

# Early Warning and Early Action for Increased Resilience of Livelihoods in the IGAD Region

## Report 2. Description of Regional and National EW-EA Systems

A Feinstein International Center Working Paper



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## Acronyms

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ACAPS	Assessment Capacity Program
AFI	Acute food insecurity
AFIA	Successor to SIFSIA
AoK	Area of Knowledge
ASAL	arid and semi-arid lands
BRCiS	Building Resilient Communities in Somalia
CEWARN	Regional Conflict Early Warning Project
CFI	chronic food insecurity
CLiMIS	Climate Information System
DEWS	Drought Early Warning System
DISK	Data and Information Subcommittee of the KFSSG
EA	early action
ECHO	Office of European Civil Protection and Humanitarian Aid Operations
ECMWF	European Centre for Medium-Range Weather Forecasts
EW	early warning
EW-EA	early warning/early action
EWS	early warning system
FAM	World Bank Famine Early Action Mechanism
FAO	UN Food and Agriculture Organization
FEWS NET	Famine Early Warning System Network
FRC	Famine review committee
FSNAU	Food Security and Nutrition Analysis Unit (Somalia)
FSNMS	Food Security and Nutrition Monitoring System
FSNWG	Regional Food Security and Nutrition Working Group
HAC	Humanitarian Aid Commission
HEA	Household Economy Analysis
HFPS-HH	high frequency phone survey of households
HNO	Humanitarian Needs Overview
HRP	Humanitarian Response Plan
ICPAC	IGAD Climate Prediction and Applications Centre
IGAD	Inter Governmental Authority on Development
INT	Integrated Needs Tracking system
IPC	Integrated Phase Classifications
IRI	International Research Institute for Climate and Society
KFFSG	Kenya Food Security Steering Group
LEAP	Livelihoods, Early Assessment and Protection
LIAS	Livelihood Impact Analysis Sheet
MAAIF	Ministry of Agriculture, Animal Industries, and Fisheries, Uganda
MESH	Monitoring and Evaluation Somalia Humanitarian
MHADDM	Ministry of Humanitarian Affairs and Disaster Management (South Sudan)
MUAC	Mid-upper arm circumference
NDMA	National Drought Management Authority (Kenya)

NDOC	National Disaster Operational Centre
NDRMC	National Disaster Risk Management Commission (Ethiopia)
NDVI	normalized difference vegetation index
NGO	Non-Governmental Organization
NITWG	Nutrition Information Technical Working Group
OCHA	Office for the Coordination of Humanitarian Affairs
PIN	People in need number
PSNP	Ethiopia Productive Safety Net Program
RTQR	Real-Time Quality Review
SIFSIA	Sudan Institutional Capacity: Food Security information and Analysis
SMART	standardized methods for assessment of relief and transition
SWALIM	Somalia Water and Land Information Management
S3M	Simple Spatial Survey Methodology
TWG	Technical Working Group
UN	United Nations
UNHCT	UN Humanitarian Country Team
UNICEF	UN Children’s Fund
USAID	US Agency for International Development
WASH	water, sanitation and hygiene
WFP	World Food Programme
WFP VAM	WFP Vulnerability Analysis and Mapping Unit

## A. Overview

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The East Africa region is amongst the most food insecure areas of the world. In 2020, the combined threats of desert locusts, climate change, COVID-19, and conflict led to increased levels of food insecurity (FAO/WFP 2020), and the number of crises affecting the East Africa region will likely continue to increase due to the effects of climate change and other drivers. The role of early warning early action (EW-EA) systems to mitigate crises and reverse this trend are critical. As part of a larger study, this report briefly reviews regional EW-EA systems and then provides an in-depth review of existing systems at the national level including systems operated by national governments, international information systems or programs, the UN and in some cases national and international NGOs. The full review of regional systems is in the main report (Report 1).

## B. Brief Review of Regional Level Systems

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While the nature of EW-EA systems is primarily national, there are a number of regional actors that support national level efforts. Regional actors are reported in full in the Main Report. They are briefly reviewed here.

The main regional early warning overview is provided by the **Regional Food Security and Nutrition Working Group (FSNWG)**. It is led by the IGAD Climate Prediction and Applications Centre (ICPAC) and FAO.

The **IGAD Centre for the Prediction and Analysis of Climate (ICPAC)** is the regional climate prediction and seasonal early warning body. Other, more global climate forecasts are provided by the **International Research Institute for Climate and Society (IRI)** at Columbia University, the **European Centre for Medium-Range Weather Forecasts (ECMWF)** and the **Red Cross/Red Crescent Climate Centre**.

The **FAO Regional Office for East Africa** is hosting an initiative to improve EW-EA in the region.

FAO also operates the **Desert Locust Information System**, with a permanent office in Rome dedicated to tracking desert locust activity.

The **Integrated Food Security Phase Classification (IPC) system**, hosted globally by FAO, is a consortium of fifteen agencies. It operates in all countries in the region except Eritrea.

The **Famine Early Warning System Network (FEWS NET)** operates in all of the countries in the IGAD region except Eritrea with permanent staff and national offices in Kenya, Somalia, South Sudan, Sudan, Uganda, Ethiopia; and a regional office remotely monitoring other countries (including Djibouti).

