the intention of passing legislation to harmonise actions and clarify disaster preparation and response. Several policy proposals have called for creating a single agency in charge of disaster response, but such legislation has not yet been passed. As a result, there are several agencies involved in disaster preparation and management — e.g., National Drought Management Authority, The National Disaster Operations Centre (NDOC), and the National Disaster Management Unit (NDMU) — but no official policy on how they should coordinate.

Despite these outstanding issues, there was more coordination for early action in Kenya than in the other countries selected for this study; most informants were pleased with their response to forecasts. Memories of the devastating effects of the 1997–1998 El Niño were a powerful motivation, and appear to have transcended any confusion over precise responsibilities (2). Furthermore, Kenya experiences frequent flooding around the country on a regular basis which has spurred agencies to invest in early action measures. (2)

## Forecasts in Kenya

Kenya Meteorological Department (KMD) is the nation’s forecasting lead. The department receives and downscales regional forecasts from the IGAD Climate Prediction and Application Centre (ICPAC). After the international forecast has been downscaled to the national level, county meteorological offices present in all 47 counties are responsible for further downscaling predictions to the local context.

KMD first saw signs of changes in sea temperature in May and began issuing preliminary advisories to key stakeholders. The KMD, however, was cautious in announcing the El Niño to the public at this early stage. KMD and government officials were aware that an El Niño forecast for 2014 had failed to materialise, and it did not want to alarm Kenyan citizens unnecessarily. KMD issued their first El Niño advisory to the public on 24 August 2015, estimating a “greater than 90 per cent chance that the evolving El Niño would continue through to the “short rains” season (October through December) and “around an 80 per cent chance it will extend into early 2016” (KMD 2015). KMD released its first formal El Niño forecast on 2 September, 2015. Following the release of the seasonal forecast in September, Kenya Meteorological Department (KMD) began providing weekly and monthly email updates to government and NGO stakeholders. The government delayed formal public announcements until early October 2015, after the predictions were more certain and the Multi-sectoral Task Force released their “El Niño Response Plan” (on 29 September 2015). This plan outlines anticipated El Niño impacts and associated preparedness actions to be taken across various line ministries, such as agriculture, health, water, education, transport, etc. In October 2015, KMD issued another warning, stating that the heavy rains were likely to last throughout the short rains season.

KMD is considered a highly credible source of information. Forecast information reaches humanitarian stakeholders from many different sources, and it can be a challenge for practitioners to filter through all the reports (2). KMD, however, provides the most localised information, much of which is accompanied by “general advisories, touching

on key areas that are expected to be affected, like they talk of infrastructure, they talk to agriculture" (2). The information and updates provided on the Kenya Red Cross Society (KRCS) websites "were quite regional and it was quite specific ... enough to be useful and guiding enough on a lot of things" (2). Because of the 2014 false alarm, the KRCS found it a challenge to get some communities to believe something would happen in 2015 (2). Despite this praise, there is always room for improvement. Some stakeholders wished the weekly and fortnight updates, which responders use to monitor conditions as events unfold, were delivered more consistently (2).

KMD has well-established dissemination mechanisms. At the national level, weekly and monthly forecasts are available on their website; they are also disseminated to NGOs and government partners via email. At the county level, KMD conducts dissemination, education, and outreach programmes to ensure that no one "may be dying of hunger because they didn't have information" (3). County Directors of Meteorology also "even go to the field to meet people," and give presentations to schools and universities (3). For households, KMD disseminates forecast information in "vernacular" to individuals through radio and the internet.

Outreach is driven by public interest. There was "a turning point" in 1997 for El Niño awareness in Kenya; before that event "people didn't understand what [El Niño] was and so many people actually experienced heavy losses because of ignoring it" (3). Now, the media and the public take a keen interest in El Niño, so "people are interested, they are hungry for this information", and "once you talk of the extreme events, in fact, they are the ones who come to look for you" (3).

## Impacts of El Niño in Kenya

In Kenya, El Niño typically affects the short-rains season, which occur from October to December. The 2015–2016 El Niño was forecast to cause drier than normal conditions along the coast and in the northeast, and wetter than usual conditions during the short-rains (KMD 2015). Although the impacts may be slightly different in different regions, because of 1997–1998, Kenyans widely associate El Niño with flooding; most preparations focus on mitigating the impacts of intense rains, including "destruction of transport infrastructure, landslides and mudslides, outbreak of both human and animal diseases, and disruption of educational programmes like national examinations" (IGAD & ICPAC 2016).

The short-rains, which occur from mid-October to mid-December, were stronger and lasted longer than usual. In Western Kenya (Kisumu, Migori, and Bungoma) flooding eroded soil leading, washed away soil nutrients, damaged infrastructure, and destroyed crops and livestock (ICPAC 2016). Although the impacts were not as bad as anticipated, from October to December 2015 flooding and landslides displaced over 100,000 people and led to 112 deaths and 73 injuries (IGAD & ICPAC 2016).<sup>2</sup>

In some instances, the additional rain brought by El Niño was a boon to local livelihoods. In the arid and semi-arid regions of Garissa, Wajir, Isiolo, Baringo, Bomet, Machakos and Kajiado El Niño increased rainfall to the benefit of agriculture and livestock production (IGAD & ICPAC 2016). KRCS actively sought to capitalise on the increased rainfall in Kitui. The details of this intervention are discussed below, and details of how KRCS estimated their impacts are provided in Chapter 7.

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<sup>2</sup> This report made no mention of how these impacts were calculated.

## **Response to 2015–2016 El Niño Forecasts in Kenya**

Of the five nations in this study, Kenya had by far the most coordinated response to forecasts. Most actors felt that they were relatively prepared for the 2015–2016 El Niño and that the impacts were less severe than had been anticipated based on the forecast of a very strong El Niño. The generally positive outcome is likely the result of a confluence of factors including political motivation because of dire impacts of 1997–1998 event, clear teleconnections and understanding of the potential impacts, and good coordination. The following sections outline how early actions in Kenya unfolded.

### **First warning**

As in other countries, El Niño warnings first reached humanitarian stakeholders in Kenya in early 2015. Many had also heard of the potential for an El Niño from international forecasting centres in 2014. In contrast to other countries in this study, where international sources of information were considered most credible, every informant interviewed mentioned KMD forecasts. The OCHA Kenya office first heard of El Niño around March 2015, at least six months in advance of the potential impacts (2). Because OCHA in Kenya plays a coordinating role and assists the government with national contingency planning, it began re-disseminating forecasts — from KMD, as well as updates from FEWS NET, GHACOF, and OCHA's weekly forecasts — to government and humanitarian partners (2). UNICEF heard about El Niño from KMD and FEWS NET in June or July 2015, and WFP was first informed in July or August by KMD. DFID Kenya first received the forecasts from TAMSAT in July 2015, and this prompted them to take action — securing funds, reviewing programmes that required funding, and selecting pre-existing projects through which to deliver the El Niño aid (2); (Development Initiatives 2016). In August 2015, FSNWG also released an El Niño alert to its members encouraging urgent preparedness actions to be initiated (FSNWG 2015). The IFRC also received updates from the IRI. It was noted that the consistency in analysis from these multiple sources, as well as the increasing confidence, aided in the certainty that preparation was necessary. (2)

Because of the way information flows through the KRCS, people learned of the El Niño at different times. KRCS (and other organizations, like CARE) proactively seek out forecast information to inform their programmes. Forecasts generally trickle down, arriving first to operations and disaster response personnel and later to disaster risk reduction. As a result, Red Cross staff working with partner national societies first heard of the possible El Niño in May and June from international forecasting partners and the Red Cross Red Crescent Climate Centre. The two informants from KRCS disaster operations, however, only learned of the El Niño in early September (from IGAD, GHACOF, and KMD) one month before the rains were anticipated to begin. Both agreed that more direct contact between all departments and the KMD would facilitate planning on all levels (2).

### **Contingency plans**

By all accounts, the National Disaster and Operation Centre began heeding the warnings immediately, collaborating with sector partners on the development of a national contingency plan. In September 2014, even before the 2015–2016 El Niño was announced (and perhaps in response to false alarms in 2014), the Government of Kenya and Humanitarian Partners published a five-year (2014–2018) El Niño Contingency Plan that outlined the likely impacts of a weak, moderate, and strong El Niño on various aspects of the economy (El Niño Contingency Plan 2014). Despite the existence of this plan, when

forecasts began to indicate that the 2015–2016 El Niño would be strong, the Ministry of the Interior and Coordination of National Government set up a Multi-sectoral Task Force; it was charged with creating a plan specific to October 2015 through January 2016 and with mobilising funds for preparedness and response (IGAD & ICPAC 2016).

The first step of most organizations after receiving a forecast of a potential El Niño was to update their internal contingency plans. For example, KRCS had been working since 2015 to strengthen its Disaster Management programme. It had already completed a contingency plan for flood and drought but decided to review and update it in July and August 2015, after hearing of a possible El Niño. Likewise, after receiving the official forecasts from KMD, UNICEF spent August and September “draft[ing] their own internal preparedness and response plan,” based on their “areas of expertise, such as nutrition, WASH, health, and child protection” (2). The Kenyan Ministry of Health partnered with the WHO to develop health contingency plans for flooding; WHO allocated \$USD 2.92 billion to implement those plans (WHO 2016). During this time, county officials also updated their local-level contingency plans.

Each organization had a process for developing internal contingency plans. For example, throughout the contingency planning process, the Secretary General of the KRCS disseminated information and conducted bi-weekly meetings with its partners (private Sector and partner national societies) to track progress on developing and funding contingency plans (2). WFP elected to focus on counties, in which it was already working, to facilitate later response.

The impacts of El Niño in 1997–1998 and 2006 were well documented, helping organizations to know what possible impacts to expect. Humanitarian responders were, therefore, able to develop plans “based on the previous experience of El Niño, and their expertise” and to “advise on which specific counties are going to be of higher risk” (2). Because of this past experience, “the country was well-guided in terms of the overall picture and the overall possibilities. The scenario was set” (2).

During the KRCS contingency planning processes, representatives of the KMD, the Red Cross Red Crescent Climate Centre, and IGAD were brought in to speak with disaster stakeholders and to help translate the forecasts into action. Together, stakeholders were able to talk through the implications of El Niño as well as the uncertainties, and come with “simple, practical” actions that could be incorporated into a revised contingency plan (2). Participants in those meetings believed that it was “incredibly helpful having a climate practitioner — not just a climate scientist, but a climate practitioner — who was able to do the translation job that is so often missing” in forecasts (2). Without these experts to help interpret the forecasts into applicable actions, “most of us [humanitarian practitioners] would look at a weather forecast map and actually not be able to interpret it very well” (2).

Once the individual plans across line ministries were updated, the Multi-sectoral Task Force, led by the National Disaster Operation Centre, held bi-weekly inter-sector planning meetings. OCHA and the Kenyan government helped feed NGOs and sector-specific responses into the national-level contingency planning. Despite devolution of authority to the counties in Kenya, the contingency planning was still largely a top-down exercise (2). The members of the Task Force then came together to consolidate the individual plans with updated county-level contingency plans to develop the 2015 El Niño Contingency Plan. Informants described the process as fostering “good coordination” and “sufficiently representing” government officials, technocrats, ministry representatives, NGOs and the Red Cross (2).

After the contingency plan was finalised (29 September 2015), humanitarian organizations continued their planning and began to raise funds. The government put forward a portion of the funding needed to implement the contingency plan (KSh 5 billion) in September, but it also asked humanitarian organizations to raise funds to fill the gap between projected needs and government allocations (KSh 10 billion). By late September,

Development Partners Group, the World Bank, the World Food Programme, and other donors had pledged funds for the contingency plan (DPPS 2015).

## **Response<sup>3</sup>**

In Kenya, county-level governments play a pivotal role in preparing for and responding to impacts related to this forecasted El Niño. While a survey of these actions was beyond the scope of this research study, a few of the examples of actions reportedly taken by county governments to prepare for El Niño include: development of local county-action plans in at-risk counties; dyke reinforcement; desilting flood-prone rivers; establishing loudspeakers for warning messages in Kisumu; mapping flood-prone areas; alerting residents in those areas of their risks in Homa Bay; mapping flood-prone roads and infrastructure in Nairobi; and, drainage expansion in Narok (OCHA 2015; Onyango 2015).

WFP provided food assistance to 170,000 people in three affected counties and seconded logistics staff to six flood-prone counties (Baringo, Garissa, Samburu, Marsabit, Tana River, and Wajir) to provide logistical support for preparation and response (WFP 2015). When it first learned of El Niño in August and September, UNICEF re-programmed \$USD 250,000 as initial contingency funds to address emergency response needs during the pending rainy season. This money was used to assist in purchasing and pre-positioning non-food items. UNICEF also provided strategic direction to intensify ongoing cholera response efforts (ongoing since 2014), “including procurement of essential supplies” to prevent its spread to additional counties (UNICEF 2015). In December, UNICEF applied for additional ECHO funding, which became available in January (2) and was used to respond to the cholera epidemic in Dadaab.

In September and October, as the national El Niño Contingency Plan was being finalised, KRCS began pre-positioning additional supplies to warehouses around the country and provided response training to Red Cross Action Teams (RCAT) in counties expected to be affected by El Niño. Community teams in some locations also took actions to mitigate the potential impact of floods — including digging trenches around farms, clearing drainage canals for water to flow unobstructed, and moving irrigation pumps and equipment away from riverbanks.

The forecasts and contingency plans also helped KRCS raise additional funds. Through British Red Cross (BRC), DFID provided KRCS with “a total of about £GBP 200,000 extra funding to support and prepare” for the anticipated flooding (2). In October, KRCS began working with the government to disseminate information via an SMS early warning system. The early warning system used Airtel’s mobile phone network to distribute warning messages and tell people to move out of high-risk zones. The SMS system also enabled two-way communication so that people could provide KRCS with details on what was taking place in their communities (2). Additional funding was used to help people who were moving out of floodplains with temporary shelter, medical support, health, and sanitation (2). In other areas, KRCS helped people in Nairobi’s informal settlements along the river move to higher ground.

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<sup>3</sup> Because 4 of the 10 people interviewed for this Kenya study were from KRCS, the majority of our data focuses on the RC response. This does not mean that those organisations did not play a more prominent role.

## **Social Protection in Kenya**

In addition to the actions outlined above, Kenya's Hunger Safety Net Program 2 (HSNP) was also able to distribute funds in response to drought from the 2015 season and in preparation for El Niño-related floods. HSNP is one of five safety net programmes under the National Safety Net Program (NSNP) in Kenya that aim to reduce hunger and vulnerability by providing cash transfers to orphans and vulnerable children, the elderly, the disabled, and the otherwise poor and vulnerable. The HSNP specifically is managed by the National Drought Management Authority and provides regular cash transfers (via bank accounts) to approximately 100,000 households in Turkana, Mandera, Marsabit, and Wajir counties; it is also designed to be scaled up in response to floods and droughts (Ndoka n.d). Funding comes from the Kenyan government and other humanitarian and development partners, including DFID and the Australia Department for Foreign Affairs and Trade (DFAT). Under normal conditions, the poorest quarter of households in these regions receive regular cash transfers, but the number of households receiving assistance is scaled before and during emergencies. Emergencies are funded entirely by humanitarian donors, including DFID. Since the programme began in 2015, it has disbursed funds on ten occasions, but only once in response to the 2015 forecasts.

Stakeholders in HSNP believed the response to the 2015–2016 El Niño was an example of a successful no-regrets action. HSNP usually uses a Vegetative Condition Index to determine pasture availability and the need for drought and flood response (Fitzgibbon 2016) but decided to respond to El Niño forecasts and the anticipated flooding. In September and October of 2015, based on information from the National Disaster Operation Centre and KMD's El Niño Press release, DFID provided an emergency transfer of £GBP 3 million to provide anticipatory assistance to 190,000 households who were likely to be affected by floods. This payment was possible because El Niño arrived at the end of 2015, and DFID was also able to reallocate unused funds for emergency HSNP benefits. These flood-preparedness payments (disbursed 29 October 2015) were in addition to the approximately 80,000 households who received their regular payments, and another 5,000 households who received drought mitigation payments (26 October 2015) during the same time period (HSNP 2015). Flooding did not materialise as anticipated, but because HSNP operates on a no-regret principle (Fitzgibbon 2016), our informant was pleased with the response. Nevertheless, whether such funding will be disbursed in response to future El Niño forecasts is uncertain.

Kenya's success in swiftly scaling up the HSNP to help likely flood victims in advance of an extreme event demonstrates the value of pre-emergency investments in registering households, opening bank accounts, and managing beneficiary data. In contrast to other countries, where systems for scaling up were not in place, HSNP's response went quite smoothly. Similarly, according to programme officials, now that the programme infrastructure is in place, the cost of obtaining early warning signals and satellite information is low.

## **Taking Advantage of Opportunities: Seed Distribution in Kitui County**

Although increased rainfall in El Niño years is more commonly associated with floods, it can also be a boon to farmers and pastoralists in arid regions, like parts of Kenya. Recognising this potential in a year when El Niño was forecast, KRCS and BRC took measures to procure and distribute seeds in the hopes that farmers would realize "bumper harvests." The two organizations pooled nearly £GBP 86,000 (some of which was from DFID) to fund the opportunistic intervention. When most organizations looked to analogue years to

identify and plan for potential harms, Kenya was the only country that looked to the past to glean possible benefits.

Aided by localised/downscaled forecasts, the partners selected Kitui County (an area forecast to receive increased rainfall during El Niño); identified 21,000 farmers with two acres of land available for planting; and purchased and distributed 2 kilogram bags of maize seeds to each farm — all within a three-week timeframe (KRCS 2016).

Even though the El Niño forecast was known months in advance, downscaled forecasts took much longer and that meant decisions were arrived at “hurriedly, because by the time the forecast is localised enough, the time to get something in the ground is really short” (2).

What was sacrificed in the end was the intervention’s impact evaluation; quantification of the yields and associated benefits proved difficult. Some farmers reported a smaller harvest than usual, but “most farmers reported harvesting between one and four bags (between 90kg and 360kg) more than usual from the seeds they were given” (KRCS 2016: 2). Chapter 7 provides a thorough discussion of the methods used to derive these numbers.

Securing funds for the potential benefit of an intervention is challenging because “people are used to investing in response and we are used to investing in preparedness, but donors are not necessarily used to investing in [the upside] of forecasts” (2).

## Conclusion

In Kenya, previous experience with El Niño appears to have motivated both the government and the broader humanitarian community to plan. Despite some confusion regarding devolution policies, actors appear to have worked well, under government supervision, to coordinate their response. Actors believed that good coordination and collaboration was essential to planning a unified response. In the end, the flooding was not as bad as anticipated (or, at least, not as bad as 1997–1998), but actors were prepared to respond when the flooding arrived. KRCS was also one of the only organizations across all five countries to use forecasts to mobilise funds to help farmers take advantage of increased rains. Although evaluation of the project was a challenge, it appears to have been successful.