**SMART**. The in-depth assessment of nutritional status is done by **SMART (standardized methods for assessment of relief and transition) surveys**.

**Household Economy Analysis (HEA)** is still in use by some agencies and notably in Ethiopia at the national level.

## C. Review of Country and National EW-EA Systems

The following sub-sections describe and assess the existing early warning-early action systems in each of the countries in the IGAD region, in alphabetical order. The summary results are presented in Table 1.

Table 1. Characteristics of EW-EA Systems in IGAD Region

Component	DJI	ERI	ETH	KEN	SOM	SSD	SUD	UGA
<b>Early Warning</b>								
IPC: Type of analysis								
AFI	**		**	**	**	**	**	**
AMN				**	**	**		**
CFI	**							
FEWS NET	Remote		**	**	**	**	**	**
Govt-led system	**	**	**	**	New	**	**	**
UN-led system			VAM	VAM	FSNAU	FAO&VAM	VAM	
NGO-led system			Multiple	KRCS	BRCiS	REACH	?	
Seasonal assessment	**		**	**	**	**		
Sentinel sites				**				
Real-time monitoring					**	**		
Data: Hazards								
Climate	**	**	**	**	**	**	**	**
Prices/Mkts		Urban	**	**	**	**	**	**
Vegetation	**	**	**	**	**	**	**	**
Production		**	**	**	**	**	**	**
Pests/DL	?		**	?	?	?	**	**
Conflict						?	Ltd	
Displacement					**	**	Ltd	?
Data: Outcomes								
Food Security	**		**	**	**	**	**	**
Nutrition	**		**	**	**	**		?
Health	**		**	?	**	?	?	?
WASH			?		Price only	?	?	?
<b>Early Action</b>								
Responsible body	Min of Interior	Gov't Ministries	NDRMC	NDMA NDOC	Multiple	MHADM Agencies	FS TS Ministries	
Links								
Triggers				Some	**	INT		
Gov't agency	**	**	**	**	**	**	**	**
Clusters						**	**	?
Contingency planning	?		**	NDMA	??	?	?	?
Scalable safety net			PSNP	HSNP				
Other ("surge," crisis modifier, "no regrets")			**	**	**	?		?

Source: Key Informant Interviews

### Djibouti

#### Overview

Djibouti is a small country, with nearly three quarters of its population urbanized. It does not have an early warning system *per se*, but rather a system for monitoring chronic food insecurity, with annual planning

processes that can account for acute crises that may arise. Djibouti hosts IGAD, so in some ways benefits from its presence in country. But respondents noted that the main language of IGAD is English, whereas Djibouti is the only French speaking country in the regional body, somewhat limiting its ability to engage (084).

## Existing Information/Action Systems

The system is managed by government and is focused on various indicators, including health, food security and nutrition, and climate. Unlike other countries in the IGAD region, this system uses the IPC Chronic Food Insecurity analysis, which was first introduced in Djibouti in 2017 (084). An AFI analysis has recently been completed as well. FEWS NET reports on Djibouti but does not maintain an office there. It provides special reporting as needed to provide early warning on developing food insecurity.

## Governance of System

The government system is led by the Ministry of Agriculture, Livestock and Fisheries, with participation of other ministries. FAO provides technical assistance. The system is linked to IGAD.

## Data

**Collection.** Data is collected by a variety of actors, with data categories reflecting the interests of the collecting agency. Data include meteorological information, displacement, health information, and food security. Data is broken down by rural and urban populations (083).

**Analysis.** An IPC Technical Working Group is responsible for data analysis. It follows the IPC Chronic Food Insecurity guidance notes with occasional AFI analyses when data collection permits. Note that Djibouti has been in drought conditions almost constantly for the past decade, but it is treated as a chronic—not acute—problem (083).

## Links to Early Action

**Early Action.** The response is managed by the Ministry of the Interior, which houses the disaster management unit (084).

## Assessment

**Strengths.** Djibouti is a small country—it doesn't require a sophisticated system to keep on top of the development of a problem. Adapting the IPC Chronic Food Insecurity guidelines to manage long-term problems such as drought seems to be a good innovation. Keeping in close contact with IGAD and incorporating information from much larger neighboring countries helps keep the system updated in Djibouti (084).

**Gaps.** At present, there is not a strong link between information gathered and the response mechanism. UN agencies are present and can help in the event of a shock, but most UN programs are aimed at longer-term objectives.

**Response to COVID-19.** Djibouti intends to conduct an IPC Acute Food Insecurity analysis in urban areas of the country, given that nearly three quarters of the population lives in urban areas. This plan was in place even before the advent of the COVID-19 pandemic, but it should identify the impacts of the pandemic and its knock-on effects.

## Eritrea

### Overview

Eritrea has had few international engagements for the past fifteen years and only a nascent national system for food security information. Agricultural production indicators are monitored by the Ministry of Agriculture, and government ministries are the main (perhaps only) actors in response to any information. However, little is published about the system that exists, and it proved very difficult to speak to anyone in Eritrea about the systems as it exists or the challenges it faces.