An aerial photo of  
Modogashe Garissa County  
during El Niño season 2015  
Credit - Kenya Red Cross Society



## *Timeline of Response in Kenya*

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|--|---|--|
| • 26. Kenya Meteorological Department Issues El Niño Forecast<br>Version 2 Oct 2015  | • 26. Regional Seasonal Forecast Update: Regional Update for East Africa and Indian Ocean, March #2<br>Thru 3 Nov 2015 (cont'd)   | • 26. Kenya Met Department Issues Participatory Planning Workshops in 36 Counties - Full list of date available upon request<br>Oct/Nov thru 9 Nov - 2015/2016 in Oct 2015 |
| • 31. Observatory releases the KNDI monthly and quarterly in mid-September 2015, summarizing the portfolio of assets, activities of households and the delivery of assets-all written in French with Swahili (KNCIS 2015).<br>Thru 10 Nov 2015 | • 32. Lake Victoria Development Projects Directorate, the World Bank Food Program and other donors had pledged funds for the contingency plan (DPP) 2015.<br>Until 20 Sept 2015 | • 33. KNDI Provides funds to scale up WASH<br>Oct 2015   |
| • 34. Government formally announces El Niño<br>Oct 2015  | • 35. KNCIS organizes WASH workshops with the government to disseminate information and warn people.<br>Oct 2015  | • 36. Government formally announces El Niño<br>Oct 2015  |
| • 37. KNCIS Director (EO), Maweni, releases a series of short, digestible messages on KNDI, one-potato-one-WHMs, responses to various long-term projects<br>Oct 2015 Thru 1-24/01/00 Fri 30 Oct 2015   | • 38. KNDI issues another warning stating that the heavy rains are likely to last throughout the entire main season.<br>Oct 2015  | • 39. Reporting and tracking database over 100,000 profile and led to 112 deaths and 73 injuries (DOD & CHMC response 2016).<br>Cont - Oct 2015                            |
| • 40. RCAP training ongoing<br>Siboko Thru 1 Oct 2015 - Allocated Sat 20/01/16   | • 41. Nairobi County El Niño Advisory<br>Mar 1 Oct 2015 0:00:00   | • 40. RCAP training ongoing<br>Siboko Thru 1 Oct 2015 - Allocated Sat 20/01/16   |
| • 42. Regional Seasonal Forecasts Update: Regional Update for East Africa and Indian Ocean, March #3<br>Thru 1 Oct 2016 0:00:00  | • 43. ICIMOD Partnership Meeting in Kathmandu to discuss regional partnerships<br>Mar 19 Oct 2015 0:00:00   | • 41. Nairobi County El Niño advisory<br>Sat 18 Oct 2015 0:00:00   |
| • 44. KNCIS Risk & Hazard Bulletin<br>Mar 19 Oct 2015 0:00:00  | • 45. ICIMOD partners with 2 NGOs from Nepal to participate in a multi-hazard risk communication campaign with 2 NGOs from India and Nepal<br>Thru 20 Oct 2015 0:00:00-20/01/00 | • 42. KNCIS partners with 2 NGOs from India and Nepal<br>Thru 20 Oct 2015 0:00:00  |
| • 46. KNCIS releases approximately 15,000 assistance packages in Kitui<br>Sat 18 Oct 2015 0:00:00  | • 47. Kenya IFPRI Database Disaster Payments<br>Mon 20 Oct 2015 0:00:00   | • 43. KNCIS releases approximately 15,000 assistance packages in Kitui<br>Sat 18 Oct 2015 0:00:00  |
| • 47. Kenya IFPRI Database Disaster Payments<br>Mon 20 Oct 2015 0:00:00  | • 48. 4th El Niño update details of ongoing initiatives per affected county in Oct 2015 (cont'd)<br>Thru 21 Oct 2015 0:00:00  | • 44. KNCIS releases approximately 15,000 assistance packages in Embu<br>Mon 20 Oct 2015 0:00:00   |
| • 48. 4th El Niño update details of ongoing initiatives per affected county in Oct 2015 (cont'd)<br>Thru 21 Oct 2015 0:00:00   | • 49. 5th El Niño update details of ongoing initiatives per affected county in Oct 2015 (cont'd)<br>Thru 21 Oct 2015 0:00:00  | • 45. KNCIS and Community Actions to Mitigate Flooding<br>[alloc to Sun 1 - 10/01/16 thru Sun 29 Nov 2015]   |
| • 49. TERA KNMF emergency updating<br>0:00:00 Sun 1 Nov 2015 - allocated Thru 31 Dec 2015  | • 50. KNCIS issues an SMS early warning system developed as part of an ongoing research-building program for the year 2016.<br>Thru 5 Nov 2016 0:00:00                          | • 46. El Niño Risk and Resilience Regional Update for Eastern Africa<br>Thru 5 Nov 2016 0:00:00  |
| • 51. Kenya HIFAP Phase Four Predictions Payments<br>Thru 21 Dec 2015 0:00:00  | • 52. El Niño Key Message - Regional Update Eastern Africa<br>Thru 5 Nov 2016 0:00:00   | • 47. El Niño Key Message - Regional Update Eastern Africa<br>Thru 5 Nov 2016 0:00:00  |
| • 53. KNCIS and Community Actions to Mitigate Flooding<br>[alloc to Sun 1 - 10/01/16 thru Sun 29 Nov 2015]   | • 54. Kenya HIFAP Disaster Payments to Major Beneficiaries<br>Thru 5 Nov 2016 0:00:00   | • 48. 5th El Niño update details of ongoing initiatives per affected country<br>Thru 24 Nov 2016 0:00:00   |



Photo: Charlotte Floors/NLRC

## Chapter 5: Ethiopia Case Study

### Background

Ethiopia is one of the most populous countries in Sub-Saharan Africa. Although it is considered to be within the Least Developed Countries, Ethiopia's economy grew impressively over the past decade, averaging 10.8 per cent per annum from 2003–2004 to 2014–2015 (World Bank 2016). Over a similar period, from 2000–2011, the number of Ethiopians living in extreme poverty reduced significantly from 55.3 per cent to 33.5 per cent and the Ethiopian government is currently implementing the second phase of its Growth and Transformation Plan to continue these strong trends (*ibid.*).

In parallel to these positive trends, Ethiopia also faces regular food insecurity and humanitarian situations. The government receives over \$USD 200 million (£GBP 166.2) in food assistance each year (USAID 2016). In collaboration with longstanding development partners, the Ethiopian government has managed the Productive Safety Net Programme (PSNP) since 2005, to reduce chronic food insecurity through a combination of food and cash transfers to help households overcome food deficits. As of 2012, the programme served 7.64 million food insecure people each year (PSNP n.d.).

The Disaster Risk Management and Food Security Sector (DRMFSS), under the Ministry of Agriculture, coordinates humanitarian preparedness and response within the Government of Ethiopia. Sectoral Task Forces manage sector-specific coordination. The Development Assistance Group (DAG) coordinates support from 30 bilateral and multilateral partners toward national development priorities. The humanitarian community in Ethiopia has also established the Ethiopia Humanitarian Country Team (EHCT) to lead management of the cluster system and provide overall coordination of non-governmental humanitarian affairs. This country team is led by OCHA and includes representatives from WFP, FEWS

NET, UNICEF, IFRC, ERCS, FAO, USAID and CRS (OCHA 2016d, EHCT 2015). Jointly, the Government of Ethiopia and the EHCT publish a Humanitarian Requirements Document semi-annually (at the beginning of the year in January and then mid-year in June or July) (2). This document is the basis for humanitarian action in Ethiopia; during emergencies, it is amended outside of the formal review periods.

## Forecasts in Ethiopia

Ethiopia's National Meteorological Agency (NMA or Met) produces three-day, weekly, 10-day, monthly, and seasonal forecasts. They are distributed via its website, email, and media outlets (with plans to distribute by SMS soon). NMA uses the regional consensus forecast from the Greater Horn of Africa Climate Outlook Forum (GHACOF) to develop downscaled forecasts for regions within Ethiopia. NMA then holds meetings in Ethiopia to allow officials from government agencies to raise questions about the seasonal forecasts (1). During the 2015–2016 El Niño, the government's Disaster Risk Management Commission held regular (every 2–4 weeks) update meetings, at which NMA presented on the evolving El Niño. Government and NGO stakeholders in Ethiopia confirmed receiving updates from NMA as well as several other sources.

The Government of Ethiopia also uses the Livelihoods, Early Assessment and Protection (LEAP) system to manage acute food insecurity and integrate the PSNP into the national disaster risk management framework. LEAP combines forecasts with over 20 indicators (rainfall, potential evapotranspiration, crop soil, water balance, yield, moisture index, NDVI, etc.); it is used to prepare briefings for the ministries of health, agriculture, water and education (1). Regional products that include Ethiopia were also provided by IRI, UK Met Office and ACMAD. Lastly, FEWS NET produces a combined climate and agriculture product to project acute food insecurity throughout much of Africa, including Ethiopia (FEWS NET 2016). This is a non-governmental system that is informally used by non-government actors.

## Impacts of El Niño in Ethiopia

Ethiopia is topographically and climatologically diverse. The three meteorological seasons include: (1) the short, *Belg*, rains (February–May) that fall primarily in the eastern Oromia and Hareri Regions as well as parts of SNNP, Amhara, and southern Tigray; (2) the long, *Kiremt*, rains (June –September) that fall primarily in Tigray, Amhara, Beneshangul-Gumuz, Gambela, western Oromia and parts of SNNP; and, (3) *Bega*, the long dry season (October–January) (Singh 2016). According to Korecha and Sorteberg (2013), the *Belg* rains are difficult to predict and are not susceptible to El Niño-Southern Oscillation (ENSO). The *Kiremt* rains, however — as documented by Korecha and Barnston (2007) — are governed by ENSO events. The result typically leads to below (above) normal rainfall during El Niño (La Niña) events; local climate drivers have a secondary impact. There are two rainy seasons in the Somali region of Ethiopia, the *Gu* from April to June and the *Deyr* from October to November.

In early 2015, the *Belg* rains never fell. This was officially acknowledged by the NMA on 4 June 2015. Most global forecasting centres declared the presence of El Niño conditions between March and May 2015.<sup>1</sup> By mid-May, there was inconsistency in global and regional predictions for Ethiopia's seasonal forecast. "Many of the seasonal forecasts produced by

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<sup>1</sup> Forecasting centres rely on slightly different parameters resulting in the varied timeframe.

global or regional forecasting centres showed some indication of unusually dry conditions for the Kiremt rains. However, the area, confidence and timing differed depending on the forecast" (Singh 2016).

The short amount of time between the start of an El Niño event and the start of the Kiremt rains, results in relatively short advanced warning that a below normal rainfall season is likely. As a result, the ability of the government and humanitarian actors to confidently take early action is limited. During interviews with various stakeholders the nuance associated with forecasting El Niño impacts on Kiremt was not understood, leading to somewhat biased assumptions.

North, central, and eastern parts of Ethiopia suffered higher than usual crop failures and a shortage of pasture because the Belg and Kiremt rainy seasons failed to deliver the usual precipitation. Food prices rose, greatly exacerbating food insecurity in the country (IGAD & ICPAC 2016). As of late August 2016, 9.7 million people were in need of food assistance (DRMTWG 2016); Ethiopia needed to rapidly import significantly more food and supplies than usual. These needs were in addition to the almost 8 million people supported through the PSNP. Much of the PSNP support is provided through food aid, compounding the problem of food availability in the country during mid-2016. Ultimately, 10.2 million people in northern Ethiopia needed food aid as a direct result of the failed Belg and effects of the 2015–2016 El Niño (IGAD & ICPAC 2016).

## **Response to 2015–2016 El Niño Forecasts in Ethiopia**

This section provides an account of how humanitarian response to the 2015–2016 El Niño unfolded in Ethiopia as detailed by the ten informants from ten different government ministries and humanitarian organizations consulted for this study.

Most stakeholders learned of the El Niño forecast in May and June of 2015 (2). Because WFP is aligned closely with FEWS NET, they were warned of a potential El Niño as early as February. OFDA, on the other hand, didn't learn of the El Niño from FEWS NET, sources within USAID, and others<sup>2</sup> until June. Given the overwhelming consensus for the prediction, most informants believed the forecasts were credible and timely.

By all accounts, humanitarians understood the implications of the El Niño alerts and related seasonal forecasts. In response to the forecasts, both international organizations and the government began consulting with one another and monitoring the situation on the ground. WFP monitored food prices and interviewed local people in vulnerable areas about crop and weather conditions to identify emerging strain. The government of Ethiopia and the EHCT released a revised Humanitarian Requirements Document in August 2015; it warned of the potential impacts of El Niño on a failed Kiremt season and the increased number of people in need of food relief (from 2.9 million to 3.5 million) due to the failed Belg (GoE 2015). At the same time, OCHA began speaking to donors about the predicted impacts and what resources were needed to respond. OCHA worked with DFID and other members of the Humanitarian Country Team (HCT) to monitor El Niño conditions through July and August. On request from the government, OCHA and other organizations used impact reports from analogue El Niño events in 1997–1998, 2002–2003, and 2010–2011 to outline likely impact scenarios and detail how the humanitarian community could work together to reduce impacts. (2). This report was published in September by the government, OCHA, HCT and the DAG. In October 2015, the Government of Ethiopia announced an official increase in the number of people requiring humanitarian assistance, raising it to 8.2 million. The response was formalised by an addendum to the 2015 Humanitarian Requirements Document (OCHA 2015e).

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<sup>2</sup> National Meteorological Agency, the Agricultural Task Force, the UK Met office, FEWS NET, IFRC, and NOAA

El Niño forecasts enabled donors in Ethiopia to reprogramme their funds and make resources more readily available. DFID Ethiopia “acted very early because the UN identified pretty early on that there was going to be a problem” (4). OFDA and USAID’s Food for Peace programme increased the amount of funding available for Ethiopia, in line with HRD projections. But development partners were more hesitant to respond to forecasts. Based on forecasts, USAID released funding to increase the number of districts receiving assistance from 32 to 76. To make this possible, they shifted funds from the development food programme to emergency response. DFID took similar actions and was, therefore, able to quickly provide UNICEF and other partners with Ready to Use Therapeutic Food (RUTF), alleviating suffering significantly.

Despite the shifts in funding, only one NGO interviewed reported that it acted before the government officially declared a crisis, in response to deteriorating conditions. This NGO used crisis modifiers to change existing programmes rather than developing a response to a new problem. Using this approach, they began livestock vaccination, rehabilitation of water points, and organized nutrition clinics as early as June and July 2015. Other informants indicated that a lack of clarity between donors and the government over who would fund various expenses for preparedness actions caused delays.

Reports in June estimated 2.9 million people would need assistance, but this number increased rapidly. June is the most important planting season in Ethiopia; by August, it was clear that the rains and the crops failed and that people needed assistance. When the humanitarian community conducted a rapid assessment in late September, “the needs were already far higher than [the government] had thought” (2). An assessment conducted in October estimated that 8.2 million would need assistance. By the time the HRD was published in early December 2015, the number of people in need was 10.2 million. After the December release of the HRD, the government “accepted and acknowledged the growing need” (4). It issued a humanitarian appeal that month (World Bank) and began contributing funds toward disaster response.

Once the humanitarian response began, needs were beyond the capacity of the national grain reserve and the PSNP, in part because the PSNP is historically a developmental safety net programme and not a humanitarian programme. It can scale to meet some needs but is not an instrument to manage large scale needs outside of PSNP coverage areas. The sudden need to import vast quantities of food and other agricultural and humanitarian supplies overwhelmed warehouses, distribution channels, and even the port of Djibouti, causing backlogs and compounding delays. The PSNP was also entering the first year of PSNP-4. This new phase of the PSNP focuses on integrating the PSNP with disaster risk management systems, including early action and response to emergencies.<sup>3</sup> Under this programme a new set of disaster risk management mechanisms were being set-up but were not fully operational. This unfortunate timing challenged the government’s ability to register beneficiaries in the height of the crisis when the number of people in need well exceeded the ordinary capacity of the programme. By February 2016, extraordinary efforts by key humanitarian actors in Ethiopia resulted in the international community’s recognition of the urgent need to address the crisis (2).

Most humanitarians felt that they anticipated the gravity of the situation accurately, but were unable to take action — beyond some minor pre-positioning of supplies — because of political constraints. (2). As a result, “all main actions that should have been taken between May and September were taken between December and February” (2). Most informants believed that a gradual scale up of the PSNP and more early action would have alleviated suffering and reduced the overall cost of the crisis response. Nevertheless, several stakeholders were proud of how quickly they scaled an additional payout to

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<sup>3</sup> <http://projects.worldbank.org/P146883?lang=en>

existing PSNP beneficiaries. PSNP also waived public works requirements and adjusted its livelihood interventions to account for the drought.

## **Obstacles to Acting on Forecasts**

Some informants noted early indications that development-focused stakeholders in Ethiopia were reluctant to initiate action based on preliminary alerts that an El Niño event was emerging. To a certain extent this is understandable. The intensity of ocean warming that causes an El Niño event does not correlate to the intensity of its anticipated impacts in the affected region, which is commonly misunderstood. Therefore, it is not possible to predict the full extent of potential impacts of an El Niño event; such an event simply helps to determine if a season is more or less likely to be wet, dry, or normal. While some informants stated that they knew the severity of what was coming, there is no scientific basis for that certainty. Furthermore, as detailed above, early seasonal forecasts showed little El Niño influence and early international forecasts were inconsistent in their predictions.

However, meteorological drought and agricultural drought are not the same. Rapid early action measures should have begun in June when the NMA notified stakeholders of diminished Belg rains and a forming El Niño. Insufficient rainfall is common in the more sparsely populated, pastoralists areas in southern Ethiopia, but during El Niño drought is more likely to affect the eastern and northern regions of the Ethiopia, where a significant number of people live. It is possible that, because development actors were accustomed to effectively addressing droughts through existing systems, they genuinely believed the government had the drought under control.

Humanitarians working in Ethiopia had high praise for the forecasts they received and believed that the forecasts provided sufficient lead time to allow for early action and mitigation. “I think we scripted it almost perfectly. I think we were pretty spot on with all our forecasts. This is one thing that is very, very clear: Ethiopia’s early warning system did not fail” (2). As another explained, “Ethiopia does not lack tools, information, analysis, and data” (2).

It was noted that various political constraints contributed to preventing early action (2) and that good information is still subject to political influence. Stakeholders had “good data on time, but then when you interpret it into what it means in relation to how many people will need assistance, that’s where the difference and the debate come up” (4). Forecasts only provide projections; without certainty, some governments may be reluctant to act. When it is politically challenging to take early action in response to forecasts, impact assessments proved to be a powerful tool to convey urgency. The HRD was widely credited as the most compelling impetus for action. In future events it will be critical to delineate between a forecast of potential impacts and a humanitarian emergency; taking no-regret actions based on the former, before the latter develops, is key to preventing humanitarian impacts.

## **Conclusion**

In Ethiopia, communication constraints, a lack of clarity regarding funding for large scale preparedness actions, and a possible lack of confidence in the gravity of the forecasts, delayed action and prevented most actors from taking early action. Several donors began freeing funds to enable a prompt disaster response once an emergency was declared, but only one NGO interviewed acted in response to deteriorating conditions, before the government needed to officially declare a crisis. These actions were made possible by crisis modifiers that allowed funds to be allocated to scale up existing programmes. Humanitarian action was eventually required, but it was only authorized after the HRD was released in December 2015, providing concrete evidence of need.

## Timeline of Response to 2015–2016 El Niño Forecasts in Ethiopia



# Chapter 6: Malawi Case Study

## Background

Malawi is a country that experiences “annual shocks” and needs consistent humanitarian and development assistance (2). It ranks 173 of 188 countries according to the UNDP’s Human Development Index (Government of Malawi, 2016b). As a country with “one of the most erratic rainfall patterns in Africa,” climate stressors have a major impact on development (Government of Malawi 2016a: 5). For example, the country has experienced eight major droughts since 1980 (Government of Malawi 2016a). High inflation, high rates of HIV infection (ten per cent), undernutrition, and low education rates all affect Malawi’s ability to cope with shocks and to secure higher levels of economic development (WFP 2016 Malawi Brief). According to reports published by Malawi’s Department of Disaster Management Affairs, “Malawi’s weather-related crises, coupled with a weak economic profile, and weak land governance have combined to create a vicious cycle of food insecurity and malnutrition, with devastating consequences on basic services and, consequentially, on long-term development” (Government of Malawi 2016b: 1).

The 2015–2016 El Niño followed a season of severe flooding. Because the country “already had exceptional flooding in early 2015, which very much shook up the Humanitarian community in Malawi … people were already geared up to expect some kind of climate disaster in late 2015 and early 2016” (4). Rather than being an isolated shock, in Malawi, the 2015–2016 El Niño manifested as “one emergency connected to another” (4).

## Forecasts in Malawi

The Department of Climate Change and Meteorological Services (DCCMS) is responsible for making localised predictions in Malawi. Malawi’s National Climate Forum for Producing and Originating Forecasts convenes before the SADC forum to develop Malawi’s input to the SADC process. After the SADC countries meet to develop a consensus forecast for the region (Southern Africa Regional Climate Outlook Forum), regional consensus forecasts are brought back to Malawi where DCCMS is then responsible for reintegrating local information and downscaling the international forecasts to the national and sub-national level. Malawi has only recently — in 2014 and 2015 — begun downscaling forecasts to the district level.

Malawi has one rainfall season, which begins in October and extends through March in the south of the country and through April in the North (DCCMS 2015a). DCCMS releases two seasonal rainfall forecasts for this period. It releases the October to December (OND) in September, in advance of the rainy season and a forecast for January to March (JFM) partway through the season. Because El Niño signals typically emerge in May, June, and July, DCCMS integrates El Niño information into the seasonal forecasts that are released in September. The seasonal forecast released in September 2015, specifically advises farmers to consider planting early maturing varieties to cope with below-average rainfall (DCCMS 2015b).

DCCMS has clear dissemination protocols, and all forecasts must be cleared for dissemination by the Office of the President and Cabinet. Once approved, forecasts are disseminated to Department of Disaster Management Affairs (DoDMA), who then works with other stakeholders to develop contingency plans. When the seasonal forecasts are released, DCCMS forecasters meet with DoDMA representatives in person to provide briefings on what they should expect in the coming season (1). DCCMS also disseminates five- and ten-day weather updates via email, SMS, television, and the DCCMS website. Most informants interviewed for this study reported that they receive forecast information via email lists as well.