### Existing Information/Action Systems

The limited evidence on existing systems suggests that weather and climatic information is tracked, as is production information. Markets are tracked only in ten major market towns (077). The information available is quite basic and is not available to external or UN agencies operating in the country (076). There are no international systems operating in Eritrea—not WFP VAM, not FEWS NET, etc. In 2020, FAO attempted to engage their regional team to conduct a resilience assessment; efforts are still being made to carry out the surveys to establish a resilience baseline using Resilience Index Measurement and Analysis and VAM tools. As far back as 2003, CARE International tried to conduct a similar assessment, but the assessment was halted half way through and the data confiscated (076). Now, there is a move for FAO and the government to conduct an agricultural census (production only, not food security).

### Governance of system

The system of information gathering and analysis is solely owned by the government with no international or civil society partners. Eritrea has a long-standing policy of self-reliance and has made it clear it does not want external assistance in the form of relief/emergency response nature. Although there is no formal early warning system, the informal network of information in Eritrea is probably better than it appears.

### Data

**Collection.** As noted, this is mostly only agricultural production and climatic information, collected by the government. Given the lack of information sharing, it isn't possible to say much about data quality or timeliness (076). It is anticipated that a future system would monitor climatic factors, pests, production and would have access to satellite data for the country. There remains a lot of sensitivity about price and market information. The only price information available is the government fixed price, but much of the trade in scarce commodities is done informally at much higher prices.

**Analysis.** To the extent that there is any comprehensive analysis of production data, it would be done by the Ministry of Agriculture, but there is little evidence about this. Government sources notes that the EW division within the ministry is new, and so not everything is operational yet.

### Links to early action

**Dissemination.** Government sources suggested that the primary end user of the information would be the farmers who depend on rainfall for their livelihoods (077). Others noted that if information was going to be shared outside of government, they would not be comfortable with it and would stop the information collection. Information is not shared outside the country.

**Early Action.** Any action taken would be led by government. One respondent noted, “You don't see people getting hungry just because the crop fails. Food can be procured from Sudan if there is a problem” (077). But this implies food distribution in response to a crisis rather than mitigative action.



## Assessment

**Strengths.** A system is getting up and running, and may be open to some degree of technical cooperation with FAO, one of the few UN technical agencies operating in the country. This could lead to strengthened information.

**Gaps.** The international community has not had much interaction with the information and response apparatus, so it is hard to judge. Government sources say they have a hard time getting up-to-date information in order to respond to production threats.

**Response to COVID-19.** The main response to the pandemic was a national lockdown. It apparently controlled the spread of the virus but had serious knock-on effects on the price of food in urban markets. There was an FAO report on the impact of the COVID-19 pandemic and, in particular, the effects of food production, marketing, and access during the lockdown. It noted the actions taken, and the expected effect on producers and consumers, but not direct information gathering was permitted (Eritrea UNHCT 2020).

## Ethiopia

### Overview

Ethiopia has the longest-standing early warning system in the region, dating back to the 1970s. Since 2006 it has been linked to the Productive Safety Net Program (PSNP) as the response, if not exactly early-action, mechanism. The institutional housing for this has shifted over time, but has always been government-led. Its current institutional home is the National Disaster Risk Management Commission (NDRMC). However, multiple tools and practices are in use, and a significant tug of war is going on over exactly how the system needs to be updated, whether the information and action units should be housed together, and what kind of information system is best suited to the context. Most of this debate is over the question of how to respond to drought, which has long been the dominant hazard in Ethiopia. The system was “good enough” to respond to major climate-related shocks in 2016 and 2016–17, but numerous issues were raised by the response to those crises—primarily the delay in “official” response, despite the availability of informal early warning signals, and the subsequent politicization of the official information, among others (Grunewald et al. 2019). Since 2018, localized conflict has displaced significant numbers of people, and the system is not set up to predict or respond to conflict. Since November 2020, a major conflict has broken out in Tigray Region. How the system responds to this remains an unknown.

### Existing Information/Action Systems

Numerous different tools and approaches are being used in Ethiopia (029, 031, 043, 050, 058, 062). Household Economy Analysis has long been used by various actors. The Livelihoods, Early Assessment, and Protection (LEAP) tool and the Livelihood Impact Analysis Sheet (LIAS) are also widely used. They are trusted by some actors and donors while derided by others (029, 043, 062). LEAP is based on drought indicators. The government system uses these tools, which rely on a hierarchical data collection system based on seasonal assessments: data is compiled from local to national levels, with inevitable delays and interference. Data come from several sources: the Ministry of Agriculture, the Meteorology Department, FEWS NET and WFP (050). FEWS NET operates independently in Ethiopia, and in 2019, IPC was introduced as well—a tool that had, for the most part, not been relied on in the past (002).

A major World Bank initiative to reform the early warning/early action system is strongly predicated on the notion of scalability and focused on reform of the PSNP. Ethiopia was also at one point engaged in the Famine Action Mechanism (FAM) initiative, so there were actually two different World Bank initiatives (058).