Malawi is one of two pilot countries for the Global Framework for Climate Services Africa Program (GFCS or GFCS-APA), an initiative that seeks to build capacity for forecast production and dissemination. The project is premised on the idea that access to seasonal forecasts and historical climate data can improve government and household decision making. Because of this emphasis on influencing local decision making, DCCMS and other GFCS partners in Malawi have invested considerable effort on disseminating forecasts to the community level through radio, SMS, and WhatsApp to promote community-level and individual action. However, they have found that due to complex concepts and terminology many households are still unable to “put it down to action level” (2). Informants noted that GFCS efforts to produce and disseminate forecasts and recent climate shocks have generated increased interest in and demand for DCCMS’s forecast information in Malawi.

## **Impacts of El Niño in Malawi**

El Niño-related dry spells in the south and rains in the north exacerbated existing food shortages. A DoDMA report released in June 2016, estimates that the 2014–2015 flooding and the 2015–2016 El Niño impacts left 6.5 million Malawians in need of Humanitarian aid — 2.4 million of whom are farmers who lost their production (Government of Malawi 2016b). In the southern areas, dry spells are estimated to have affected over 51 per cent of cropland. Production of maize, the country’s staple food, declined by 12.4 per cent from April 2015 to April 2016, falling below national food requirements for the second consecutive year (Government of Malawi 2016b). Shortages of water also contribute to food insecurity and malnutrition.

Although government reports provide many statistics on the impacts of El Niño, they do not explain how these numbers might be attributed specifically to El Niño rather than development or governance challenges.

When asked about forecasts, Malawi informants spoke of recent responses to weather variability in general, not just El Niño. There are at least three possible explanations for this: (1) respondents did not understand what El Niño is, and what it means for Malawi; (2) the 2015–2016 El Niño immediately followed four consecutive seasons of climate shocks; and (3) many of the informants interviewed in Malawi are part of ongoing projects seeking to use forecasts to improve decision making and humanitarian outcomes. Whatever the reason, the fact that many early actions were extensions of efforts to respond to climate shocks in 2014–2015, and that the 2015–2016 El Niño exacerbated such problems, makes it difficult to untangle the precise impact of El Niño forecasts in prompting action and mitigating impacts. As of our interviews, the humanitarian community in Malawi was still overwhelmed responding to previous climate shocks, and had not conducted any assessments of impacts avoided to credit early action from forecasts. While this chapter tries to focus on responses to El Niño forecasts, it also gleans lessons from other recent applications of forecasts for disaster mitigation.

## **Response to El Niño Forecasts in Malawi**

By the time El Niño forecasts began reaching stakeholders in Malawi, the humanitarian community there was already expecting a humanitarian disaster as a result of the severe flooding that happened earlier in 2015. As outlined below, a few actors in Malawi were able to shift funding and build upon existing efforts in response to El Niño forecasts. However, early action was complicated by lack of funding, lack of understanding of El Niño's potential impacts in Malawi, and ongoing response to earlier floods. The sections below provide an overview of early actions and disaster response efforts in Malawi, detailing these successes and challenges.

Unlike in other countries, where informants reported learning of El Niño from March to July, many stakeholders in Malawi appeared to have been informed later in the year. This may have been because it took time to confirm the forecasts and understand the implications for the country. Higher-level employees within WFP Malawi began to receive warnings of a possible El Niño from WFP headquarters in Rome and other international sources as early as February and March of 2015. Higher-level WFP staff eventually conveyed the information to Malawi programme staff in July and August. Most other organizations also reported hearing about a potential El Niño in July and August, "but there was no confirmation that we [were] going to have an El Niño in the 2015–2016 season. Confirmation came later" (2). UNICEF started receiving updates from their headquarters in New York, as well as, their regional office in Nairobi, followed by updates from FAO and FEWS NET in early August. The Department of Disaster Management Affairs (DoDMA) first received warnings from DCCMS and SARCOF in June 2015. However, other important government partners, such as Ministry of Agriculture, Irrigation, and Water (MoAIWD), did not recall being informed until December 2015 or January 2016 through other stakeholders at an Agricultural Production Estimate Survey (APES) meeting, and then through DCCMS and FEWS NET emails predicting normal to below normal rainfall in the coming season. FAO also reported learning of the El Niño as late as September 2015 when SARCOF released the seasonal outlook. Official confirmation of the El Niño arrived in September and October when DCCMS released their national seasonal forecast.

## **Contingency Planning**

Most humanitarian organizations first responded to the forecasts by modifying their contingency plans, a process that takes place every year in Malawi with an emphasis on planning in districts that are particularly prone to disasters (1). WFP, for example, revised its internal contingency planning from March to June, updating checklists for each department within WFP to ensure everyone was prepared to respond to anticipated shocks. Similarly, the Malawi Red Cross Society (MRCS), took stock of its resources and capacities and began outlining operating procedures. UNICEF also updated their contingency plans and pre-positioned stocks for managing and treating malnutrition.

Each year, once stakeholder contingency plans are complete, DoDMA leads an effort to aggregate those plans into a national contingency plan in conjunction with stakeholders from the UN Cluster groups. Sector-specific experts from each Cluster then define sector-specific vulnerabilities and preparedness plans. Coordination among the partners is considered imperative to effective disaster mitigation and response "so that when it comes time for it to be implemented we should all understand what we are doing and respond in a coordinated manner" (1). WFP's vulnerability assessment and mapping (VAM) team conducted their food insecurity analysis and projections in June, for their response planning and budget projections. Upon release of the assessment results, WFP supported the government in coordinating response planning as the Food Security Cluster co-lead.

In 2015, the El Niño forecast prompted DoDMA, DFID, WFP, FAO, and other stakeholders to study events in previous El Niño years to determine what the impacts were likely to be and which areas were most likely to be hit. DoDMA specifically encouraged partner organizations to “compare the analogue years to the current year or the expected season when we plan to develop the contingency plan” (1). In October and November 2015, FAO used rainfall data and satellite imagery (NDVI indices) for the past three El Niño years to prepare a summary of the likely impacts. In this way, the “forecasts actually helped [stakeholders] in coming up with the best national contingency plan with different scenarios … based on that weather forecast from our colleagues from the meteorological department” (1). The national-level contingency plan was published in November 2015, and it states that El Niño has the “potential of causing reduced rainfall during the main December 2015 to March 2016 crop-growing season in southern Malawi. Conversely, northern Malawi is more likely to receive normal to above-average rainfall from December 15 to March 16 and this may result in dry spells and flooding events respectively” (Government of Malawi, 2015: p. 9).

## Response

Humanitarian stakeholders are only allowed to “go into actual response,” after the contingency plan is completed,” but the scale of the response “depends on how much resources have been mobilised at that point” (2). As in many other situations, limited funding for contingency plans creates bottlenecks. DoDMA began lobbying the Treasury for funding “because if [they] end up having these plans but then no resources, [they] will not be able to implement” (1). Unfortunately, the government was unable to finance the entire contingency plan.

Many donors are reluctant to release funds until disasters are under way. As one respondent explained, “I can say, ‘I want money to pre-position these materials.’ They will not give it to me. But when I say, “I want money to rescue these people,” they will give it to me” (2). In some instances, slow donor funding meant that partners were unable to take early action. As late as September 2016, WFP was still “in the process of responding with the available resource” because it “had not gotten all the resources it needed” (2).

By building on existing programmes, mobilising flexible funding, and shifting resources from existing programmes in Malawi several organizations were able to take action in the absence of large influxes of aid. MoAIWD enhanced programmes promoting irrigated agriculture and “climate smart agriculture” (1) to better cope with the lack of water and began negotiations with private sector food producers to import food for the strategic granaries reserve and counter shortfalls in local production (1). Organizations without existing funds found the forecasts a valuable “resource mobilization tool,” using them to explain that, “according to this years’ forecast, it is saying a, b, c, d and we need to have 1, 2, 3 things in place” (2).

In October 2015, FAO made funds available from the Common Emergency Response Fund and reprogrammed existing resources in a way that would help Malawi cope with the anticipated lack of rain in the south. Based on forecast information and remote sensing imagery from past El Niño seasons, FAO developed advice on when farmers should begin planting. They also investigated drought-resistant seed varieties (sorghum, millet, pigeon pea) and conducted market assessments to try to convince farmers to change their crops. The programmes encountered other obstacles, as “the behaviour of people, the decisions, the choices of people are difficult to influence in the middle of humanitarian response” (2). In February, FAO conducted a rapid assessment of the entire country and met with WFP, UNDP, MRCS, and other humanitarian partners to coordinate a response to the impacts. Upon realizing the drought was widespread, they decided to change their activities in the country, shifting from maize distribution, which is

very sensitive to drought, to more drought tolerant crops. It also shifted the timing of its annual distribution of sweet potato, cassava and other drought-resistant crops to later in the season, when the forecast indicated the probability of rain. Unfortunately, most crops still failed because the rains never came (2).

DFID's regional office was among the most proactive of those we interviewed regarding seeking out and responding to El Niño forecasts. The DFID regional office oversees the whole of Southern Africa, and in light of the climate shocks from the previous few seasons, it was monitoring the forecasts to plan ahead. The regional office began receiving information from DFID central in the Summer of 2015. DFID also contracts with researchers at University of Reading directly to request additional weather and monitoring information on a short-term basis. As a first step toward action, in July 2015 DFID Central called a meeting "to look at what the different UN agencies and the different donors were doing in terms of response to the current food insecurity in the region" (4). By November, DFID hired additional humanitarian advisors and placed them in country offices in the areas likely to be hit. By December 2015, DFID released £GBP 4.5 million for early action. These funds were given to WFP for pre-positioning items for floods and to increase nutritional surveillance to detect impacts more quickly.

Forecasts also helped DoDMA and MRCS with flood preparations in the north. The El Niño forecast indicated that typical drought and flood patterns would be reversed; there would likely be dry spells in the southern region and flooding in the north. This information was key in helping MRCS and DoDMA pre-position flood relief supplies and dispatch search and rescue personnel in Karonga district in the north. Pre-positioning took place in October and November so that partners had "all the required resources on the ground before the actual flooding" (1). MRCS did not provide estimates quantifying resources saved. However, without those forecasts, MRCS "would [prepare] nationwide, which would be a waste of resources. This information was giving us where, exactly, we should concentrate" (2). Because of the El Niño warnings, DoDMA claimed not to have lost any lives to flooding in the north.

Existing disaster response efforts provided an avenue for action, but for some organizations, they also diverted attention from preparatory action. While trying to prepare for the El Niño, WFP and DFID were "also responding to the weather shocks that affected crop failure from the last season" (2). When the El Niño forecasts came in, DoDMA was coordinating the Malawi Floods Emergency Recovery Project in response to the 2014–2015 floods. Hearing about El Niño was, therefore, "like a double tragedy in our case — coming from floods and then we are affected by dry spells. So immediately after getting the information, I don't think there were any specific interventions to look at the El Niño. The focus was on the recovery" (1).

## Forecast Limitations

In contrast to successes cited above, several problems with the information surfaced in conversations with forecast users in Malawi. These included forecasts that came too late, vague forecasts and advisories, confusion over likely impacts, and lack of trust in forecasts.

Although some organizations were able to make community-level recommendations based on the forecasts, for others the forecasts came after critical decisions were made. By the time Malawi Red Cross staff were told, “we will have dry spells,” there was nothing [MRCS] could do because people had already planted” (2). This indicates that while El Niño warnings had surfaced as early as May 2015, it did not trickle down to NGO stakeholders and farmers in time to influence key agricultural decisions.

Many forecasts users complained of the generally vague nature of the forecasts. Although DoDMA and other stakeholders used the forecasts to develop contingency plans, they also lamented that the “forecast is mainly general. It’s not area specific, and it’s not even sector-specific” (1). Sector-specific experts from ministries and NGOs are expected to translate the forecasts into action, but many of them are not clear how to interpret them. Some forecasts did not provide sufficient detail as to when events would occur, instead “indicat[ing] that there would be rains coming, but they did not say when” (2).

The advisories accompanying the forecasts were often geared at individuals and were overly simplistic — “Review your contingency plan and start making preparations” (2) or, “Make sure you have an umbrella. Make sure you have a raincoat. Make sure children are accompanied to school. Make sure you don’t go out of the house ...” (2). When it comes to defining actions, current forecasts “don’t indicate the impact on any sectors. They just say how the rains are going to perform” (2). All those interviewed agreed that, in the future, forecasts would be more useful if “emphasis could [be] put on advisories because just having information is not enough” (2). Instead, more effort is needed to answer the question, “How do I use the information that I get?” (2).

Understanding the forecasts in Malawi is complicated by the fact that El Niño has opposite impacts in different parts of the country — flooding in the north and droughts in the south. Based on the forecasts alone, it was unclear to funders and humanitarian organizations whether flooding or drought would be the primary impact. Some “[donors] were anticipating floods, but the information we were getting was not specific enough” (4) to act. It took stakeholders some time to untangle conflicting information, as “everyone was saying that normally, after El Niño, Malawi has an awesome harvest. When El Niño comes, Malawi always does great,” which was at odds with forecasts of below-normal rainfall (2). To remedy misunderstanding of what El Niño means for Malawi in the future, “there is a need to “systematise in a proper manner the different effects of El Niño in Malawi in the last year” (2) and to provide “more nuanced analysis” (4) of forecasts so that stakeholders understand the implications from the beginning.

GFCs’s efforts to disseminate forecasts to communities themselves led many informants in Malawi to emphasize the need for better dissemination and interpretation of the forecast information for use by individuals and households. Forecasts can be distributed to individuals on social media, radio, and SMS, but they need to be translated into terms people can understand. A forecast that talks “about normal or above-normal rainfall” is of little help to most people. “To somebody who is in the village, there’s no information” (2). Tercile projections are difficult to translate into household planting decisions.

## **Social Protection and El Niño Response in Malawi**

Malawi has two existing social protection programmes, the Farm Input Subsidy Program (FISP) and the Malawi National Social Support Programme (NSSP). The NSSP provides cash transfers to the poorest ten per cent of households, most of which are labour constrained. It also supports households that are not labour-constrained through work-for-asset programmes in which individuals construct infrastructure in exchange for income. In some regions, it also provides services such as, school feeding programmes, loan and saving programmes, and microfinance (GIZ 2105), which provide social cash transfer directly to beneficiaries. The Malawi Vulnerability Assessment Committee (MVAC) also “meets annually to assess the state of food security in Malawi every year. WFP is a major partner of that committee. So the MVAC response is the humanitarian response that happens every year” (2).

World Food Programme and DFID attempted to link their humanitarian response to the 2015–2016 El Niño to social protection programmes in Malawi, but these efforts were complicated by the number of funding streams and the use of different distribution channels. Although humanitarian social protection funds were intended to complement existing social protection mechanisms, it was a challenge to integrate these additional benefits with existing programmes. Humanitarian organizations were funding programme expansion, which was coordinated through a parallel set of databases for registering beneficiaries rather than through the existing systems.

These complications were largely seen as a symptom of the need for increased coordination between humanitarian action and development in general. The plethora of ongoing resilience, development, and market initiatives taking place in Malawi means that “when the humanitarian response comes, or the social protection programmes come, there’s a kind of crowd — programmes at different levels — and you always struggle to understand who is doing what and what kind of activities and when you are programming” (2).

As a result of these complications, stakeholders learned the importance of planning for better integration with existing systems going forward, and there has been progress on developing a single fund for the Malawi National Social Protection programmes. In the future, rather than contributing haphazardly, in a fragmented fashion, donors will be able to contribute to a single fund that would then be distributed through existing systems based on specific climatic or weather-related triggers (2). Donors are also working to establish a Unified Beneficiary Registry, which would include of the poorest 50 per cent of the population so as to track who receives benefits in times of humanitarian crises. In order to know who to target during disasters, more research needs to be conducted into whether households receiving social protection benefits are particularly vulnerable to disasters and which populations would benefit most from additional social support in times of crisis. These steps may help to improve coordination of benefits during future events.

### **Non-information Considerations in Malawi**

In response to a question about the challenges to using information, one informant summarized the issues well:

The challenges are “not necessary to do with weather forecasting. It’s about how robust and adequate the coordination mechanisms are; how good the real-time monitoring is; learning across sectors; and how robust the beneficiary feedback systems are. And then also, the overview and the leadership of the whole response, particularly on the power of government. So, I think those are major, major challenges in Malawi, which don’t necessarily have anything to do with receiving good climate forecast information. It is to do with leadership on the ground and how effective and efficient the humanitarian system is” (4).

## **Conclusion**

El Niño forecasts in Malawi were delivered in the context of ongoing humanitarian response and longer-term efforts to develop forecast production and distribution capacity. Because of these pre-existing efforts, stakeholders in Malawi were conditioned to look to forecasts and were already providing relevant services in many areas. Many organizations acted on the forecast information by modifying existing programmes, but in some instances, the need for response to previous disasters took precedence over planning for El Niño. Delivery systems and beneficiary information were fragmented; humanitarian stakeholders were unable to scale up existing social protection systems, but they were optimistic that the lessons learned during the El Niño — such as the need to pool funds and integrate databases — would encourage the use of these programmes in the future.

## Timeline of Response to the 2015–2016 El Niño in Malawi





## MEMBERS OF EARLY WARNING COMMITTEE DRAWN BY REDD ETHIOPIA IN YE MATEKUMA PAI

| S/N | THE EARLY WARNING COMMITTEE NAME | VILLAGE | SEX |
|-----|----------------------------------|---------|-----|
| 1   | Nafisaa DUYII                    | Amarojo | F   |
| 2   | Ghamar Aliyii                    | >>      | M   |
| 3   | MUSSAA MAMAD                     | Bakare  | >>  |
| 4   | MAMAD Abdulle                    | Ararojo | >>  |
| 5   | Aliyii Abdulla                   | EYLO    | >>  |
| 6   | Safii Abrahim                    | >>      |     |
| 7   | Miskii Adam                      | Maray   | >>  |
| 8   | NUTIYAA YUNYAA                   | EYLO    | >>  |
| 9   | DINI Bushira                     | Amarojo | M   |
| 10  | AMAO KEMAL                       | Bakare  | >>  |
| 11  | MAMAD USMAIL                     | Amarojo | >>  |
| 12  | MAMMAD BAKARE                    | Amarojo | >>  |
| 13  | SHADIN AMED                      | Maray   | >>  |
| 14  | WARDU GAZAHANSA                  | Hassan  | >>  |
| 15  | AMEDIN ABOURAMAN                 | Kalkant | >>  |
| 16  | ABDULHE JUNDI                    | Hassan  | >>  |
| 17  | ADAME USMAIL                     | Ararojo | >>  |
| 18  | MALLYON SAMAQO                   | Aisho   | >>  |
| 19  | SHAME DAWE                       | Wadaj   | >>  |
| 20  | ABSIKAR SHEKA                    | Aisho   | >>  |



## Chapter 7: Measuring Impacts

One of the study's important deliverables was collecting evidence showing that early action in response to El Niño forecasts led to better humanitarian outcomes. At this time, only two organizations — Concern Worldwide (Concern) and the Kenya Red Cross Society (KRCS) — quantified the benefits of their early actions. The study's authors attribute this scarcity to two factors: (1) organizations are still responding to the impacts of the 2015–2016 El Niño; and, (2) conclusive measurement of programme impacts (or impacts avoided) is inherently complicated — as this section will demonstrate. However, these two reports serve as a starting point for discussion of the opportunities for and challenges to quantifying benefits.

To quantify the benefits of early action in response to El Niño forecasts, organizations must (1) attribute the impacts of a particular event to El Niño, and (2) determine how many people and assets would have been affected, and in which ways, if early action were not taken. This chapter is an overview of how each step could be accomplished given current scientific capabilities.

### *Attributing Severe Weather Events to El Niño*

During an El Niño year, stakeholders — media, government officials, fund-raisers, humanitarians — are prone to blame any disastrous weather or climate event on the phenomenon. However, when they do, these groups cite raw numbers of people impacted. They do not, for example, deconstruct the data to specify the number of newly malnourished, diseased, disenfranchised people, or those who suffered a myriad of other harmful impacts attributable to and resulting from an event. They assume that the extreme weather event would not have occurred in a neutral climate year. And they often fail to report that the baseline needs of vulnerable people were only exacerbated by the disaster. (see examples: IGAD & ICPAC 2016; UNOCHA 2016; WHO 2016).

The science of attributing weather events to climate change and El Niño is not only new but difficult. As evident in the case studies (see Chapters 2–6), droughts, floods, and other extreme weather events can and do occur in non-El Niño years. Therefore, to definitively attribute impacts to El Niño, organizations must establish a more rigorously conclusive connection between El Niño and the particular event in question.

A growing area of research is attempting to determine how climate change affects the probability that a particular extreme weather event would occur (Allen, 2003; Stott et al., 2013). The study's author interviewed a climate researcher working with World Weather Attribution,<sup>1</sup> a group trying to identify the role of climate change in extreme weather events. The researcher believes it is possible to adapt the techniques used to attribute extreme weather events to climate change to associate particular events to El Niño. In fact, one study demonstrated that La Niña played a role in the drought that plagued East Africa (Lott et al. 2013).

When attributing events to climate change, scientists ideally use at least two independent methodologies — statistical techniques and climate modelling — to simulate the event under pre-industrial conditions followed by current climate conditions. This modelling (run hundreds of times) allows scientists to quantifiably assess the likelihood that a particular event would occur under different climate scenarios.<sup>2</sup>

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1 For more information on this group, see <https://www.climatecentral.org>

2 At least 2, ideally 3 or more methodologies are used for each scenario to cross-check the findings.

Climate modellers could use that method in the future to link particular weather events to El Niño by simulating an event in neutral (non-El Niño/La Niña) years and comparing to El Niño years. Adapting the model to this application would provide humanitarianists with more concrete scientific evidence that particular extreme events are linked to El Niño and that the harmful impacts were less likely to occur in a non-El Niño year. The evidence would reveal the extent to which El Niño drove both the predictability and magnitude of the events.

This method of attribution, however, is not without its challenges. In the case of flooding for example, this approach would only attribute the extreme rainfall event. Further, complex analysis would be needed to attribute the floods that result from the rainfall event, including an understanding of the local hydrology. And even further analysis would be needed to attribute the *impacts* from the flood, which would differ from location to location due to the inherently local characteristics of vulnerability to flood risks. In both of the latter cases, sound methodologies are not yet widely accepted. An additional complication is that research scientists would also need rainfall data from affected areas as well as historical data sets to conduct these methods. The data sets would need to be divided into neutral years, El Niño years and La Niña years and as a result their smaller size could limit the robustness of the findings. Another example pertinent to the humanitarian aid agenda: linking severe weather events to El Niño may not supersede the benefit of forecast-based action (regardless of the cause). This requires further investigation and discussion.

#### *Framework for Measuring Impacts: Options and Considerations*

The value of forecasts for humanitarian action is predicated on a particular theory of change that connects forecasts to early action to outcomes. Advocates of forecast production and dissemination believe that early information will lead to early action, which in turn will result in better humanitarian outcomes.

At present, natural and social sciences are often incapable of definitively untangling the myriad factors influencing how early action based on El Niño forecasts may have altered the course of history, leading to a reduction in lost lives, property, and livelihoods. Establishing a baseline to measure the benefits of an intervention or a counterfactual to quantify the benefits of impacts avoided are two such models organizations could use.

The following section explores ways to quantify the value of early action based on an El Niño forecast. We will refer to activities sponsored by the Kenya Red Cross Society (KRCS) and British Red Cross (BRC) in Kitui.

#### *Framework for Measuring Benefits*

##### **1. Establish a baseline against which to measure final impact**

A baseline differs from a counterfactual in that it describes what the situation was before the intervention. Changes in yields or other outcomes are then measured against the baseline. Baseline data should, therefore, be collected before the intervention takes place. Data can be collected through surveys, focus groups, interviews, or using existing statistics. Unfortunately, in humanitarian situations, the need for prompt response may further complicate the challenge of identifying indicators and collecting data before an intervention begins.

## **2. Implement the Programme**

### **3. Measure Results**

To measure impact, return to the site and compare new outcomes to data collected previously. In some instances, comparison with control groups or statistical analyses may be necessary to attribute changes to the intervention being measured definitively. Less rigorous interpretations will simply attribute any change in outcome to the intervention without trying to account for other factors.

As seen in the Kitui case (below), when actions are taken quickly, it may be difficult to collect baseline data. When that is the case, the researcher can reconstruct a counterfactual in one of the following ways:

#### **a. Ask people how their plans changed because of El Niño forecasts.**

This method might ask people or organizations what they usually do, what they did last season, or what they would have done had they not received specific information or benefited from a specific intervention. Accounts of what would have been done differently can translate to likely outcomes based on previous years or what occurred in other places. This method can be done relatively easily in focus groups or, more precisely, using surveys. Unfortunately, even when asking about recent events, recall data is often inaccurate and difficult to verify.

#### **b. Ask people to estimate the impact of the intervention.**

This option is similar to the previous option but seeks qualitative impressions rather than a direct comparison to previous years. In the Kitui intervention, people were asked to estimate their past yields and how they compared to yields during the El Niño intervention. These estimates are subjective and impossible to substantiate; in some instances, researchers will have to be satisfied with perceptions of the forecast utility or the impact of the intervention.

#### **c. Compare communities that received intervention with those who did not.**

This method assumes that severe weather events will impact neighbouring communities similarly — their culture, economy, geography, vulnerabilities, dynamics, etc. While control groups are considered the gold standard for scientific research, this level of rigour is not feasible for development or humanitarian researchers. Establishing control communities would also be unethical — intentionally depriving some communities of assistance and relief to quantifying the benefits of an intervention. Therefore, identifying control communities would need to be through natural occurrence such as limited funding/resources resulting in not all communities in a particular area receiving an intervention.

#### *Measuring Benefits in Kitui*

The Kitui case study quantifies the value-added benefits of early action intervention (see Chapter 4 for a more thorough description). Farmers in Kitui who received seeds from the Kenya Red Cross Society (KRCS) and British Red Cross (BRC) reported year-over-year increases in yield. However, researchers faced challenges trying to develop a rigorous counterfactual.<sup>3</sup>

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<sup>3</sup> Although the report's executive summary concludes that farmers obtained higher than usual yields as a result of the intervention, it is unclear from the Kitui report how the researchers were trying to establish benefits. The full report mentions control groups (for which no baseline or harvest data was collected) as well as comparisons to previous seasons. Rather than critiquing that report, the discussion here is meant to show the challenges with assessing impacts more broadly.

First, there are numerous ways benefits could be measured. These include (1) measuring yields in comparison to neighbouring communities; (2) measuring yields against previous seasons;<sup>4</sup> (3) determining whether farmers who received seeds had better livelihood outcomes than those who did not get seeds; or (4) some combination thereof. Any of these are acceptable metrics, but all require different baseline data. The first option requires knowing what the yields were in neighbouring fields. Option two requires access to historic yield data for previous harvests — including those during an El Niño. The third, and most challenging, requires knowing whether farmers would have procured seeds and harvested crops had they not received assistance from KRCS. In other words, if these farmers didn't get seeds from KRCS, would they ever have planted and harvested a crop in the first place? The other options are not without their potential challenges, such as suitable and reliable control communities or access to accurate yield data.

It is important to clearly define the metrics by which you'll evaluate the programme well in advance to ensure that baseline or counterfactual data is available when it comes time to quantify the impacts. The complexities of impact evaluation are compounded by the short turn-around times in forecast-based projects. KRCS had only a few months to plan and execute their seed distribution. Time constraints likely explain why the baseline data in this example compares two different seasons.<sup>5</sup>

Researchers in Kitui disclosed other challenges in their attempt to quantify the benefits of seed distribution in response to an El Niño forecast. KRCS gathered impact data through focus group discussions in which farmers estimated yields in comparison to previous years. Given the potential for farmers to influence each other's responses, focus groups are not ideal for assessing and aggregating individual household impacts (KRCS 2016). Surveys may not have been a practical alternative because they are resource intensive and impractical in a short timeframe.

Additional measurement challenges resulted from the different ways in which farmers used the seeds. Some farmers had mixed the seeds with seeds they already had. Others measured yields in rows of maize rather than in bags of maize. Others did not plant the entire 2kg provided. And some farmers' neighbours (those who did not get seeds from KRCS) also reported increased yields (KRCS 2016), which cast doubt on whether the benefits were above and beyond what might have occurred without the donated seeds. All told, both farmers and researchers had difficulty isolating yields from KRCS seeds from those from other sources.

While most would agree that seed distribution in Kitui helped farmers, precise quantification of those benefits — despite considerable effort — remains elusive. The following section translates some of these challenges into more general terms, outlining key considerations for assessing El Niño impacts in the future.

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<sup>4</sup> These first two options appear to be the methods used in the Kitui study.

<sup>5</sup> KRCS attempted to capture a baseline, but asked for "last season's" harvest, and therefore gathered yield data for the March-April-May season rather than the October, November, December season.

## *Quantifying Value: Attributing Event Outcomes to Mitigating Harmful Impacts*

This section explores ways to quantify the value of early action to mitigate the deleterious effects of severe weather events during an El Niño year. We will refer to activities sponsored by Concern Worldwide in Somalia.

### *Framework for Measuring Impacts Avoided*

The baseline framework for measuring the benefits of an intervention (previous section) cannot quantify the benefits of mitigating the impacts of a disaster entirely. Though the techniques of data collection still apply (3a, 3b, and 3c), this framework employs a fourth technique: the researcher must hypothetically reconstruct what would have happened in the absence of intervention. In this framework, the first step begins after the intervention is complete. This is referred to as developing a counterfactual.

Establishing a credible counterfactual is challenging in complex social-ecological systems. Available data varies greatly from place to place as well as scale (e.g., a local flood versus widespread drought), so recommending a single, universally applicable methodology for measuring impacts is not feasible. That said, it is necessary to posit a few possible methods for piecing together outcomes depending on the details of the intervention and data available to analysts. Donors, practitioners, and researchers may use a combination of these methods in the future.

### *Comparing to Analogue Years*

To glean evidence that a severe weather event would have produced more damage had responders not acted earlier when the forecast was released, organizations can look for previous events of similar scope and scale. For example, where floods or droughts occur regularly, look at data following a flood/drought from another year. Choose an event when no attempts were made to mitigate impact with early action. The analogue approach has strengths and weaknesses. In this example, the method is great for disaster preparedness, because the impact has an experiential reference (it happened like this before and will likely happen like this in the future). Unfortunately, communities are dynamic, and there is no guarantee that the social, political, economic or environmental factors that contributed to previous impacts have not changed. At best, anticipating and preparing for the impacts is only an approximation.

### *Comparing Against Other El Niño Events*

The 1997–1998 and the 2015–2016 El Niños were both powerful years according to scientific measurements, but it's interesting to note that the intensity of flooding in Kenya and Somalia was far less in 2015. While some of the reduced impacts could be attributed to better preparation, informants agreed that it was also because the rains fell differently in 2015 (they "fell nicely" as reported above) and were, therefore, less destructive. Comparing El Niño events of similar magnitude is complicated by the fact that no two El Niño events manifest in precisely the same way. As one meteorological expert put it "no two years will be exactly a photocopy of one another" (3).

### *Measuring Impacts Avoided in Somalia<sup>6</sup>*

This is a good example of how one organization quantified the benefits of early action to mitigate the effects of a disaster. Concern Worldwide estimates that it spent \$USD 63,864 on pre-positioning supplies in Somalia. With that investment, it saved 4,779 households from being displaced and prevented 12,111 hectares of land from being flooded and damaged. Concern estimates that its actions obviated the need for \$USD 1.8 million in post-disaster humanitarian aid and prevented \$USD 5.8 million in farmer losses. Because of the low cost of flood control supplies, Concern estimates that for every \$USD 1 spent on prevention, it saves \$28.44 in post-disaster humanitarian aid and \$USD 91.03 in farmer profits. As one informant put it, flood mitigation is “so cost effective, and for that price, why wouldn’t you do it every season?” (2).

How did they glean these totals? Concern’s partners visited locations where flood control structures were built to divert flood waters (in some areas people took action, but flood waters did not reach the diversion structures). They cross-referenced data from past floods with statistics about the people who lived in the area; they projected the extent of the damage; and, their analysts calculated the number of houses and fields that would have been inundated without the flood control barriers. Concern compared the cost of having to assist people to rebuild (\$USD 380 per displaced household) and compensate farmers for lost crops (\$USD 480 per hectare destroyed). A full cost-benefit analysis is in progress and will be available in February or March of 2017.

As with most El Niño impact reports, disentangling the effect of El Niño from other drivers of impact in the region is likely to be difficult. The problem of attributing impacts to particular El Niño-related events is compounded by the complex humanitarian situation in Somalia, and the fact that, according to informants for this study, shocks of some kind occur every year in Somalia, independent of any ENSO influences (2).

Concern’s analysis provides a good estimate of the impacts and value of their programmes, but it may not be easy to replicate. Several factors simplified the analysis described above:

- Flooding in Somalia is recurrent and localised. It occurs at specific points where human activity has weakened the river banks.
- Recurrent flooding also provides researchers with data on past floods (and their associated impacts) which can be used to construct a counterfactual.
- SWALIM and FSNAU have extensive, detailed knowledge of Somalian hydrology, river characteristics (including weak points in the banks), and livelihoods in flooded areas.
- Reinforcing riverbanks stops damages entirely.
- Experience and understanding of hydrological patterns, coupled with a familiarity of where riverbanks broke and flooded communities and where they did not.

In situations where such information is available, Concern’s methods provide a valuable guide to impact and value assessment. However, where damage is more widespread or comprehensive data on comparable events is unavailable, or it is simply harder to track results, other methods may be necessary.

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<sup>6</sup> Because the formal report is not yet out, this write-up is based on the informant interview and subsequent consultation with those working on the report. As a result, final numbers and methods may deviate slightly from the final product.

### **It is hard to measure something that does not happen**

In the case of most forecast-based interventions, the goals are to prevent damage, not to provide additional benefit. In the case of flooding in Somalia, it was relatively easy to guess what might have happened had riverbanks not been reinforced. The benefits derived from other interventions are, unfortunately, less obvious and more complicated to substantiate. What would have happened had we not pre-positioned supplies? How many weeks' delay would have resulted? If actions are taken, and no crisis arises, would there have been a crisis without intervention?

"I think it's hard to monitor your impact when you don't have a disaster. The fact that the disaster did not happen in some regions. Even though [other] regions we were able to measure the impact because the rains were higher than usual so there would have been more flooding. So in those areas, we were able to measure the impact. In some other areas where it didn't happen, there is this question afterwards. Was it useful or was it not useful? It's hard to measure, and people want you to measure things, and in this case, sometimes it's not possible" (2).

Quantifying the benefit of early action – be it intervening or mitigating impact — has its challenges. Experiences in Kenya and Somalia foretell the traps: memories of past events can alter people's perceptions and behaviours — they may not act in the same way twice — which skews efforts to compare impacts with past events.

The solution is not an either/or as much as it will be a hybrid of methodologies that can accommodate a range of estimates and other variables.



Photo: Julie Arrighi 2010

# Chapter 8: Summary of Recommendations

The five case studies presented in Chapters 2–6 provide an overview of actions taken, or not, to prepare for potential impacts of the 2015–2016 El Niño in five countries.

The chapters provide insights into the contributing factors that catalysed or hindered anticipatory actions, as well as recommendations to improve early action in the future.

This chapter summarises the most relevant data to improve the use of El Niño forecasts in the future. A more detailed analysis of the recommendations emerging from this study is available in Chapter 9.

## Salient Recommendations

1. El Niño events are a periodic phenomenon and thus allow for research and planning in advance of specific events. Humanitarian and development actors need to account for this cyclical occurrence in their planning. Identifying past El Niño and La Niña years, characterising their impacts, and determining possible early actions can expedite the planning and preparedness process before the next event is forecasted.
2. Informants called for better interpretation of forecast information. Forecast producers and humanitarian practitioners require stronger connections to intermediaries, ministries, and other sector-specific experts who can help them to interpret forecast implications.
3. Governments may be reluctant to make official emergency declarations before realised impacts. Humanitarians should work in partnership with government on an agreement (or legislative remedy) that facilitates forecast-based early action. Standard operating procedures or triggers for humanitarian action are additional options for overcoming political obstacles. Any procedures require joint cooperation with government to ensure maximum reach.
4. Lack of funding is a common barrier to early action. Flexible funding and crisis modifiers facilitate early action, but only a few donors provide these options. Expanding funding for early action is essential to the expansion of forecast-based early warning.
5. Few organizations attempt to capture the benefits or losses avoided as a result of their early actions. Additional emphasis on impact evaluation can help make a case for forecast-based early actions in the future.
6. Donors and practitioners don't think to record beneficial outcomes resulting from a forecast-initiated action (as was done with seed distribution in Kitui, Kenya). More can be done to document successful interventions and identify potential financing mechanisms in advance of El Niño events.

7. A focus on no-regrets actions — actions that contribute to resiliency regardless of a specific climate event — can be identified or conceptualized in advance of forecasts to help overcome the uncertainty associated with them. In advance of coordinating a no-regrets action, donors and humanitarians must collaborate to define acceptable levels of risk or investment based on various forecast scenarios or probabilities. No-regrets actions may be particularly easy to identify in areas prone to recurrent crises.
8. Social protection systems have potential to reduce the possible impacts of an extreme weather event during an El Niño, especially among the most vulnerable. To maximize this potential, mechanisms for scaling social protection systems should be planned in advance. NGOs and governments should collaborate to identify and register beneficiaries, establish cash delivery systems, agree on forecast thresholds to trigger additional payouts and ensure that a sustained financing mechanism — with built-in contingencies for rapid scaling — is identified.

## Chapter 9: Detailed Write-up of Conclusions and Recommendations

Drawing on the narratives reconstructed in Chapters 2–6, this chapter gathers evidence from across all five countries to distil important themes and lessons regarding the use of forecasts for anticipatory action. It divides the findings according to the following themes:

1. Forecast Production, Dissemination, and Use
2. Trust
3. Gradual Action
4. Funding
5. Triggers and Standard Operating Procedures
6. No-regrets Action
7. Social Protection Systems
8. Political Considerations
9. Other Influences and Findings

Each section concludes with recommendations based on these findings.

### **Forecast Production, Dissemination, and Use**

Because El Niño influences seasonal weather forecasts, El Niño conditions are inherent in the predictions. Forecasters and humanitarian informants in each of the five countries described a similar process of seasonal forecast production, dissemination, and receipt. Forecasting begins with the international agencies who have global monitoring capacity. As explained by a forecaster at ICPAC, El Niño forecasts disseminated in Eastern and Southern Africa rely on measurements from global forecasting centres with the capacity to take necessary measurements of global sea-surface temperatures; therefore, National Hydro-meteorological Services (NHMSs) “have to rely entirely on other advanced centres to know whether El Niño is coming or not” (3). These forecasts are shared with national actors who develop preliminary outlooks for their countries, which are distributed at regional Climate Outlook Forums (COFs). At the COFs, forecasting experts meet to develop regional consensus forecasts, which are then taken back to National Meteorological (Met) Services and downscaled into national or sub-national forecasts depending on local forecasting capacity.

The process of confirming an El Niño event and of developing forecasts incorporating El Niño conditions takes time; forecasts become more detailed, accurate, and hence actionable, as the prediction times grow shorter. Weekly and daily weather forecasts provide much more detailed information than seasonal forecasts, which cover large areas. For example, whereas the daily weather forecast may predict with reasonable accuracy (meteorological service capacity permitting) the hour and location of rains, seasonal forecasts cannot provide information on exactly when and where rain will be distributed throughout a season in a particular district or territory.

Early El Niño forecasting is complicated by differing definitions of El Niño around the world, but because 2015–2016 was a strong El Niño, consensus was reached relatively early, and potentially conflicting information did not appear to influence overall responses to forecasts. For an El Niño to develop, there must be warming of the eastern equatorial waters in the Pacific, which lead to a weakening or reversal of the trade winds over the equator (3). Several different El Niño standards exist. During strong El Niño events, organizations are likely to interpret the signals similarly, but when the signal is weaker, there is greater potential for disagreement. NOAA and Australian Met services, for example, may interpret early El Niño data differently because they monitor sea surface temperatures in slightly different locations. Because of these discrepancies, in the early

stages of El Niño forecasting, organizations may receive conflicting information. However, because this information only reaches global headquarters and higher-level actors and because most organizations do not make significant investments in early action until an El Niño is more certain, these discrepancies did not appear to influence the informants' confidence in the forecasts.