This all results in a fair amount of confusion about what priorities are and even about what “system” needs to be reformed and what results can be trusted (043, 050). It has also led to NGOs maintaining their own EW/information systems to inform their own programming needs. In 2018, the World Bank commissioned Kimetrica to assess the overall system (029, 058).

A recent report by Kimetrica (2020) outlines several major issues with the existing national EW System, including PSNP, NDRMC, and the broader ecosystem of actors in Ethiopia described above. These included the following: data collection is largely done manually and analysis takes too long to be useful to decision-makers. Actors have therefore created their own parallel systems. These systems are not transparent—data is not shared across them, and common standards are nonexistent. Finally, the systems lack a clear sense of who the “client” or end-users of the information are. The assessment also laid out a clear two-year plan to improve the system, focusing on complementarity between PSNP and NDRMC for the purpose of scalability in crises (at the expense of shifting toward a more multi-hazard system in the short to medium term), with a detailed implementation plan designed to be “politically feasible.” Kimetrica’s assessment also makes the case for using automated triggers that are “decision-support focused,” connecting directly to allocation decisions within PSNP, remaining adaptable to diverse crises across geographical areas, and requiring no political discussion (Kimetrica 2020).

### **Governance of system**

The NDRMC is intended to be the body that oversees the system for the government. But the allocation of large amounts of resources have made the whole system an institutional “battleground” (031). Various line ministries and major donors are also involved. Some NGOs are major actors as well. As with the reform of the information system, a major policy discussion about the governance of the system is happening, but the plethora of actors makes progress on this question difficult. On the government side, this situation is made more difficult by the relatively powerful position of the regions vis a vis central government (031). Many observers noted that institutional reforms need to precede any attempts to rebuild the system technically—either in terms of information or action—but the plethora of actors and interests tends to work against such reforms.

### **Data**

**Collection.** Much of data collection still relies on “paper and pencil” methods (043, Kimetrica 2020)—multiple attempts have been made to introduce technology to speed data collection and automate data entry and cleaning, but much remains to be done in this area. There is little question about the kinds of data collected. Most are predicated around questions of production and livelihoods (indeed IPC was the first to introduce some of the quantitative food security indicators used in other countries). Nearly all are focused on drought as the driver of food insecurity, and food insecurity as the primary driver of malnutrition. Nutrition information is collected separately by a specialized Emergency Nutrition Coordination Unit of the Ministry of Health, with support from UNICEF. As noted, information on other drivers of both food insecurity and malnutrition is insufficient—particularly related in recent times to conflict and displacement, but also to public health and other chronic drivers.

**Analysis.** The LIAS is an analytical tool used to predict impact. LEAP in particular is considered to be subjective in its calculation of the population in need (PIN) figure. IPC brought its own analysis approach to estimating projected needs, but unlike other countries, IPC is a recent arrival and not one of the powerful actors. The PIN figure seems to drive the whole system, with one respondent to the 2020 study noting, “As it stands now, ‘early warning’ is just the numbers from the seasonal assessments” (Maxwell and Hailey 2020a, p. 21). This is the reason for the emphasis on improving the scalability of the PSNP, but it is also the basis of

the criticism that the whole system is oriented to response rather than mitigation and prevention. There is clearly merit to both perspectives. Kimetrica’s assessment emphasizes a key analysis problem: while many of the “pieces” of a fully operational EWS exist and have access to rich data, the system’s impact is limited by its capacity to analyze the data to sufficiently generate “timely, disaggregated and reliable indicators that are needed to inform core resource-allocation decisions” (Kimetrica 2020, p vi).

## Links to Early Action

**Dissemination.** Information goes out by multiple channels. NDRMC regularly reports and issues special alerts. FEWS NET issues regular reports. WFP and IPC issue reports on their analyses, and numerous other outlets also issue information and EW reports: Save the Children issues Household Economy Analysis (HEA) reports; The Emergency Nutrition Coordination Unit of the Ministry of Health and UNICEF issue nutrition reports, and other specialized units issue their reports. Different donors and government agencies use different sources of information to plan responses. As in other cases discussed below, many actors on the response or early action side of the equation express bewilderment at trying to figure out what to do (Maxwell and Hailey 2020a). Kimetrica’s assessment similarly highlighted that while there is a significant amount of output from the various actors in the ecosystem of EW in Ethiopia, none seem to clearly drive key decision-making (Kimetrica 2020). With the rise of the Humanitarian Needs Overview (HNO) process, some dissemination timelines for reporting—and therefore analysis processes and even data collection—are being rethought to meet international deadlines, which also adds to the sense of confusion.

**Early Action.** There are various responses, depending on the sector. But the major response mechanism is the PSNP. It has been criticized for being chronically late to respond, despite sufficient early warning signals, even if informal (029, 043, 058), and heavily focused on either food or cash as the main mechanisms for response (Kimetrica 2020). This is the major reason the World Bank initiative focused on the speed and scalability of the PSNP. The PSNP was designed for the densely populated highlands of Ethiopia, where most livelihoods are based on small-holder agricultural production. It has been less successful in the pastoral lowland areas of Ethiopia. Dreschler and Soer (2016) suggest LEAP and other EW information as sources of triggers for risk financing and insurance.

## Assessment

**Strengths.** For all the criticism, the system has functioned well enough to prevent most shocks from deteriorating into a major humanitarian disaster, in part because of its ability to respond considerably earlier than the international humanitarian actors can (Grünwald et al. 2019). Choularton and Krishnamurthy (2019) assessed the accuracy of FEWS NET predictions between 2011 and 2017 (looking at outcome classifications) and found that the forecasts were correct some 78 percent of the time. And errors—either on the “optimistic” side (actual outcomes being worse than predicted) or the “pessimistic” side (actual outcomes being better than predicted)—being fairly evenly split. The multitude of actors can be viewed as a positive aspect of the system, in that there are multiple checks and balances—if one system is badly off, another is likely to catch the error.

**Gaps.** The multitude of actors and initiatives makes for confusion, though, and no single actor—whether government or donor—has been able to sway the argument in favor of consolidation around a more unified approach to information. Likewise, there is no single actor responsible for early action. The PSNP is the major response mechanism, and making the PSNP scalable to respond to changing caseloads is a major policy objective (Fitzgibbon 2019, Kimetrica 2020). Many observers point out that, first, PSNP is only equipped to deal with drought—which is not the only hazard, and, second, the food and cash response of the PSNP is critical, but not exactly preventive or mitigative (029, 031, 043, 050). The ECHO evaluation of the response to

drought in 2016–17 criticized the slow speed of the response, the emphasis on “trailing” indicators rather than forecasts or forward-looking indicators, and the politicization of information—with competing interests either downplaying or inflating figures (Grunewald et al. 2019). The Kimetrica assessment further emphasized the confusion of having multiple actors all engaged in overlapping early warning systems, the lack of transparency and data sharing among these actors, and the lack of clarity around who exactly is the “end-user” of the EWS (also particularly noting that affected communities were rarely considered as such). Other issues included a pervasive, general lack of trust of the system such that it could drive key decision-making (Kimetrica 2020). The most concerning issue now facing Ethiopia is not how well drought is predicted or how well the PSNP and other mechanisms can help affected communities but rather how well the system can respond to increasingly complex weather phenomena, conflict, and political hazards (050, Krishnamurthy, et al. 2020)—and note that all these interviews and reports were from the period *prior* to the onset of the current violent conflict in Tigray.

**Response to COVID-19.** The COVID pandemic slowed progress on all the attempts to reform the system (043), but how it affected the operation of the system as a whole is not clear (050). Via their “high frequency phone survey of households” (HFPS-HH) approach, the World Bank continues to collect much needed economic and household-level data in the COVID social distancing context. This approach builds on the Ethiopian Socioeconomic Survey, carried out in 2019, that tracked a subset of this wider survey to follow over six months, monitoring the impact of COVID on livelihoods, price patterns, and income change (Wieser et al. 2020). Clearly COVID has impacted livelihoods, highlighting the need to do a better job of livelihoods and food security monitoring in urban areas (058) and highlighting the need for better remote data collection and analysis approaches. While key informants across contexts discussed using phone surveys more frequently, it of course raises concerns around exclusion errors—as you cannot reach those who do not have phones—and therefore underestimating the impact of this crisis on the most vulnerable. The overwhelming perception is, however, that other, longer-standing issues require attention first.

## Kenya

### Overview

Kenya has a well-established government-run system that focuses primarily on the hazard of drought and the outcome of food insecurity. Over time it has come to encompass much more. Led by an independent authority, the National Drought Management Authority (NDMA), it has links to all the relevant line ministries (agriculture, livestock, health, water), and indirect links to UN agencies (016).

### Existing Information/Action Systems

In addition to the NDMA system, FEWS NET has both a national and regional office based in Kenya (002, 003, 016). WFP VAM is operational, and IPC was introduced several years ago. As of 2019, the IPC is fully incorporated into the existing national system (008). The NDMA system relies on a series of sentinel sites for early warning purposes and conducts seasonal assessments after the short and long rains. These analyses are now IPC compliant and include projections (008). NDMA and the National Disaster Operations Center are responsible for early action/response.

### Governance of System

The system is governed by the Kenya Food Security Meeting (KFSM) (a high-level group of government agencies and donors). Core functions are carried out by the Kenya Food Security Steering Group (KFSSG), which essentially takes the place of a food security cluster in other countries. The core analytical capacity

resides within the Data and Information Subcommittee of the KFSSG (or DISK) which includes the NDMA, WFP, FAO, UNICEF, and FEWS NET (016).

## Data

**Collection.** The NDMA’s EW system is operated in conjunction with county governments—these have become significantly more empowered actors since devolution in 2013. The EW system includes 154 sentinel sites in 23 arid and semi-arid lands (ASAL) counties. A sentinel site tracks 30 households per month for outcome indicators on food security and nutrition, as well as markets, rainfall, temperature, and NDVI information. Specialized key informants provide contextual information. SMART surveys occasionally supplement seasonal assessments/IPC analysis, but these are conducted independently. Some data collection is now done using cellphones (016) but is limited in ASAL counties by network coverage and ownership (047).