Stakeholders at the global, national, and sub-national level typically learn of El Niño at different times. Most headquarter-level staff first learn of the possibility of El Niño through their connections with international forecasting agencies such as NOAA, FEWS Net, or the British and Australian Meteorological Offices more than six months in advance of potential impacts, but this is still too early to have confidence in the forecasts. Given the progressively more detailed nature of forecast information, the gradual dissemination processes described above make sense. As the forecasts become more certain, information is conveyed (usually via email briefings or in-person meetings) to national-level actors or high-level programme officers within National UN or NGO offices. Often, humanitarians at the national level first heard of the possibility of El Niño through intra-organizational communication channels (global headquarters communicating to the regional and national levels), and later received confirmation, additional details, and downscaled forecasts from national forecasters. Using increasingly detailed information, actors at progressively more localised levels of decision-making can begin acting on the information.

### *Which Sources Are Most Used?*

Overall, the gradual accumulation of information from numerous sources appeared more important than any one warning or information source. The research team asked informants about when they first heard about El Niño (and from whom), but rather than describe a single warning, for most, news of El Niño gradually began "coming up [their] consciousness for so many months beforehand, through alerts within the [NGO] ... and also hearing through the media" (2).

Because most El Niño information is communicated via email lists or meetings, dissemination to lower-level or operations personnel within each organization or country depends upon ties to forecasting organizations, the frequency of intra- or inter-group meetings, the frequency of email briefings, and who is on the email lists. While these communication hierarchies make sense, in some instances, they cause delayed action within organizations. In Kenya for example, those in charge of Kenya Red Cross Society (KRCS) disaster operations learned of the potential for increased rains only one month before their onset. They agreed that more direct contact between the Kenya Meteorological Department (KMD) and all levels of KRCS operations would facilitate planning in the future (2).

### *There Can Be Too Much Information*

Despite the value of repeated warnings from many sources, some stakeholders complained that there were too many sources of, at times contradictory, forecast information. Information from different listservs caused confusion or information fatigue, as humanitarians struggled to keep up with their existing caseload. Over the course of this study, informants mentioned information coming from at least 19 different sources, including international forecasters (NOAA, IRI, SARCOF, GHACOF, ICPAC, FEWS Net), UN agencies (FAO, OCHA, WFP), international NGOs (IFRC), donors (DFID), national Met services or information providers (UK, KMD, SWALIM, FSNAU, etc.), and even private forecasters. At the regional and national level, some partners found "there [was] so much and you could be spending your whole day looking at maps you don't quite understand" (2). For people unfamiliar with how to interpret forecasts "it is very challenging to use

the different forecasts because sometimes they don't reconcile; they give you different predictions" (4). As a result, practitioners may limit themselves to "looking at headlines" because they "honestly don't have time to sit down and critically look at everything else" (2). The plethora of information sources means that practitioners "don't have one report that is comprehensive" (2). Because many practitioners "have limited time to really digest kind-of long, technical, complicated report[s]," the most useful information is "short, simple and sweet, easy to understand" (4).

Given the challenge of information overload, attempts to better coordinate forecast dissemination might be beneficial. One participant suggested a website consolidating various sources of information and providing a concise interpretation of all the information would be easier to understand (2). Individual organizations should consider their dissemination protocols (from headquarters to local offices) and streamline processes that interpret and distribute information so that clear, actionable intel is provided to key personnel at predictable intervals. If individual practitioners could receive a regularly scheduled digest of critical information, they can save time filtering through many competing sources.

#### *Which Information is Most Useful? The More Localised and Specific the Better*

Unsurprisingly, stakeholders agreed that more localised information is the most relevant and useful for planning and decision-making. Perhaps for this reason national-level action (beyond contingency planning) generally did not begin until local Met departments downscaled the forecasts to provide more localised interpretations of the likely events and impacts. The three most important sources of forecast information in Somalia were FEWS NET, SWALIM, and FSNAU because they provided precise information on the nature and location of likely impacts. SWALIM simulated the impact of the last two El Niños and disseminated "information that was directly aimed at helping people programme their response" (2). In Malawi, national-level forecasts were "more useful because they outline[d] which part of the country has what chances of bad rains, good rains, etc.; [humanitarians] are better able to see where the impact will be and where [they] can focus [their] energies in terms of what preparedness or response actions [are need]" (2).

More localised information also facilitates community action, whether independently or facilitated by humanitarians. The risks of taking action are more pronounced when engaging a community directly, because "You cannot mobilise farmers in an area to plough more fields if you are not fairly sure that the rains are gonna come there because, actually, you could be helping people become poorer" (2). Stakeholders in Kenya believed that "if [communities] can be able to interpret the information that is given by the Kenya Met, with simple terms and simple actions — that this means this and this means this — [communities can] do a lot to mitigate [impact] even before the big institutions come in to help" (2). In other instances, more localised information promotes humanitarian engagement with the communities. In Malawi, NGOs took localised forecasts into the communities directly so that they "were able to see how the weather was transforming as per forecast [and] so the communities were also more involved in [planning]" (2). In countries like Malawi, where programmes are targeting individual or community level-response to forecasts, there is a need to "tailor a lot of this national forecast to a local scale so that people can not only understand it but also have access to it and actually know what to do with it" (2). National-level information remains too vague for local action.

### *Limitations of Scale*

As previously identified in a number of studies (Lemos et al. 2002; Patt et al. 2007; Patt & Gwata 2002; Ingram et al. 2002; Hansen 2002), the desire for the most local, detailed forecast information possibly stands in contrast to the information scientists are able to provide. In contrast to localised predictions, international and national seasonal forecasts are not granular enough to predict when and where, in time and space, rainfall will occur. SADC forecasts, for example, predict 45 per cent chance of bad rains for Southern Africa as a whole, without specifying which areas will be hardest hit. In most countries, El Niño will have different impacts in different regions, and these need to be understood in order for stakeholders to act. Without more local detail, “the regional forecasts are informative, but if you don’t have specific information about the areas within the country, it’s not that useful; it just makes the noise that something is happening” (2). The most useful information is, therefore, not from seasonal forecasts, but rainfall estimates, crop estimates, and other analyses that connect the forecasts to impacts in specific locations.

Forecasters are currently unable to provide mid- to long-range forecasts that specify when and where rain will or will not occur. Unfortunately, the most common petition — aside from the request for more interpretation — is that the “department of metrological services provides area-specific information” (2). One Met officer lamented, “People always want [information] at higher spatial or temporal resolution than [the forecasters] can provide. [Users] really want to be told what the forecast is, when it’s going to start raining, how much it’s going to be, which is not really the way that the longer rains forecasting works” (3). Climate impacts materialise and are felt locally. Within a single community, rains can be localised such that “some farmers do very well and his neighbours do poorly because he didn’t get the same rains as his neighbour” (4). Informants for this study complained regularly that “the information was too generic, and the country is vast, so we don’t know where it is applied” (2). Even those who understood the scientific limitations of a detailed forecast could acknowledge that more nuanced information would be preferable. From the perspective of preparedness experts, “in order to be really effective, we really need to know the amounts of rainfall we are likely to receive and then which specific areas will be receiving a lot of rains … and which areas will likely be affected” (1).

### *Probabilities & Uncertainty*

In all countries, the ability to work with experts (both climate scientists and sector experts) to interpret the forecasts and identify targeted actions was essential to early action. Most people working within humanitarian organizations are not climate experts. They do not necessarily understand probabilistic forecasts, nor do they have time to learn the nuances of probabilities and what they mean. Many informants, especially those closest to operations expressed that the forecasts were “quite scientific” and “very difficult for someone who is not in that field to interpret” (2). As a result, most organizations need more support in the interpretation of forecast, and the answer to “How does it translate and how can it assist the organization to programme and give appropriate support?” (2).

Seasonal forecasts incorporating El Niño conditions were particularly difficult to interpret as presented. Many informants found the classification systems typically used in seasonal forecast communications — normal, above normal, and below normal rainfall — to be particularly opaque. One informant asked, “What does ‘below normal’ mean in terms of agricultural productivity? What percentage of loss will be there as a result of that ‘below normal’ rainfall? Some more interpretation, in terms of agricultural productivity, should be added into the forecast because that is where all this debate and dialogue happens” (4).

### *Confusion Over Terciles and Probabilities Was Widespread Among the Informants*

Although there are still limitations to what the science can provide, forecasters are aware of the need to “map out in detail the magnitude of the events, and where, and how, and what timing the event will hit” (2). Even Met officials recognised that forecast recipients “never understand what it means even if we say there will be ‘above normal rainfall’ or ‘below normal rainfall’ so they plan life as usual even if there’s a potential danger that is coming in” (2). In Malawi, forecast recipients approached DCCMS “to say that our information is not actionable at all” (2) because of the tercile format. As a result of such feedback, “there’s an increasing body of work” to translate forecasts into action, but in most places, more needs to be done” (2).

There is also a tension between decision-makers’ desire for certainty and the probabilistic nature of forecasts. There is “always some degree of uncertainty in the forecasts and the climate scientists are required to really convey the uncertainty in the forecasts” (3). Forecasters are aware that users would like more precise information about when and where the rain will fall, with sufficient lead time to allow for action, but “there is no science in the world that can tell you, ‘in this period, prepare for 200mms of rain.’” (3). These constraints present a problem when dealing with a “user community who doesn’t want to deal with probabilities,” but instead, “want to have a determined forecast” (3).

From a practitioner’s perspective, action that is based on probabilities and large geographic areas, does not help him or her to decide when and where to act. It only increases the risk of wasted resources. Organizations often wait for more detailed forecasts “because until the forecasts are localised enough, you can’t do very much at all, because it’s still a whole country, and you don’t know where it’s going to dump” (2). Taking action too early may mean acting in vain, which leads to practical problems (wasted resources) and/or political problems (issues with donors).

Beyond calling for investments in science to produce localised proof-positive data at longer timescales, more needs to be done to help users interpret the information that is available so that they understand how to incorporate it into their decision-making.

### **Probabilities**

Informants expressed widespread confusion over how to act upon probabilities.

For some, the probabilities are such that they do not warrant any action. “I hate to be down on the forecasting stuff, but for 98 per cent of [possible early action measures] … the short-term [forecasts] are too short-term, and the long-term forecasts are not even close to specific enough … What we see is that when these early warnings come they say, ‘okay there is 40 per cent chance that you’re gonna have heavy rains.’ In the normal season, you’re gonna have [a] 30 per cent chance. So is that 10 per cent of [the] difference really worth changing our whole decision-making process? No. We should still do the same thing we always do” (2).

“If you say that there is an 80 per cent or 90 per cent chance of rain, [people] are going to bring an umbrella. If you tell them there’s a 10 per cent chance, they are not. It is those middle probabilities, and those are the ones that climate forecasts typically have. You know, about 40, 50, 60 per cent. People probably carry an umbrella, but I don’t know perception-wise whether they think it is going to always rain if there is a 50 per cent chance of rain, because it also means there is a 50 per cent chance that it is not going to rain” (3).

“Unless [forecasters] help interpret those maps, then it is just a big blob of blue or it’s a big blob of green. And what does a 40 per cent probability actually mean?” (2).

“There are big questions for organizations. ‘How much and [how] far ahead can you invest? How much certainty? What does that probability bit look like in order to make sense?’ It is a difficult one” (2).

“There are other phenomena that can really interact or interfere with the expected impact [of El Niño] and that’s why I would be very uncomfortable going to a group and saying it’s going to be wetter than average here or drier than average. I wouldn’t do it for the US, I certainly wouldn’t do it for other parts of the world” (3).

### *Interpretation Facilitates Action*

In contrast to the confusion caused by vague forecasts, well-interpreted information contributed positively to early action. In Somalia, FAO took the lead in directing SWALIM to investigate the impacts of past El Niños and then used their role as a “technical agency to help communicate that to [their] partners in the humanitarian and development communities” (2). Understanding that “it is not as easy as we think as techies for people to understand what the information means,” FAO explained what the forecasts predicted rather than simply distributing email warnings and newsletters. As a result, their partners in Somalia used forecast information in conjunction with analysis of previous flood events from FEWS NET, FSNAU, and SWALIM to identify areas that were likely to flood. They then chose the best locations to reinforce riverbanks, pre-position supplies, and support preparedness.

Support for interpretation does not necessarily need to be developed within each organization. National Met services do not have the in-house expertise to interpret the forecasts and translate them into action, so developing this capacity is unrealistic. Discussion forums for national stakeholders and climate experts to “come together, analyse the forecast, and provide relevant advisories for different players” could be more manageable (2). Contingency planning processes or other regular meetings — where organizations already come together to work on preparedness, mitigation, and response — could serve as appropriate venues for collective interpretation. The contingency planning process facilitated such discussions in Kenya. During at least one planning meeting, KRCS and other disaster stakeholders met with intermediaries — people with training in both climate science and humanitarian action. These external experts helped stakeholders understand what the forecasts meant and translated them into action. Stakeholders in Kenya found it “incredibly helpful having a climate practitioner — not just a climate scientist, but a climate practitioner — able to do the translation job that is so often missing in these reports, because most of us would look at a weather forecast map and actually not be able to interpret it very well” (2).

The nearly universal decision to search for analogue years, to better understand the impacts of El Niño, reinforces the importance of interpretation. In the absence of intermediaries, stakeholders sought past events so that they could understand how El Niño might impact their country and how they should prepare. The interpretation was done through analogue years, despite the fact that “it’s not gonna be identical, but at least [it] starts to give you a sense, ‘Is this something that should be on my radar? Is this something we need to actually invest our resources into to understand what are the potential impacts?’” (2). In many situations, it was not the forecasts themselves that were useful, but the scenario development or interpretation made possible by analysis of past El Niño events.

Efforts to contextualise normal, above normal, and below normal tercile values by incorporating historical data, may yield more concrete predictions. Although more geared toward farmers and households than institutional decision-makers. Participatory Integrated Climate Services for Agriculture (PICSA), out of University of Reading, is one attempt to use historical data to help users interpret seasonal predictions and make decisions. Similar efforts, though applicable to organizational decision-makers, needs further exploration.

## **It is not the forecasts that lead to action, it is the interpretation**

The consensus among informants is not that there is a lack of forecasts, but that there is a lack of interpretation of said forecasts. Better understood outcomes strengthen contingency planning and action well in advance of the extreme weather event. The quotes in this box illustrate the importance of such interpretation in the informants' words.

Forecasts are "not area-specific and not even sector-specific. When it comes to agriculture, they would just say: 'Ministry of Agriculture, prepare. We expecting first rains ... let's say in November.' But they wouldn't be specific to say 'Central region will receive rains on such and such a date'. So the forecast is not sector-specific, and it's not area-specific" (1).

"We are prone to using the words 'there is likely to be above normal,' 'normal to above normal.' For farmers or any other users, what is above normal? They don't want to use that" (3).

"So when I look to FEWS Net, FEWS Net will be specific to say that we think that so many people are likely to be affected and the other reports will just say there are these chances of bad rains in this area, in that area. Then when I go to FEWS Net they will say even so many people will be affected from this period to that period" (2).

"Organizations also need to get the support to interpret the forecast and plan appropriately. The thing that can also be done by the Met department that issues the forecasts, I want emphasis more on advisories. They are already doing the advisories but they can do more" (2).

"As a practitioner, I don't have time to learn every bit of information that comes across. I need people who know that stuff to be interpreting and saying, 'It would be a good time to start doing A, B, C. If, in few weeks' time, this situation evolves, it would then be a good time to do X, Y, Z. If this situation continues to evolve, it's likely that these sorts of measures may be needed. We're not saying they are needed now but you may want to have them on your radar.' So, interpretation is key but from people who have a practice perspective: What does that mean in terms of practical application? What can I do with that information? And that's why I was impressed with some stuff I'm hearing from some of the regional Kenya Met teams. Some of them were taking that really into local action" (2).

"In order to respond financially we need detailed information on likely humanitarian impact" (4).

"It's important, as [my colleague] stressed, that you have people who are looking at this information, that know how to look at it and interpret it in the right way" (3).

Practitioners want "language that can easily be understood by somebody who is not an expert in that field. Or put simple indicators of "What does this mean?" For example, when you say 'above normal rainfall', above normal what? Where? What are some of those thresholds that a layman like myself would sit here and say, 'This above normal. The normal is around here.' so if anything goes up to 'this' per cent and 'this' per cent, this is how you measure in simple terms and then action can be done quickly" (2).

"There is a lot of meteorological data; there are a lot of forecasts; there is a lot of rainfall, weather, what-what. The question is, 'How actionable they are made? Is that information actionable?' "(2).

"The other thing I want to say is that, there are people in the early warning system that genuinely believe that if they provide the information, they have done their job. But it's like when you've got child crossing the road and you say, 'Cross the road now' and the child doesn't move. You've got to move now because there's a bus coming down the road and if you don't go now, it's possible that [the bus will] arrive [first]. You can't tell the kid, 'Let's go now' and then set off [while] the kid stays. You have to ensure that the kid is moving. Some people in early warning, they get the feeling that, 'Yes, we gave them the information.' No, that is not enough. If people have not gotten the message, then you have to find a new way to give the people the message" (2).

"How do I translate this 90 per cent chance of a moderate El Niño vis-à-vis a 50 per cent chance of a very strong El Niño? You see? How do I translate that into my preparedness? It's two scenarios. On one side, the high probability is decreased by the strength ... so I know the impact will not be too high. So there I can kind of prepare. But the other [forecast], the probability is really like 50 per cent chance. But, if it happens, the impact will be really high" (2).

"If you know what to do, then the warning is infinitely useful. If you're gonna run around and distribute Puritabs, or something like that, then you don't know what to do. It's a fund raising scheme. The utility of the information itself is relative to your understanding of why it's important to people" (2).

## *Forecast Production, Dissemination, Use, and Content – Conclusions & Recommendations*

1. Organizations assimilate information from many sources. The progression of information that accumulates from numerous sources appears more important than any one warning or single source of information (except in Somalia, where detailed SWALIM information was key).
2. Initial warnings filter down from headquarters (who have direct links to international forecasters) to national-level actors through intra-organizational channels; clear dissemination pathways are needed to ensure that information reaches people in key decision-making positions.
3. International El Niño forecasts are widely seen as credible.
4. Localised information (downscaled forecasts) is (are) more useful for planning, but the quality of that information is more variable; it depends upon National Hydro-meteorological Services capacity.
5. Because localised information is most valuable, international stakeholders should build national Met service capacity to develop and tailor local information to user needs. Capacity building efforts might also work to connect National Meteorological and Hydrological Services (NMHSs) to each other.
6. Multiple information sources can lead to information overload; organizations should develop internal dissemination protocols that distil, interpret, and disseminate critical information at predictable intervals.
7. Although forecasts are useful, localised and interpreted information is more valuable. More work needs to be done help humanitarians interpret forecasts. This can be done by connecting humanitarians with expert practitioners who interpret forecast probabilities (data that can inform planning and action) or with ministries or sector-specific experts.
8. Leveraging local connections and networks (such as providing information to radio hosts) can help forecasts reach a broader audience.
9. Practitioners universally request more detailed information than is scientifically possible. While no one anticipates that science will soon provide more granular information at longer timescales, more can be done to help practitioners interpret, and therefore use, the information that is available.
10. Analogue years can serve as a valuable means of interpreting forecasts and deriving possible scenarios. Because El Niño forecasts allow for easy identification of analogue years, they may be more useful than other seasonal forecasts.
11. Analysis of analogue El Niño and La Niña years — including identification of analogues, characterisation of impacts, and determination of possible early actions — can be done before a specific El Niño or La Niña forecast emerges, expediting subsequent planning processes.
12. Because El Niño and La Niña are periodic events, planning for their occurrence should be made part of the regular contingency planning process.

## Trust

At the organizational level, there appears to be widespread trust in El Niño information.<sup>1</sup> Only a few respondents reported any scepticism regarding the quality of the information, and this was usually reserved for downscaled forecasts provided by the National Meteorological Services when they were perceived to have limited capacity.

Trust at the local level, however, appears to be more tenuous and is easily eroded by what are perceived to be erroneous forecasts. In Kenya, farmers who had planted in response to predicted rains that had never arrived preferred to “wait and see the rains” (2) than to act based upon KRCS warnings. Employees in two Red Cross offices (Zambia and Malawi) expressed concern that they would relay information about a possible extreme event and later face charges that “aah the Red Cross, they’re the same with the Met. They are not telling the truth” (2). This rapid disillusionment likely results from a misunderstanding of the probabilistic nature of forecasts. People mistake forecasts for “the real thing” and believing that “if they say this, then it is going to happen” (2). The real or perceived dissemination of inaccurate forecasts erodes trust in the forecasts, because “nothing happened last time” (2). Such deterministic interpretations of forecasts can undermine their credibility over time, reducing local-level responses to forecasts in the future.

The potential for mistrust suggests that more needs to be done at the community level to communicate uncertainty and help people to understand what the science can and cannot provide. Such efforts have been successful in Malawi where, as a result of ongoing programmes, trust in the forecasts is increasing. Previously, “most of the climate information which was shared could not be believed by many,” but because of outreach efforts, MRCS has “seen people believing in this type of forecasts, this type of information, and they are able to make decisions in terms of what they should do and what they should not do” (2). In the past, “since [forecasts were] not localised, people would not take it seriously, but this time [El Niño 2015] they did” (2). These efforts help bridge “the gap between information as it is presented scientifically and what people understand” (2) and preserve trust in the forecasts.

Uptake by communities is further complicated by a lack of trust and a failure to reconcile forecast with local knowledge. When climate predictions are at odds with historical patterns and personal experience, people trust their past experience. In Malawi, for example, forecasts indicating unseasonable rain went unheeded by community members because they predicted rain during times that would normally be dry. MRCS “warned that by January it was going to flood, but people couldn’t believe it,” because flooding in January is unusual (2). Consequently, “many people died” (2). Citizens there are accustomed to flooding at specific times of the year, and without a greater understanding of the possibilities for anomalies, particularly in El Niño years, they are less likely to heed warnings. This suggests the need for more education and outreach, but also for additional efforts to integrate climate forecasts with local knowledge.

In areas where the impacts of El Niño are less clear, or trust in forecasts is lacking, “indigenous knowledge and signs around climate are actually really important … sometimes experienced people living in rural areas have an understanding of climate change which is really important and is more granular than some of the global forecast might” (4). Greater efforts to use forecasts in conjunction with local knowledge at the local level may also encourage individuals to take forecasts as one of many sources of information rather than a deterministic expectation of what is to come.

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<sup>1</sup> The one exception to this was the government and humanitarian organizations in Ethiopia who, according to humanitarians, were reluctant to take forecasts seriously. Additional follow-up would be required to understand why, from their perspective, the forecasts were not taken seriously.

These experiences with community-level reactions to weather predictions demonstrate that providing forecasts at the community level, without explaining their limitations or providing additional support, has the potential to hinder the use of forecasts in the long-term. While donors, NGOs, and government officials trust the El Niño forecast, more needs to be done to help household users of climate information understand the strengths and limitations of such information.

#### *Did the 2014 “False Alarm” Affect Early Actions in 2015?*

Although most informants had heard of the potential for an El Niño in 2014, few reported it having a deleterious affect on responses to 2015 forecasts at the organizational level. The El Niño was never officially declared in downscaled forecasts, and was therefore not disseminated as part of a downscaled seasonal forecast. As demonstrated in the case study chapters (Chapters 2–6), the first course of action in most countries is for governments and organizations to prepare contingency plans, which are relatively inexpensive and generally account for several possible scenarios. Therefore, at the early stages of forecasting, the risks of preliminary action are minimal.

False alarms do, however, appear to impact trust in forecasts at the community level (2). Several informants relayed stories suggesting that the 2014 forecasts eroded trust at the community level. In Kenya for instance, belief that the 2014 El Niño forecast had been inaccurate, led some villagers to “dispute [the 2015 El Niño forecast] ... quoting the earlier ‘forecast] of the previous year when we were told ‘El Niño is coming,’ and then it never came” (2). For individuals, the implications of acting in vain are potentially much greater than for organizations, and as the result of predictions that do not materialise, individuals appear quick to conclude that “because [El Niño] didn’t happen after the last two [forecasts], we’re not going to rely on this information anymore” (2).

2015 Mogodashe floods in  
Garrisa County, Kenya -  
Credit Kenya Red Cross Society



### *Trust – Conclusions & Recommendations*

1. Organizations largely believe that international forecasts are credible, though trust in National Hydro-meteorological Services vary from country to country.
2. Individuals are more likely to interpret forecasts deterministically, which can contribute to frustration and lack of trust in future predictions. More education and outreach regarding how to interpret forecasts has been successful in overcoming mistrust in some areas.
3. Efforts to integrate climate knowledge with indigenous knowledge can enhance both the quality and credibility of the information and increase local understanding of forecasts.
4. The 2014 false alarm did not prevent organizations from acting in 2015, but it may have eroded credibility with individuals.

### **Gradual Action**

Another common theme among the respondents is the need to gradually adjust the level of action as the accuracy and specificity of the available forecast information increases. Long-term seasonal projections are necessarily more vague than shorter-term weather predictions and feedback about actual conditions on the ground. The initial forecasts are useful in prompting organizations to identify the likely impacts, develop contingency plans, and begin securing funds and mobilising resources. However, organizations agreed on the need for continual monitoring of conditions on the ground to track how the situation was unfolding and to know when to initiate actual disaster response. As particular climate events become more certain and the impacts begin to be felt, additional actions can be taken more quickly because of the advanced preparation. The ability to monitor conditions on the ground, to compare emerging conditions to original projections, allows actors to adjust and make more sound decisions.

#### **Evidence for Graduated Action**

The following quotes demonstrate how informants themselves described gradual response based on forecasts and subsequent monitoring and assessments.

“At the beginning of your planning process you don’t have those short-rain forecasts. All you have is the whole season; what you need to do is to be sure your adjustments in your planning scenarios are done using your short-rains forecast because those are the ones that will give you distributions at a given space and time. So your research proposal should actually keep on emphasising that in as much as you have your plan generated after the forecast has been made, you need to adjust your planning scenarios using your short-range forecast. 7 days etc.” (2).

“That far ahead...[forecasts] are vague enough that actually you can’t do very much other than be conscious about it and continue to monitor. Because it’s too geographically wide to be able to narrow down for preparedness other than very, very generic preparedness” (2).

“... One of the big challenges, as I said, with the forecasts, is being able to adjust as the forecasts are getting closer. If a forecast [says] ‘this is the area’, you can’t prepare for the whole area ... that’s a whole continent, so you can’t prepare for that, it’s too big. So you prepare in a very generic way, and you can only adapt and zoom-in as the forecasts come closer — as the forecasts become shorter. So I think that’s inherently challenging — to keep adjusting — because if you make a decision and pre-position something here but your event happens over there and then a week or five days before you realize it’s going to happen over there, you’ve got an expense to move it over there, and you may or may not get there in time” (2).

"The second point that I wanted to highlight too was that it's important to continually come back to these forecasts and reassess what new information in the season might tell us about how the rest of the season is going to go. [My colleague] mentioned earlier that at FEWS NET at least we do a monthly seasonal forecast call. This seems to be a good period or good timing for us and how we do our analysis. And doing the seasonal forecast call every month was particularly helpful this last year with forecasts for Afghanistan and how the season in Afghanistan was progressing. We had made some assumptions earlier on that given the likelihood of El Niño and then the eventual declaration of El Niño, that precipitation in Afghanistan was going to be above average. And then there had been quite a few things that were going on with the global climate last year that meant that that wasn't the story for the whole season. So the fact that we were revising and looking at these forecasts assumptions every month helped us get a better grasp of what was going on in Afghanistan and allowed us to update our analysis and provide the best available information to decision makers for food security outcomes that was available" (3).<sup>2</sup>

"I think making sure that at the end of the day you are keeping your actions relevant to what is materialising, what was forecasted to materialise in the next seven days is very good. There is a lot of information. You know Somalia does have a lot of relatively active flood information or rainfall information in the Ethiopian highlands — basically I think it helps to provide a very good picture. ...And certainly the VAM and programme during that period were closely monitoring the flood levels being reported [upstream]. ... And we were also working closely with our partner in our area offices and local authorities to understand what we are seeing in terms water moving and then the frequent and updated satellite imagery helped to understand the scope of flooding in rain breakages" (2).

"I mean the thing is you have these forecasts. You start the response. The forecasts become clearer and the difference with us is we have a presence there so you can actually start to triangulate because you are seeing what is happening" (2).

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2 This global level informant was speaking to the use of forecasts beyond the five countries in this study; his response demonstrates that the experience is similar elsewhere.

### *Supplement Forecasts with Real-time Information*

An important part of being able to respond gradually and methodically, as described by the informants, is having access to real-time information about conditions across the country. Because of the difficulty interpreting forecasts, political considerations, lack of funding, and other impediments to acting on the forecasts, informants were quick to emphasize the need for on-the-ground monitoring and assessments. Contingency planning begins based on forecasts, and "when the time comes, you adjust to what the reality is, and that is confirmed by the vulnerability assessments" (2). For many informants, "the climate science that is really useful is not the forecasting, it is the monitoring ... The monitoring is revolutionary" (2).

Disaster response efforts in Malawi are an apt example because stakeholders emphasized the importance of real-time assessments of the impacts as events unfold. Such evaluations provide "real-time monitoring information in Malawi, which is more granular, and which is coming from the field ... and give a more detailed picture of what the situation is at [the] district level in real-time" (4). Until vulnerability assessments provide absolute numbers, stakeholders "are not really able to completely say 'these are our requirements'" (2). It was not until April 2016, when the impacts of El Niño were more certain, that the President of Malawi declared a State of National Disaster. The declaration triggered the Food Insecurity Response Plan (FIRP), targeting "food security, nutrition, agriculture, health, education, and water and sanitation (WASH)" as critical priorities for immediate assistance (Government of Malawi 2016b: ii). DFID — one of the more proactive donors — released only £GBP 4.5 million in December 2015 for early action, followed by another £GBP 31 million in April when the disaster was declared, and impacts were evident.

Updated information is made possible through close connections to communities and by conducting vulnerability assessments (both ad hoc and regularly scheduled). Organizations with close attachments to potentially affected communities attributed their success in planning appropriate actions to those connections.

It is important to note however that while this information helps to spur response to a disaster, it may not help to spur early action to prevent a disaster from happening in the first place — which is the true value of an El Niño forecast.

#### *Gradual Action & Monitoring – Conclusions & Recommendations*

- Forecasts prompt actors to identify impacts, revise contingency plans, secure or shift funding, and mobilise resources, but shorter-term forecasts and on-the-ground monitoring are essential to moving from planning and early action to disaster response.
- Forecasts are most useful if considered part of a gradual process of planning, monitoring, and refining actions.
- Connections to local communities facilitate monitoring and collection of real-time information.
- Impact assessments are more useful than forecasts in overcoming political obstacles.
- Impact assessments are easier for stakeholders to interpret and translate into action than forecasts.

## Funding

Stakeholders across organizations in all five countries emphasized the importance of timely access to flexible funds to facilitating early action. When funding is not available, contingency plans cannot be implemented, negating the potential benefits of forecast-based planning for early action measures. In addition to significant evidence that the lack of funding slowed, or prevented, early action in several cases, three themes emerged: (1) flexible funding and crisis modifiers improve response times; (2) when governments are reluctant to act, competing disasters in neighbouring areas will eclipse the potential urgency generated by forecasts; and (3) few organizations attempt to capture the impacts of their interventions.

#### *Slow Funding Slows Early Action in Response to Forecasts*

The availability and timeliness of funding were critical factors to determining early action efforts. While contingency-planning can take place as part of everyday operations, funds are needed in order to mobilise any specific actions. Unfortunately, many humanitarian and “development partners don’t have money that is flexible to assist in emerging disasters … so money was available to make contingency plans but not to implement actions” (2). El Niño warnings arrived as early as March 2015, but “warnings were still not met with early action and funding at scale” (Baudot and Hillier 2016: 6). Organizations consulted for this study frequently cited slow funding as a barrier to action.

Pressure to wait until there is confirmation of a disaster appears to play a significant role in delaying funds. Some partners were able to use the forecasts to develop contingency plans and cost estimates, which allowed them to begin raising funds in advance of pending disasters (2). However, many donors are still reluctant to provide money in advance, and responses often remain underfunded until the impacts are more certain. Some organizations found it “difficult to mobilise, to receive resources, based on contingency plans” (2). Others believed the “donors sometimes do not release funds until

[a disaster] happens” (2). Humanitarian informants regularly expressed a sense that both donors and governments “are waiting to see the real people dying, then they release the money” (3).

Feelings aside, resources are always limited, and funding can be a challenge both before and after disasters. Organizations around the world experienced significant funding gaps between humanitarian appeals. In Kenya the contingency plan “was only partially funded” (2) and in Ethiopia, only 51 per cent of the funds needed — according to the Humanitarian Requirements Document — were available as late as March 2016, after impacts were being reported (Venton 2016). As late as June 2016, Oxfam estimated the global funding gap to be \$USD 2.5 billion (Baudot and Hillier 2016) or approximately £GBP 1.73 billion.<sup>3</sup>

### *Flexible Funding Facilitates Early Action*

Projects or donors with flexible funding, on the other hand, were lauded as critical to early action efforts. Most organizations who were able to take early action did so using flexible funds, or through scaling up or modifying flexible projects. In Somalia, stakeholders go through “great lengths to make sure that we have flexible funding” because “it is the difference between what [they are] able to do and what most other NGOs in Somalia are able to do” (2). WFP in Somalia took advantage of flexible internal-funding policies to pre-position supplies before it received funds pledged by DFID, overcoming potential administrative delays (2).<sup>4</sup> In Kenya, El Niño arrived at the end of the year. As a result, DFID reallocated unused funds through the Hunger Safety Net Programme (HNSP) and other existing channels to scale up cash benefits to those already receiving assistance and to expand the programme to people who do not usually get assistance, but could use it for disaster preparedness (2). Flexible funding in Somalia also allowed NGOs to quickly shift focus from flooding to drought when it became apparent drought in the North was becoming a problem (2).

In countries where governments were hesitant to declare an emergency based on a forecast, flexible funding and crisis modifiers allowed preliminary actions to be taken. In Ethiopia, DFID scaled up funding to existing programmes and partners, shifting funds from development programmes to emergency response to meet emerging needs (4). On the basis of forecasts, USAID in Ethiopia shifted its funding to increase the number of districts receiving assistance through existing programmes from 32 to 76. One NGO in Ethiopia acted “earlier than others because of an early action fund and crisis modifiers” (2). As a result of that success, it is expanding an early action fund to make early action disbursements easier. Some donors in Ethiopia also re-programmed some funding so that it could be immediately available once the government declared a need. DFID took similar actions and was therefore able to quickly provide UNICEF and other partners with as much Ready to Use Therapeutic Food (RUTF), alleviating significant suffering.

DFID (and to a lesser degree OFDA, SIDA, ECHO) stood out to informants as those donors with the most advanced funding mechanisms. “To my knowledge the only donor that actually put some money on the table for preparedness was DFID. And all the other donors specifically took a wait and see position” (Somalia). Whereas “DFID scored very highly because of the Risk Facility … certain other large donors found themselves wrapped up in the internal red tape where they weren’t able to make disbursements before it happened” (4). Informants credited the relative success of DFID’s Internal Risk Facility to the fact that it channels money through existing programmes and allows those decisions

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3 In June 2016, the average monthly exchange rate was £GBP 1.4451 to \$USD 1

4 According to informants, WFP is able to advance internal funds to pre-position supplies, but it must wait for pledged donor funds to arrive before it can actually respond.

to be made by actors on the ground who know the context and can make the decisions as events take place (4).

### *Funding in the Context of Competing Disasters*

In a world with numerous humanitarian crises, funding will always be limited. Informants in Kenya, Zambia, and Ethiopia all believed that ongoing emergencies in South Sudan, Syria, Somalia and other neighbouring countries “stretched humanitarian capacity,” and diverted attention from El Niño-related problems (2). This was, unsurprisingly, particularly true when governments were reluctant to declare a crisis or accept external help.

### *Impact Studies*

One challenge to advanced funding may be the lack of concrete impact studies. As we found in this review, few organizations have or take the time to assess their activities and rigorously demonstrate benefits (qualitatively or quantitatively). Although some informants believed the evidence for early action was there, donors remain reluctant to act based on forecasts (2). More attention to demonstrating the benefits of early action may help to overcome this reluctance.

## **The Importance of Flexible Funding**

Timely and flexible funding were widely cited as essential to fast action. The comments below reinforce the value and importance of flexible funding mechanisms in the eyes of humanitarians.

“The primary challenge I think is funding. As you know, most of the emergency preparatory activities were not funded, so it becomes difficult” (2).

Donors “always wait for something worse to happen then they give their funding for support. We shouldn’t wait for a disaster to happen for donors to open up their doors, that is a waste of resources. Because we could save more by doing more and intensive preparedness rather than waiting for something to happen and yet we have the forecast” (2).

“I think where most of the work needs to be done is maybe on the bridge between donors and decision makers — make them realize that they cannot expect perfect information. That doesn’t exist. They will have to act based upon imperfect information; that will fail some of the time” (2).

“When the forecast is going on, there has to be some form of donor commitments around financing or government commitment around financing this. Like I’ve said, this early action piece ... because the forecast is good but without resources, it is not so good. I think DFID are really the leaders in terms of the donors” (2).

“The biggest challenge that we can say — also applied to you guys from the Red Cross — is funding. To have a contingency fund in place which is sufficiently funded to take those early actions. Now we, from our side, we face the biggest challenge in mobilising the financial means to have a small or a midsize contingency fund which can be triggered in those countries which will be most affected by climatic events” (2).

“To be clear there was money that was available that helped ... that pushed ... that encouraged everyone — even the sceptics — to move forward, because when you get the dollars pushing, that moves things as well. And I think that’s part of the game” (2).

### *Funding – Conclusions & Recommendations*

- Timely, flexible funding is essential to early action.
- Crisis modifiers can help organizations to take early action before emergency declarations are made.
- Because resources are limited, declared disasters in neighbouring areas will draw resources away from forecasted problems if governments are slow to request assistance.
- Little funding is available for organizations seeking to help households benefit from El Niño conditions.
- Few organizations attempt to measure or quantify the impact of their early action. Additional studies may help convince donors of the potential value of forecasts.

## **Triggers and Standard Operating Procedures**

Discouraged by slow response through normal funding channels but heartened by the perceived successes of crisis modifiers and more flexible funding mechanisms, many stakeholders suggested the need to develop triggers for action and standard operating procedures (SOPs). Groups, such as the East African Interagency Early Warning Early Action Working Group, are currently developing a set of indicators and thresholds that would trigger pre-defined actions based on forecasts or other assessments.

Humanitarian organizations support the development of such triggers because they determine the actions to be taken in advance (as in scaling up social protection), expediting response processes.

Despite the enthusiasm for developing SOPs, none of the organizations interviewed for this study were prepared to use thresholds, triggers, or SOPs during the 2015–2016 El Niño. These mechanisms may hold promise, but more needs to be done to identify indicators, thresholds, and early actions. Because these mechanisms are new, organizations would do well to monitor and evaluate new trigger and SOP programmes, in order to demonstrate their value to potentially sceptical donors.

### *Risks of (De)Politicising Forecasts*

Although triggers and SOPs are appealing as seemingly objective ways to trigger action, forecasts can be used to “generate” a crisis or raise and distribute funds, thereby becoming a political tool rather than an “objective” trigger for action. Several informants for this study questioned how humanitarian organizations use climate events to raise funds. Some believed, that the 2015–2016 El Niño itself “was looked at as a fund-raising tool by organizations and fund-raising tool for response” (2). And both development and government actors in Ethiopia may have in part disregarded the warnings because they believed humanitarians “want to declare emergencies because they get money” (2). In some instances, funds may expedite developmental or no-regrets activities that will have obvious benefit but may otherwise lack funding. However, good intentions do not erase the potential for politicisation of information and an eventual loss of credibility. At least one of the governments in this study reportedly may have attempted to use forecasts to funnel El Niño support to its constituents rather than those who would be most affected by El Niño. It illustrates how a scientific tool can easily be co-opted and used for political gains. Arguments over what is “the right science” have emerged in other contentious policy debates (Sarewitz 2004). If forecasts are used to justify actions that are clearly politically

motivated, or if the benefits are not demonstrated, meteorological departments and the forecasts they produce could quickly lose their credibility, becoming just another alarm- and fund-raising tool.

Proponents of forecasts are quick to dismiss the risks of acting in vain, but the reluctance among many humanitarian donors and governments to release funds (and act) on the basis of forecasts, is understandable. Advocates of early action believe “donors have to understand that the forecasts you can make about these events are always affected by a level of uncertainty so that should not become an excuse for not taking action early enough” (2). However, hesitancy to act reflects the inherently political nature of resource allocation decisions. There may be political risks for both governments and donors — both of whom will always have limited funds — to disbursing funds in anticipation of crises that may never materialise. For this reason, the concept of no-regrets, discussed in the next section, is particularly appealing.