**Analysis.** The core analysis is conducted by the DISK group (011). The information from sentinel sites is used for early warning bulletins. NDMA uses a coding system that translates into early warning classifications, from “normal” to “alert” (meaning environmental factors like rainfall and water availability are low) to “alarm” (meaning production factors like crops and livestock are not doing well, or market prices are high) to “emergency” (meaning that humanitarian outcomes are bad) and finally to “recovery” (meaning that all factors are subsiding after a bad period) (016). Population tables, by county and IPC phase classification, are now available for both current status and projections.

## Links to Early Action

**Dissemination.** EW bulletins are consistently available on the NDMA website (as of December 2020 the most recent are from October). IPC updates are available by county and IPC phase (as of December 2020, the most recent is from August/September with a projection to December). FEWS NET Key Message Updates are likewise available (as of December, the most recent update is from November, but based on information that had been collected earlier). All three sources show more or less the same information for both current status and the projections.

**Early Action.** Links to early action are somewhat more complex. The Hunger Safety Net Program and several smaller national safety net programs are ongoing and in theory are linked directly to NDMA information. Experience on the ground indicates some gaps in the linkages (011, 016, Maxwell et al. 2020). Contingency planning for drought is managed by NDMA, and flooding and other disasters are managed by the National Disaster Operational Centre (NDOC). Drought contingency funds are set aside for counties (011). NDMA is working with the Kenya Red Cross Society on forecast-based early action, but so far this is in the pilot stage (028). The use of triggers has been piloted with the Index-Based Livestock Insurance program in some ASAL counties. The insurance is sold to—and payments are made—directly to pastoralists (Banerjee 2015).

## Assessment

**Strengths.** The Kenya “eco-system” of EW-EA has a reasonably well-functioning and well-integrated diversity of actors. Although the incorporation of IPC protocols into the DISK-led system posed challenges, that now seems resolved. During the COVID-19 pandemic, the system was able to adapt to the need for urban data collection and analysis (016, 047).

**Gaps.** Some challenges remain with data sharing, particularly in real time, although progress has been made. Challenges arose in 2019 over the interpretation of current status and EW information, leading to some disagreement over the appropriate response and course of action, as well as the delay of funding by (or even disengagement of some) donors. The situation changed rapidly with the onset of the COVID-19 pandemic. A recent study, conducted prior to the COVID-19 pandemic, found that while preparedness was good,

mitigation and response programs still struggle to adapt to rapidly changing conditions (Obrecht 2019). EW needs to be more outcome-focused and is still too focused on inputs and activities (Obrecht 2019).

**Response to COVID-19.** Like the rest of the world, Kenya was affected by the COVID-19 pandemic, beginning with a lockdown in mid-March 2020. While public health impacts seem to have been less than expected, the economic knock-on effects of lockdown were severe. The EW-EA system rapidly switched toward remote operations and shifted focus, with emphasis on urban populations (011, 016, 047). The response was complicated by a simultaneous response to desert locusts, but some cash responses were launched in major urban areas (047). Most observers credited the information system with being able to pivot quickly to changed operating circumstances and changed demands. There has not yet been an evaluation of the response.

## Somalia

### Overview

The Somalia Food Security and Nutrition Analysis Unit (FSNAU) has perhaps the strongest capacity for food security in the region. A quasi-independent program managed by FAO-Somalia; it was begun in the 1990s as a joint WFP/FAO operation. It covers all aspects of food security and nutrition information (i.e., more than just early warning). The IPC tool was invented by FSNAU in the mid-2000s, and Somalia was its initial application and testing ground. The major outputs are seasonal assessments (conducted according to IPC protocols) and SMART surveys. More recently FSNAU has added the Early Warning-Early Action Dashboard. Because FSNAU has the best historical data set of any chronically food-insecure country in the world, many of the current attempts to model food insecurity draw heavily on Somalia's experience (027, 080). Somalia also has a number of other information and early action initiatives.

### Existing Information/Action Systems

In addition to FSNAU, another FAO project, the Somalia Water and Land Information Management (SWALIM) unit provides information on land use, hydrology and river levels, which is important for flood EW. FEWS NET maintains a presence in Somalia and collaborates closely with FSNAU—even sharing office space. For years, there was no government-led system in the country (indeed the reason FSNAU was started). Now, the Ministry of Humanitarian Affairs and Disaster Management and the Ministry of Agriculture both have EW units. Of several NGO-led systems in the country, perhaps the most prominent is one led by the BRCiS (Building Resilient Communities in Somalia) consortium. UK-funded projects have a joint Monitoring and Evaluation Somalia Humanitarian (MESH) program that does not provide EW information per se but does provide some information (022). Finally, as noted, because of the long time-series data sets of FSNAU and the chronic nature of crisis in Somalia, a number of initiatives have been focused on Somalia. These include the Famine Action Mechanism (FAM) of the World Bank, and the Anticipatory Action initiative of OCHA.