#### *Triggers and SOPs — Conclusions & Recommendations*

1. Humanitarians see triggers and standard operating procedures as a way of streamlining response to forecasts.
2. Although these mechanisms have promise, more needs to be done to identify indicators, thresholds and associated actions, and to test such early actions in the field.
3. Actions based on triggers should be monitored and evaluated to demonstrate desired benefits.
4. Although automated response may seem more scientific, using forecasts to determine resource allocations may lead to the politicisation of science and loss of forecast credibility in the long-term.
5. Proponents of forecasts and early action must take into account the potential political implications of responding to disasters.

## No-regrets Actions

The value of no-regrets actions was a common theme across interviews in Kenya and Somalia. Informants used the term “no-regrets” to refer to actions that will not result in wasted resources or the feeling of having “acted in vain”. The East Africa Interagency Early Warning Early Action Working Group suggests defining no-regrets as “action undertaken preliminary to a potential crisis (not confirmed at the time of the action) and activated by early warning signs, characterised by a cost-effective use of the funds that will, in any case, benefit the beneficiaries (without creating distortion) whether the crisis happens or not” (EWEA Working Group n.d.).<sup>5</sup>

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5. The East African Interagency EWEA Working Group concepts paper contains two definitions with similar meanings.

**“Definition 1**

The Inter Agency Working Group has defined No Regret actions as ones which are implemented early in the crisis, throughout the crisis and at scale. They are relevant during crisis and seek to support long-term, strategic priorities or responses which manage the risk, not the crisis. The idea of no-regrets action is based on probabilities and argues that the benefit of acting timely overweight the cost of acting in vain. While perhaps simple in concept, it has been difficult to define in practice.

**“Definition 2** (suggested definition, based on the understanding that many members of the group had, and maybe easier to define in practice...subject to any adjustment by the group)

A No Regret action is an action undertaken preliminary to a potential crisis (not confirmed at the time of the action) and activated by early warning signs, characterised by a cost effective use of the funds that will, in any case, benefit to the beneficiaries (without creating distortion) whether the crisis happens or not.”

No-regrets actions include purchasing and pre-positioning supplies or implementing projects that will increase resilience to future threats. In Somalia, BRCiS partners attempted to identify actions that would contribute to future disaster response, development, or well-being even if those actions were not used to respond to the specific disaster event for which they were intended. Because Somali rivers flood nearly every year, “identifying likely breakage points in river banks and fortifying them” (4) was likely to provide benefit at some point in the future. In some areas, BRCiS partners implemented “all the [flood] preparations for El Niño, and nothing happened. But, six months later, there was a flood which would have been much bigger if there was no preparation for El Niño six months before” (2). So although the preparations did not have an immediate impact, they were still considered beneficial. In Kenya, cleaning road drainage systems was likewise considered a no-regrets action. Even if El Niño floods did not materialise, it would protect the infrastructure from future heavy rains (2). In essence, no-regrets actions bridge longer-term development or resilience and humanitarian response by using forecast triggers to justify projects that benefit communities and manage risk.

Interview data suggest that no-regrets actions may be easier to identify and justify in countries or contexts where humanitarian assistance is needed on a regular basis. Ongoing security concerns and frequent flooding in Somalia means that, in most cases, organizations “will either use [supplies] in another region because you can move them around, or you can use them in the same place in the next season. It is very unlikely that you will regret it” (2). Likewise, in Kenya, “there are certain areas where you are going to have hotspots of floods and droughts. So if you prepare with that context, you’re not really gonna go wrong because El Niño only makes it a little bit worse” (2). Because no-regrets actions were most commonly mentioned in the context of recurrent hazards, their applicability to less-chronic hazards needs to be explored.

A no-regrets approach requires flexibility and understanding on the part of the donors. This flexibility is essential so that (1) organizations are not penalised for taking actions that may not be immediately necessary; and (2) funds or items can be repurposed down the line in response to different events. Partners in Somalia applauded DFID for championing the no-regrets approach — “challenging us and pushing us to react” and look for no-regrets options (2).

The concept of no-regrets actions is clearly useful in some contexts, but it is still highly subjective, and it may not be universally appealing. Proponents of no-regrets emphasized that actions “should be commensurate with the probability and availability of resources” (2), but political considerations may also be important. In some countries there may be significant political consequences for taking action. If governments consistently act on forecasts for which events do not materialise, distributions based on forecasts could eventually be perceived as favouritism, eroding trust in the science. Therefore, in some instances, it may be better to maintain the separation — preparedness and development aligned to actions that are triggered by forecasts. It is up to those providing the money and implementing the programmes to decide what level of investment is appropriate and at what point they will regret having invested in certain programmes.

Most informants were convinced that the cost of preventive action far outweighed the cost of disaster response, but only one (Concern Worldwide in Somalia) had attempted to prove this through impact assessment or cost benefits analysis. Given donor’s reluctance to fund forecast-based activities, humanitarians would do well to document their no-regrets actions more rigorously.

### No-regrets – Conclusions & Recommendations

1. No-regrets actions refer to interventions that can be initiated based on forecasts but will provide a benefit regardless of whether an extreme event occurs.
2. No-regrets actions may be easiest to identify in areas that suffer from recurrent crises.
3. No-regrets actions require buy-in from donors and flexible funding.
4. Organizations can identify no-regrets actions in advance of forecasts.
5. The concept of no-regrets is subjective. Donor and governments may have different levels of tolerance to interventions that are not immediately needed.
6. More work needs to be done to define acceptable levels of risk or investment in no-regrets actions based upon various forecast probabilities.
7. There is a need to document the outcomes of no-regret actions more rigorously.

#### No-regrets

Many informants spoke of the value of no-regrets programmes:

“The approach was that if the flooding had been massive and destroyed all these preparations for farming, too bad, but at least there was a chance that it could be solved. This no-regret approach works a little bit on two sides” (2).

“If we take it from a much more ‘no-regrets’ framework of thinking so, then quite a lot of our investments can be done in a way. So actually we can prepare and then, if the event doesn’t happen, it’s not wasted anyway. Investments in training some of the communities in areas that are routinely affected by those disasters, is not wasted anyway” (2).

“It ended up that they were not used for their initial purpose; however, those assets were still used and they ended up on other components of the overall humanitarian operations, so it’s not a total loss. But again, those commitments had to be made, and that’s why management was brought in very early in this whole process” (2).

#### Social Protection Systems

Evidence from Kenya suggests that pre-established beneficiary and delivery systems can be used to quickly and successfully provide pre-emergency benefits based on forecasts. The Kenyan experience also highlights, however, that such pre-disaster disbursements may be taken “in vain,” as events may not affect all of those who receive benefits. Therefore, governments and donors need to be willing to accept a no-regrets approach when it comes to pre-emergency disbursements.

In countries where safety net systems were not fully set-up for disaster response, stakeholders were unable to effectively use social protection programmes to respond early to the 2015–2016 El Niño (see individual cases for more details). In Zambia DFID and other NGOs were piloting efforts in several districts to provide emergency cash transfers to those affected by the 2015–2016 El Niño and to learn from this experience. In Malawi, multiple funding streams and parallel databases of beneficiaries prevented stakeholders from scaling-up.

Perhaps because of these challenges, the 2015–2016 El Niño prompted dialogue in Zambia and Malawi as to how to better use safety net systems in future crises. These experiences taught stakeholders that “a social protection programme started in the middle of an emergency is not as successful as an existing social protection system or mechanism that is scaled up” (2); the mechanisms for service delivery and for scaling-up need to be determined in advance. More research is also needed to understand whether people who qualify for normal social protection programmes are more vulnerable to disasters.

#### *Social Protection Systems – Conclusions & Recommendations*

- Beneficiary identification and registration, and cash delivery systems (bank account information, etc.) need to be set up in advance of crises to ensure prompt action.
- NGOs and governments should work together to determine how to scale such systems in advance of actual crises.
- In order to know who to target during disasters, more research needs to be conducted into whether households receiving social protection benefits are particularly vulnerable to disasters and into which populations would benefit most from additional social support in times of crisis.



Raimond Duisens/NLRC

## Political Considerations

As the narratives in earlier chapters clearly demonstrate, political considerations can easily overshadow forecasts. For politicians (and many donors), given the risk of acting in vain, it may be politically safer to wait until a disaster has occurred than to take proactive measures. If a forecast event doesn't occur, it's very easy for "people to start asking, and challenging, and saying that was a waste of money, the event didn't happen" (2). Both politicians and donors may then be in the position of explaining why they spent money on interventions that were not needed. In the case of politicians specifically, preventive action could be perceived as wasteful, or as an excuse to benefit their constituents. Declaring a disaster early may make governments look weak or unprepared, whereas responding to disasters may not. "It makes [politicians] look good when they distribute blankets ... when they distribute mosquito nets. It makes them look better to their voters rather than when they start building dykes" (2). This leaves humanitarians, who would prefer to depoliticise resource allocation, in a difficult place. In countries with strong governments, "unless the government declares that there's a need, [NGOs] should not show up with your resources to help" (2). Decisions about how to allocate resources are inherently political, and therefore delay humanitarian response to forecasts.

### *Political Considerations – Conclusions & Recommendations*

- For many governments the political implications of acting on forecasts may outweigh the potential for crisis, delaying early action regardless of forecast lead-times.
- Because governments may be reluctant to declare the need for emergency response, agreements between governments and humanitarians (or national legislation) must specify that forecast-based early action or appeals are distinct and separate from official emergency declarations; this may alleviate some political obstacles to early action.

## Other Influences and Findings

### *Contingency Planning*

Every organization interviewed for this study used forecasts to modify or develop contingency plans in response to early forecasts. These plans outline scenarios and possible responses to hazard events likely to be associated with El Niño. Contingency plans allow actors to "plan based on available information ... and, if the situation does not materialise as forecasted, then there is no response" (2). Updating contingency plans are the most logical response to the earliest, least certain, forecasts because it is a low-cost activity that takes place every year (or every few years) irrespective of specific forecasts. Contingency planning is the logical first step in the gradual planning described above. Before stakeholders can act, they have to develop plans and coordinate who will be responsible for various actions.

Another lesson regarding contingency plans is that having a contingency plan is only the first step; both funding and motivation are required to move from plans to early action. At the GHACOF 41 meeting in late August 2015, the governments of Kenya, Ethiopia, and Somalia shared their contingency plans and budget requirements. However, only Kenya and Ethiopia had committed some funds, whereas Somalia anticipated using its plan to appeal for funding (IGAD & ICPAC 2016). As of GHACOF 42 in February 2016, Kenya was still approximately \$USD 35 million (KSh 3.52 billion, £GBP 24.41 million) short, and

Ethiopia still needed \$USD 174 million (£GBP 121.35) to fully fund those contingency plans (IGAD & ICPAC 2016). Without funding, contingency planning is a relatively fruitless form of early action.

#### *Negative Experiences with El Niño Motivate Action*

In both Somalia and Kenya, past negative experiences proved a strong motivator for early action. Because they remember the catastrophic events of the 1997–1998 El Niño, even the general population in Kenya understands the potential gravity of the impacts. Government and humanitarian stakeholders alike were committed to preventing similar levels of damage. In the end, the precipitation in Kenya was not as intense as it had been in 1997, leading informants to remark that “somehow maybe [responders] were too well prepared” (2) or “a little over-hyped” (2), though both were still committed to early action.

Humanitarians in Somalia were eager to take early action because of a number of past experiences. Several informants cited the collective failure to respond to early drought warnings in 2011 as an impetus for early action. Many in Somalia also remembered the impacts of the 1997–1998 and 2006 El Niños, so “there was — and still is — a lot of pressure from the donor community and from humanitarian actors, in general, to be more responsive” (2). These experiences suggest that “trauma” from failure to respond to past forecasts likely encourages organizations to respond more promptly down the line.

#### *Realising Potential Benefits*

Of the 57 organizations interviewed for this study, only BRCiS, SRCS in Somalia, and KRCS in Kenya reported attempting to help people reap benefits on the basis of the forecasts. Although increased rainfall in El Niño years is more commonly associated with floods, it can also be a boon to farmers and pastoralists in arid regions. Recognising this potential, these organizations took measures to procure and distribute seeds in the hopes that farmers would obtain “bumper harvests.” The risk of losing money purchasing and distributing seeds that might still wash away or not receive enough rain was considered worth the potential benefits to farmers.

Most organizations immediately looked to analogue years to identify and plan for potential harms, but none mentioned looking to the past to learn of possible benefits. The documented success of seed distribution in Kitui, Kenya, and scantily documented successes in Somalia, suggest that increased efforts in identifying possible benefits might be a valuable response to future El Niño forecasts.

Despite this promise, lack of funding for positive action may hinder efforts to explore benefits. As the KRCS remarked, donors are not used to funding on the basis of forecasts in general and funding positive projects, perhaps even less. To make a case for such funding in the future, there likely needs to be more dialogue between donors and humanitarian organizations as well as additional scoping of low-cost or no-regrets projects that might make sense in the future.

### *Collaboration Facilitates Early Action and Response*

Successful coordination between NGOs, UN Agencies, and government officials was widely cited as essential to El Niño early action and response efforts. Contingency planning often facilitated such collaboration, reducing overlap and ensuring that different sectors and clusters were well considered. Kenya most clearly demonstrated government coordination of national response efforts, but informants believed coordination was important in other countries as well. In Zambia, the ability of NGO stakeholders to work together to collect information and move the response forward was cited as essential to the El Niño campaign that got underway eventually. The group “felt very comfortable working at that level together sharing efforts and sharing information” (2). These stakeholders were only able to get permission to conduct their assessments because of their joint influence. Partners felt it would have been much more difficult to influence the government had they been working independently. In Ethiopia, when the government and humanitarian community responded to the eventual impacts of the El Niño was through strong coordination between the Government of Ethiopia, NGOs and donors working in the country. “We needed to see action by everybody. Because there wasn’t gonna be one agency or NGO saving the day, so it requires massive collective effort. So in order to publish [the HRD], we needed to have WFP on board, UNICEF on board, we needed to have the NGOs on board, we needed to have the expertise of the government, we needed to have everybody agree. All this in a week’s time, so that is what we did” (2). Organizations in Somalia “worked as a team really well”, enabling them to interpret the forecasts together and have fruitful discussions about “the smartest and best ways of responding to this early information” (2). Conversation among different organizations drove “out of the box” thinking and innovation regarding what activities could have the most impact in light of the information available.

### *Prioritising Action Based on Consecutive Events*

Stakeholders in Somalia described similar scenarios and advocated for monitoring conditions and prioritising areas affected by consecutive shocks. Because of limited resources, and the fact that the impacts of climate events are not felt uniformly across most of the country, humanitarian informants suggested monitoring weather and climate patterns and their impacts locally to identify areas affected in two consecutive seasons. In any given year, the rains will likely be insufficient in some or many areas of Somalia. Using the Africa Flood & Drought Monitor, CWW can identify areas in which there are two consecutive bad seasons. Those suffering from back-to-back crises are likely to be more severely affected and can be prioritised for humanitarian assistance. The Africa Flood & Drought Monitor was cited as having the most useful forecasting information available because it allows partners to track the likelihood of flood or droughts in specific areas of Somalia.

### *Forecasts Can Narrow Humanitarian Focus Too Much*

International attention to forecasts and their likely impacts also have the potential to focus attention away from other potential drivers of risk or unexpected scenarios. For example, aid representatives in Somalia looked to past years to understand the potential impacts, and because trend analysis of past events did not indicate drought, the humanitarian community focused on potential flooding in the south rather than the drought in the north. The El Niño forecasts combine with past analysis caused humanitarians in Somalia “to be taken by an event that never happened and, in some ways, [we] almost put on blind[fold]s as humanitarian community because the word El Niño was there” (2). As a result, they found themselves in a “situation where there were no floods, [at least] not at the level

that we expected, but there was a drought in the north" (2). It then "took a bit of time for everybody to realize or accept that we have an event that is taking place in a totally different location that was not part of the plan" and to begin raising funds for the drought and advocating for intervention in the North. Forecasters also emphasized that El Niño impacts may not manifest as they have in the past. As a result, focusing too closely on past events may lead to overly narrow planning.

### *Flood Forecasts Prompt Faster Action than Drought Forecasts*

Organizations in Malawi, Kenya, and Somalia described relative success in taking early action to mitigate floods. In all three countries, disaster managers were able to pre-position necessary supplies in preparation for potential floods. Flooding affects specific areas and communities, and the actions to be taken (pre-positioning transport, sandbags, disseminating warnings, and acquiring other supplies for quick disaster response) are relatively low-cost and low-regret. Humanitarians were accustomed to floods, and "knew what engineering was required" to mitigate the impacts (2). As one informant explained, "if you say there's a probability there's going to be flooding in Uganda, there are specific spots that there is going to be flooding not the whole part of Uganda. The forecasts may be giving a bigger picture, but the actual [event] may be localised" (2). Flooding is often localised; by combining the forecasts with more extensive knowledge of hydrology and livelihood patterns, organizations like SWALIM and FSNAU, can provide relatively simple, actionable information. As a result, informants were far more confident and pleased with their responses to flood forecasts than to drought forecasts.

In contrast to the successes organizations had in mobilising for floods, response to drought forecasts was generally slower and considered far more complicated. Because the effects of drought are more diffuse and slower to materialise, "drought is just a lot more complicated, and we [the humanitarian community] haven't really articulated clearly what the preparedness actions are" (2). In the case of drought, "it just wasn't so possible to trigger early action" because the information available was more general and the connection between the data and the actions to be taken was less straightforward (2).

Perhaps because responses are more complicated, consistent monitoring and on-the-ground impact assessments were more effective than forecasts in triggering response to droughts. Although humanitarians were quick to respond to flood forecasts in Somalia, drought forecasts were either overlooked or ignored. Partners there needed to "wait until FSNAU post-Deyr [assessment] was released to be able to talk about the severity of the drought and to actually respond" (2). The tendency to wait for impact assessments and overt suffering (whether political, intentional or something else) to trigger disaster response, prevents humanitarians from taking early action no matter what the forecast.

### **Why is flooding easier than drought?**

One informant summarized the contrast between floods and droughts particularly nicely:

"Basically I'm more concerned with drought than I am with flooding. Flooding is pretty localised. That's important because we know the places that flood, more or less. It makes it much, much easier to respond flooding because, okay, now we narrowed it down to 70 villages instead of 1,000 villages. That makes your job a lot easier. We also have some pretty tangible things that we can do to mitigate flooding — preparing banks, pre-positioning sandbags — [the] community is gonna respond with those right away or while [the] flooding is taking place" (2).

### *Other Considerations — Conclusions & Recommendations*

- El Niño can help organizations focus on specific response strategies, but humanitarians should also remain vigilant as events unfold.
- Countries in which El Niño may have different impacts in different regions should take care to understand geographical differences.
- Failure to act early to past extreme events can be a powerful political motivator to both NGOs and governments.
- El Niño can have positive, as well as negative, impacts.
- Few organizations consider early actions that might help people take advantage of beneficial El Niño conditions.
- There is limited funding for interventions that can help people take advantage of benefits.
- Donors and organizations should give greater thought to potential benefits.
- Collaboration among organizations and government agencies was essential to coordinating early action in all countries.
- Mechanisms for coordination should be clearly defined in advance to prevent duplication of efforts.
- Response to flood forecasts is more straightforward than response to drought forecasts.
- Humanitarian stakeholders need to work to identify early responses to drought forecasts in advance of specific forecasts.

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## Annex A: Overall Timeline

In addition to the image below, timeline files have been provided to DFID as Aeon and PDF files. Events in the timeline are color coded by country as follows.