### Governance of System

FSNAU and SWALIM are both managed externally as FAO projects. With growing capability within the Government of Somalia, this has led to tensions—specifically over the question of who should “own” the information and analysis system of a country. In theory, everyone agrees that in the longer-term ownership and control should be handed over to the government (022, 045, 057, 073, 074). However, agreement on a comprehensive plan for the handover has not been reached. Further, given the multiple actors within government, it is not clear which actors should take ownership of which of the institutions. NGO systems are managed by their own structures (023), and the external (WB and OCHA-led) initiatives collaborated with government, but were independent initiatives answering to their own institutions as well (027, 080).

## Data

**Collection.** Data for the seasonal assessments is conducted according to IPC standards (with the exception that in areas controlled by Al Shabaab, key-informant information is used in lieu of survey data). As with IPC information elsewhere, this is heavily focused on outcome information (food security, nutrition) but also includes causal factors. SWALIM provides hydrological data and land use information. Data for the “dashboard” is intended to be more forward looking and includes prices and terms of trade, rainfall, and NDVI, as well as health, nutrition, and displacement. Data comes from a variety of partners (which makes a problem for the timeliness of the data). BRCiS data comes from its own community monitors (023).

**Analysis.** Analysis of IPC data is formally done by a Technical Working Group, although much of the actual analysis is done by FSNAU staff. The dashboard analysis is automated, with normal ranges of variation, and deviation outside those ranges calculated, and the extent of the deviation flagged by different degrees of severity, and the most severely flagged items (“alarms”) counted up and mapped. Both the maps and the overall count are published on a monthly basis. This provides a real-time monitoring function in between the major seasonal assessments. Recently BRCiS has started its own dashboard for early warning information, based on a similar model. Government ministries conduct their own analysis independent of FSNAU, though results are cross-compared.

## Links to Early Action

**Dissemination.** IPC, FSNAU, and FEWS NET information all have their usual dissemination mechanisms and networks. Both the BRCiS system and the government systems are notable for their attempts to put affected communities at the center of their dissemination and outreach. Donors complain that the seasonal assessment reports are very slow to come out, but the monthly dashboard updates ameliorate this concern, at least to some extent. Communication and coordination among EW systems is limited. BRCiS and FSNAU acknowledge each other’s systems, for example, but do not exchange information.

**Early Action.** Different information systems are tied to different mechanisms, but none are tied very closely. FEWS NET is tied to USAID, which in turn has “crisis modifiers” incorporated into some of its programs. The FSNAU dashboard was funded by and is linked to UKAid, which also relies on information from MESH and is able to respond with multi-year financing. Key informants complain that, while timely, dashboard information is difficult to interpret in terms of early action (023). The government systems inform government response, but key informants note that government responses are chronically under-funded (045, 053, 057).

## Assessment

**Strengths.** Somalia has some of the best information systems in the region and overall some of the best capacity. With an increasingly capable government system, greater government leadership of both early warning and early action should be expected. How this will happen is still being worked out. A notable strength—at least in theory—is the recognition that at-risk communities are the ultimate consumer of information and early warning information.

**Gaps.** Despite being the “Rolls Royce” of information systems (063), its link to early action is not well formulated. The biggest evidence of this was the 2011 famine. It was well predicted (Hillbruner and Moloney 2012) but delays in response meant the crisis became much worse before improving. The response in early 2017 was more rapid, but it remains doubtful that was system learning. More likely, it was simply the extraordinary efforts of a handful of individuals who remembered 2011. Despite the name, the “EW-EA Dashboard” doesn’t have a formal link to an early action body such as the Inter-Cluster Coordinating Group

(074). Both donors and government officials complain about the lack of linkages to early action (036, 045, 057, 063).

A series of attempts have been made to improve both the information and the action links of the “dashboard” (Hailey et al. 2018). These have led to improvements (see Maxwell and Hailey 2020a), but much remains to be done to strengthen the links between robust information systems and relatively limited response systems. The World Bank and OCHA mechanisms have both considered this issue. Neither left behind an institutionalized approach, and some critics wonder if, on balance, they were helpful initiatives (063).

The two major challenges therefore are the transfer of UN-led information systems to government ownership or oversight and strengthening the link to early action.

## South Sudan

### Overview

South Sudan became independent from Sudan in 2011. Since 2013 it has been in a civil war, which at least on paper came to an end in 2020, but violence continues unabated at local levels in many parts of the country. This has meant that over recent years, South Sudan has been one of the most difficult operating environments in the IGAD region (024). This has led to numerous attempts to improve on information systems—some of which are genuinely early warning, but some of which are more like real-time monitoring, given the speed at which things change in South Sudan in the face of multiple hazards—both climatic and man-made, including several novel hazards in 2020 (024, 030, 041).