### **Timeline Color Key:**

Red – International forecasts or events

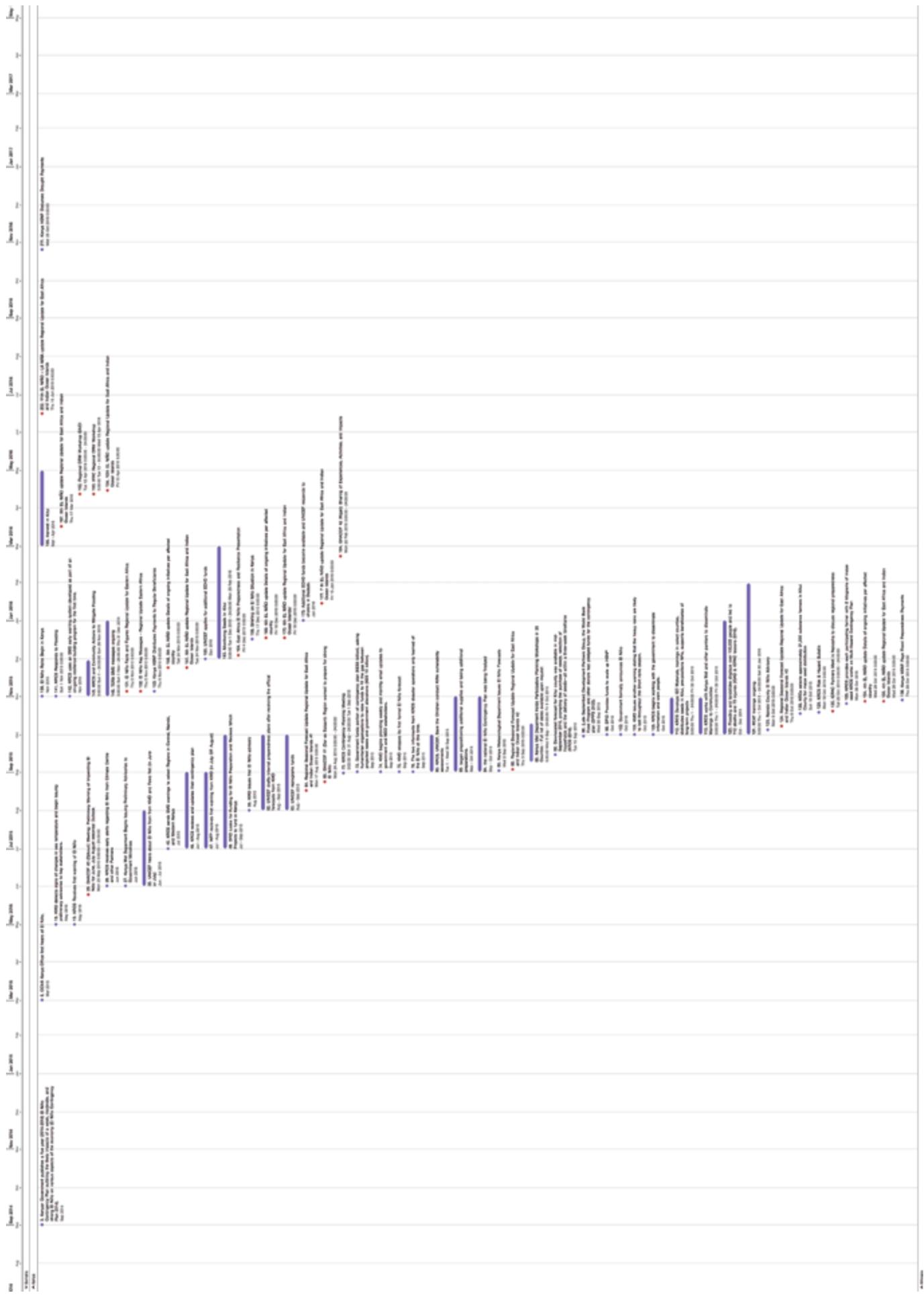
Orange – Somalia

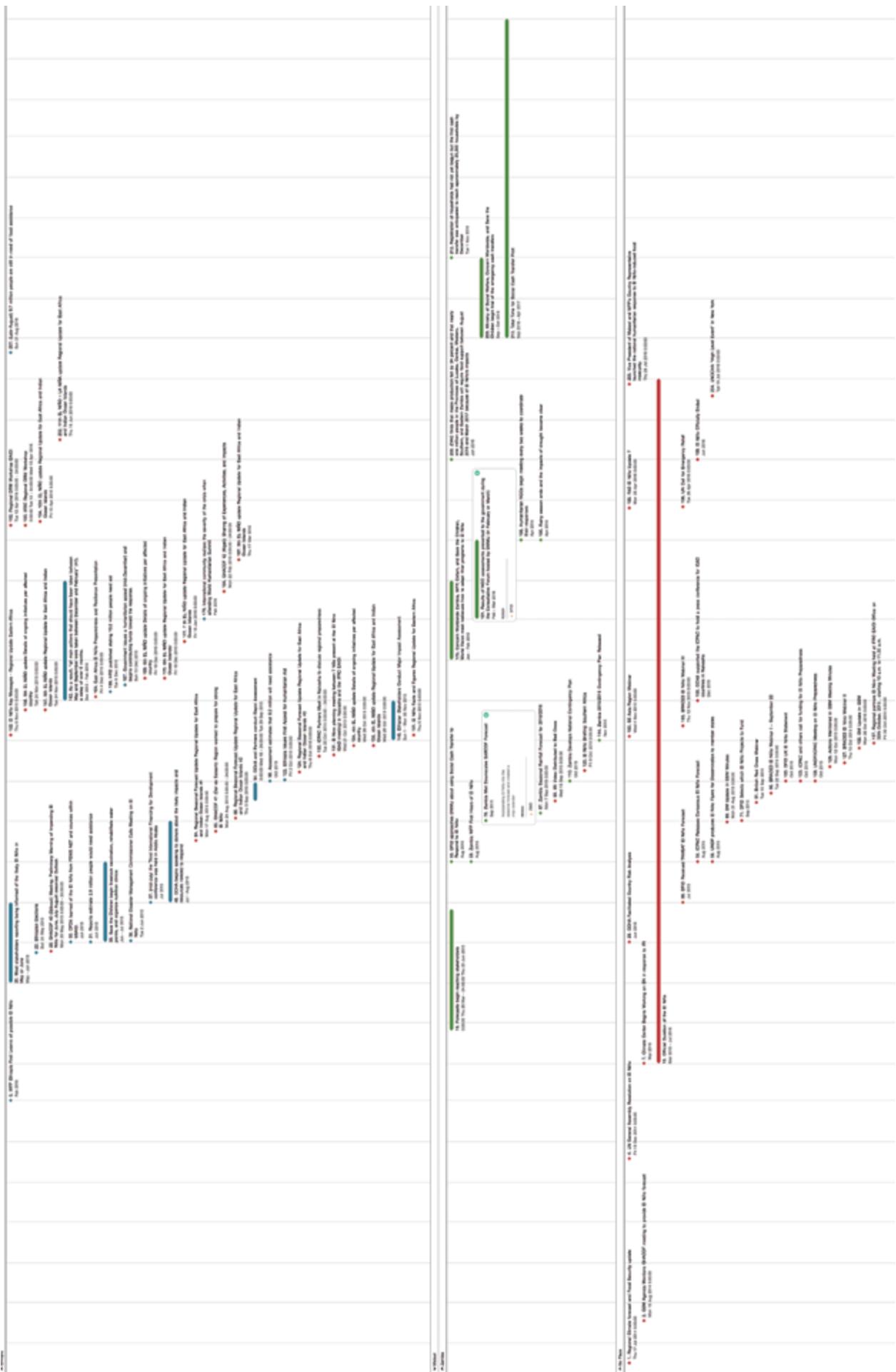
Yellow – Malawi

Green – Zambia

Purple – Kenya

Blue – Ethiopia





# Annex B: Terms of Reference

Understanding the use of forecasts in preparing for and delivering the humanitarian response to the El Niño

Draft v2.0 (22nd April 2016, Nicola Ranger)

This ToR is for research assistance/partnerships in reviewing how climate forecasts were used in preparing for and responding to the impacts of the 2015–16 El Niño. It also explores the role of recent innovations to shock-responsive systems, such as social protection, in enabling earlier action based upon forecasts. We envisage a close partnership with DFID advisors during the project. The products will support DFID and counterparts in developing best practice in the use of forecasts in future disasters.

## 1. Objectives

**The overall objective of this project is to identify and share best practice in using climate forecasts to deliver timely, efficient and effective humanitarian response to climate-driven disasters. It will also provide evidence on the role of shock-responsive systems, such as adaptive social protection, in enabling earlier action based on forecasts.**

This project will review how climate forecasts were used by key humanitarian and development organisations in preparing for and responding to the impacts of the 2015–16 El Niño and assess the outcomes (i.e. actions on the ground) and impacts (e.g. lives saved) that resulted. It will assess the pathway through which information led to actions and will identify key actors, approaches, and events that ensured successful uptake and use of forecasts to inform action. From this, it will draw out learning and recommendations on best practice.

## 2. Key Research Questions

The project will address the following key interconnected research questions:

### *Which information was used?*

- a. What sources of information were important initially in driving action? (e.g. media, online sources, internal communications, national communications, international organisations, met services forecasts).
- b. What (if any) climate-related information was accessed and used by key humanitarian and development actors in preparing for and responding to the impacts of the 2015/16 El Niño (e.g. the types and sources of information)?
- c. Which information was most pertinent in driving action and why was this type/source particularly important?

### *How did information influence the decisions and actions?*

- a. What was the course of events that led from information to action; what were the key decision points? What role did climate information play?
- b. What other factors were important in driving the timeline of preparation and response (e.g. logistical considerations, approvals of funding, requests for support from government, agreements by coordinating bodies)?

- c. How did uncertainty in forecasts influence action? e.g. was uncertainty a barrier to action? did the actors wait for a level of certainty to be reached before acting, or did activity ramp up gradually as certainty improved?
- d. Where any other barriers important in limiting the uptake and use of information and delivery early action based upon this?

*Role of communication, trust and dissemination?*

- a. How well did the humanitarian actors understand El Niño prior to the event? Was knowledge improved? Did this create constraints?
- b. How well did humanitarian actors understand the forecasts that were available? Did they find any source of information particularly helpful or particularly unhelpful and why? What challenges were encountered in interpreting the forecasts and using them to guide action?
- c. What is the perception of the quality of communication of the forecasts to the humanitarian community (e.g. the format of forecasts and dissemination channels)? How could this be improved?
- d. What role did national or regional information (e.g. RCOFs) play vs. globally-derived forecasts (e.g. from Met Office, ECMWF and NOAA?)
- e. Which information was most trusted and why?

*Have innovations in disaster preparedness and response since the 2011/12 droughts led to earlier action and how has this mitigated the impact of the El Niño? It has been suggested that countries/regions with existing shock-responsive systems, were able to respond more quickly based on forecasts. What is the evidence for this and what can we learn for future systems? E.g.*

- a. What advances and innovations have we observed in disaster preparedness and response at an international, national or sub-national level since the 2011/12 drought and what role did these play in facilitating earlier action in 2015/16?
- b. What role did shock-responsive systems, e.g. social protection systems, play in driving earlier action in response to the El Niño? Is there evidence that countries/regions with shock-responsive systems were more responsive than those without them? What types of shock-responsive systems proved most effective? Did they prove more effective than more traditional humanitarian response? Are there any counter examples?
- c. What was the process through which systems, social protection or otherwise, made use of climate information and forecasts, what were the steps between information and action, and what was the impact?
- d. Did any barriers limit the effectiveness of the information in driving the response of shock-responsive systems?
- e. How did these systems respond to the 'false alarm' El Niño in 2014? Did this impact the response in 2015/16?

*Is there evidence that information led to earlier action and avoided losses?*

- a. What is the objective, quantitative and qualitative, evidence that information drove earlier action and avoided impacts? What factors were important here?
- b. What was the (approx.) scale of the avoided impacts?

*What is the perception of key actors on the value of information to the response?*

- a. Is there a perception from the humanitarian and development actors that climate-information was important in driving earlier action and avoided losses?

### **3. Methodology**

The project will focus on four countries: Ethiopia, Kenya, Somalia and Zambia (further countries could be added). For each country, key humanitarian and development actors to be included will be identified. This includes, but is not limited to, DFID country offices, DFID HQ and other key donors (e.g. USAID), UNOCHA, various Social Protection programmes, World Food Programme and Red Cross. Key actors in these organisations will be interviewed – our preference is for structured interviews rather than surveys. In some cases, DFID advisors will join these interviews, particularly those with DFID country office staff. Results should be based on objective data collected through field work, though subjective information, such as perceptions of key actors, is also valuable.

**The research team will provide a summary of recommended humanitarian and development actors and other stakeholders to include in the study and these will be agreed with DFID prior to proceeding with the analysis.**

**The research team will propose a method and analytical framework to address the research questions. This will be agreed with DFID. We envisage that this will include the following:**

*Phase 1:*

#### **Analysis of Global/regional/national forecasts**

- Assembly of a timeline with data on the main global/regional/national forecasts of the El Niño (and its impacts) that were (a) available to and (b) used by humanitarian and development actors, with associated data including regarding uncertainties and communications channels. Data sources will include (not limited to), for example, IRI, NOAA and Met office forecasts, FEWSNET and RCCOF advisories and national met service information.
- In addition, assemble data on other sources of information identified as important, e.g. agencies communications, media reporting.

#### **Identifying a timeline of decisions and actions**

- Assembly of a timeline of data on decisions and actions taken by the key humanitarian and development actors and other relevant stakeholders. This should include data on allocation of resources, e.g. dates and amount of funding committed, as well as key meetings, actions, statements etc.
- Identification of when key information, including forecasts and climate data, were received and collection of information on how this influenced the decisions and actions, including qualitative information from interviews, as well as objective evidence demonstrating how information was used (e.g. briefings, reports, etc.).

#### **Drawing preliminary conclusions**

- Address the research questions using the data gathered above and information obtained through interviews with key humanitarian and development actors and other stakeholders.
- Be transparent about the limitations of the analysis, e.g. the assumptions made and the balance between factual data and perceptions.

## *Phase 2:*

### **Estimating impacts avoided**

- A full formal impact evaluation is beyond the scope of this study. New data collection on the impacts of the El Niño and impact avoided through the use of forecasts is not expected. However, we expect the team to make use of existing data sources to provide estimates, and where possible, to leverage other research and evaluation initiatives to provide more robust quantification. This might include, for example, ongoing humanitarian evaluations in the region and research/evaluations on shock-responsive social protection.
- Gather and analyse available information on the disaggregated impacts of the El Niño in the country.
- Develop a framework for analysing (qualitatively and quantitatively) the link between humanitarian/development actions and losses avoided, using well-reasoned and transparent assumptions. We expect this to make use of a Theory of Change to support the framework.
- Provide estimates of the losses avoided due to humanitarian actions and any developmental shock-responsive actions.

### **Drawing final conclusions**

- Finalise conclusions, drawing in additional analysis where necessary
- Draw out best practice and test this with DFID advisors and others.
- Draw initial recommendations on how the process of information into action could be improved

## **4. The team**

We envisage that the research team will include the following characteristics and expertise:

- Excellent awareness of the humanitarian landscape in the focus countries and existing links with key humanitarian actors to facilitate the interviews.
- Excellent awareness of shock-responsive systems.
- Recognised ability to provide an objective view in this area
- Technical expertise in seasonal and sub-seasonal weather forecasting
- Experience/expertise in humanitarian preparedness and response
- Track record of conducting similar research

## **5. Deliverables**

|  |                       |
|--|-----------------------|
| Initial kick-off meeting with DFID London .....  | Start June 2016       |
| Scoping report: methods and framework.....   | End June 2016         |
| Meeting to agree methods and framework and<br>agree humanitarian/development actors to interview.....          | End June 2016         |
| Interim report on Phase 1 findings.....  | End July 2016         |
| Interim report on Phase 2 findings, including<br>initial conclusions on best practice and recommendations..... | End August 2016       |
| Workshop on best practice .....  | September 2016        |
| Final report.....  | End of September 2016 |
| Communications on findings .....   | End of October 2016   |

### **Contacts:**

The main contacts will be Nicola Ranger and Yves Horent of the Department for International Development (DFID)

## Annex C: Interview Instruments

This is the tool used for humanitarian actors who represent the majority of informants interviewed for this study. The tools used for Forecasters and Social protection express are available upon request to the Red Cross Red Crescent Climate Centre.

### **Humanitarian Organization Interview Guide:**

#### **Understanding the use of forecasts in preparing for and delivering the humanitarian response to the El Niño**

Interviewee Name and Title: [Type here]

Organization: [Type here]

Date, Time, & Location: [Type here]

Interviewer Name:

#### *Instructions to interviewers:*

Keep in mind our general objective:

**To obtain “documentation of the forecasting products that were made available at national, regional and global levels, communication channels for sharing these products, the decisions and actions that were, or were not, made based on these products or other sources” (ToR).**

The following is meant as semi-structured interview guide (rather than a structured more survey-like tool). The purpose is therefore to guide discussion so that each of the questions is answered, but not necessarily in the order presented here. You may not have to ask every question in order to get an answer. It is best to start the discussion with general questions, and follow-up with more specific questions as necessary to get sufficient detail. The numbered questions are more general and the lettered sub-questions may be asked if additional detail is needed in order to answer all the questions. Prompts are also provided should you need to clarify or provide examples. In general, it is best only to use prompts if it becomes clear that additional clarification is needed (the respondent stalls, answers a different question, or asks for clarification).

The language below was selected so as not to lead the respondents to particular answers. In general, it is best to ask if something happened (for example *if* the respondent received forecasts, or *if* they were able to respond to forecast and follow up based on their response rather than launching immediately into: “how did you respond to X forecast?” The latter assumes there was a response and may lead the informant to attempt to provide the “right” response rather than recounting what actually happened.

*Research Permission:*

Do you have any questions regarding the purpose of this research?

Do I have your permission to record this interview?

- Yes
- No

*Semi-structured Interview Questions*

**Interview Questions**

**A. Background**

1. To begin, please tell me more about your role in your organization (and in receiving and responding to forecasts).
2. In your understanding, briefly, what is El Niño? How/when did you first learn about EL Niño as a phenomenon?
3. What are the anticipated impacts of El Niño in your country?

**B. Forecasts & Action**

4. Did you or anyone in your organization receive information, forecasts or warnings of the 2015-16 Niño?

**If not,** skip to Section D below.

5. Would you be willing/able to share the forecasts with us (especially if via email)? If yes, I will get these documents from you at the end of the interview or via email.
6. When was the earliest you remember hearing of El Niño? From what source?
7. Did your organization undertake any new programs or activities in response to the 2015/16 El Niño forecasts?

**If not,** skip to Section D below.

8. **If yes,** please describe your organization's process of planning for and preparing for potential El Niño impacts
  - a. What sources did you get information from? (*Prompt: Media, forecast from Met Service, international forecasts, other organizations etc.*)
  - b. *What was the course of events that led from information to action?*
  - c. What were the key decision points?
  - d. *What role did climate information play?*
  - e. Were there multiple sources of forecast information?

- f. How did this information reach you (email, telephone, word of mouth, you requested it etc.)? (If multiple methods, which one was most preferred/effective?)
- g. Were the forecasts accompanied by any advice, suggested actions, sector-specific warnings?
  - i. If yes, what were they? Were they useful?
- h. Did the warning include information on potential impacts of El Niño in your area?
  - i. If yes, what are the anticipated impacts of El Niño in country X?

**C. Usefulness of Information** (if not covered in the discussion above)

- 9. Which information did you use in preparing for and responding to the impacts of the 2015/16 El Niño (*Prompt: media, online sources, internal communications, national communications, international organisations, met services forecasts*)?
  - a. Which information was most useful? Why?
  - b. Which information prompted action?
  - c. Which information was least useful? Why?
  - d. What other information would you have liked to have had?
  - e. How might the information have been improved?
  - f. Did uncertainty in forecasts influence action/in-action? (*Prompt: was uncertainty a barrier to action? did the actors wait for a level of certainty to be reached before acting, or did activity ramp up gradually as certainty improved?*)

**D. Successes & Challenges** (if not covered in the discussion above)

- 10. In your opinion, what were the primary successes, achievements or benefits of your early response to El Niño forecasts? (*Prompt: Institutional Readiness to Respond? Reducing losses or damages? scale of impacts avoided?*)
- 11. What were the primary challenges of responding to the El Niño forecasts?
  - a. What other factors influenced your organization's ability to prepare and respond to the El Niño forecasts?
  - b. Were there any barriers to the use of the information for early action? (*Prompts: logistical considerations, approvals of funding, requests for support from government, agreements by coordinating bodies*)
  - c. Did you encounter any problems in trying to interpret the forecast and associated warnings? (*Prompt: Were you able to understand the format of the El Niño forecast without outside help/expertise?*)
  - d. In your opinion, how accurate or credible are the El Niño forecasts produced for your region/country?
- 12. Based on your experience, what suggestions would you make to improve El Niño forecasts or their dissemination in the future?
  - a. What other information would you have liked to have had?
  - b. How might the information you received have been improved?

## **E. Previous El Niño Events, Social Protection & Lessons**

- 13.** Were you involved in any El Niño preparedness in 2011/2012 or during earlier El Niños? If yes, was the 2015–2016 response different in anyway? How?
- 14.** Did you receive any information regarding an El Niño in 2014? If yes, did this impact the response in 2015–16?

## **F. Closing**

- 15.** Anything else related to preparedness and the use of El Niño forecasts we did not cover that you think is important for us to understand?
- 16.** Anyone else in your organization or other organizations working in your country that you recommend I speak to?
- 17.** Do you know of any studies of El Niño impacts, or impacts avoided, from your country?

## **G. Get Documents – if possible**

- Copies of any emails etc. of forecasts or warnings received
- Any impact studies that might be available