### Existing Information/Action Systems

South Sudan has a mix of information systems. HEA was the dominant form of analysis and information during Operation Lifeline Sudan in the 1990s and early 2000s. IPC was adopted by the then-named South Sudan Center for Census, Statistics, and Evaluation (now the National Bureau of Statistics) and is the major form of analysis/information today. FAO sponsors SIFSIA, now AFIA (or CLiMIS) that tracks prices, weather, livestock, and food security indicators (026). Both WFP VAM and FEWS NET operate in South Sudan. For the most part, donors and agencies rely on IPC projections for information about future trends. Krishnamurthy et al. (2020) assessed the accuracy of FEWS NET predictions by IPC classification, and found that FEWS NET predicted food security in South Sudan correctly between 60 percent and 80 percent of the time. They also pointed out that the uncertainty is driven by conflict: in districts that experienced conflict, FEWS NET projections were accurate only 52–70 percent of the time. More recently the Integrated Needs Tracking (INT) system was introduced. It is more of a real-time monitoring system than an EW system per se, but serves many of the same purposes (030). The Ministry of Humanitarian Affairs and Disaster Management (MHADM) also operates an EW system—focused mostly on climatic hazards and pests, but also on displacement (067). This system operates independently from IPC and the other systems in South Sudan, although there is personnel cross-over.

### Governance of System

The IPC is led by government, with the Ministry of Agriculture convening the process and the National Bureau of Statistics issuing reports (051, 067, 068). The TWG is made up of the same actors as elsewhere in the region. As noted, FAO runs a stand-alone system tracking some kinds of information, and WFP provides the major food security inputs to IPC analysis. The Nutrition Information Working Group supervises nutrition information.



## Data

**Collection.** Data collection is mostly done by agencies, with platforms like IPC, CLiMIS, and INT amalgamating it and making it available (036). There has been continued reliance on large-scale surveys by WFP FSNMS surveys or SMART surveys for nutrition. Some more flexible approaches are being used now, including the Area of Knowledge (AoK) approach by REACH (interviewing recently-arrived people from hard-to-reach areas) and the collection of information on the demand and usage of services as well as current status (030). Given the severity of the situation, one major deficiency has been information on mortality, and in some cases nutrition (024, 041). Nutrition information faced severe challenges during the COVID-19 pandemic: SMART surveys were put on hold due to social distancing, and the FSNMS survey used a “family MUAC” approach in which mothers measured their own children using color-coded MUAC tapes, coached by trained enumerators at a safe distance. But the information was deemed unreliable for analysis purposes (041). Most drivers of crisis are regularly tracked. However, incorporating any kind of conflict analysis into the process is difficult because it is deemed too political (024, 030, 032).

**Analysis.** Analysis is done in several ways. The IPC Technical Working Group does the core analysis for the IPC. The Needs Assessment Working Group of the cluster system conducts the analysis of the INT (024, 030, 051). In December 2020, an IPC analysis resulted in significant disagreement between the IPC external review team and the government-led Technical Working Group—and this is not the first time that this had happened (Maxwell et al. 2018).

## Links to Early Action

**Dissemination.** The outputs of the IPC go to OCHA for inclusion in the HNO/HRP process, and to donors and external agencies. The government approves the messaging, the National Bureau of Statistics is responsible for reporting. Donors watch IPC results—and especially the projections—for clues as to requirements for the coming period (024).

**Early Action.** Early action, or at least response, is spread across several bodies. The MHADM is responsible for government response. Responsibility for early action falls mainly to the clusters, WFP and UNICEF for response in terms of food security and nutrition (and “early action” here may be limited to strategic pre-positioning of assistance, as opposed to mitigation or prevention per se). The Inter-Cluster Coordination Group is responsible for follow up to recommendations from the INT.

## Assessment

**Strengths.** South Sudan has a robust eco-system of information and analysis (ACAPS 2020), with many actors. Although not an EW-EA system in the sense of anticipating shocks and moving to mitigate or prevent crises, it has managed to maintain updated analyses of the food security and nutrition information and to inform the response, if not necessarily triggering early action. The FAM initiative intends to follow up on South Sudan and may keep these issues on the table (024, 027).

**Gaps.** There are several notable gaps in information, including primarily a lack of mortality information, to a lesser degree health and WASH, and sometimes nutrition. In terms of causal analysis, conflict analysis is largely missing from the main analytical processes. Conflict analysis does go on behind the scenes, but is mostly not systematic in nature or incorporated beyond the agency level (024, 032, 051).

Perhaps the biggest challenge with information systems and response in South Sudan is the extent to which the analysis is politicized and influenced for political reasons (Maxwell et al. 2018, 024, 030, 032). The most recent case of this revolved around different analyses being published regarding the 2020 IPC analysis. Initial results showed some concern about possible famine conditions in five counties, prompting a Real-Time

Quality Review (RTQR) and a Famine Review Committee (FRC) review. The FRC review resulted in a “famine likely” finding for parts of Pibor County, while the RTQR review found populations in Phase 5, but not in numbers large enough to warrant a famine or “famine likely” finding. Upon sharing these results with the TWG, led by the Government of South Sudan, however, these findings were denied. A new report was put out by the TWG without the consent or participation of most of its members or the IPC Global Support Unit, showing no famine, and dramatically reducing the number of people in Phase 5 across the counties concerned. This is not an unusual result for an analysis in which famine has been a possible outcome.

**Response to COVID-19.** South Sudan has not been terribly hard hit with COVID, but COVID has had a major impact on information systems. Already noted was the cancelation of all SMART surveys (which also happened in a number of other countries) and the substitution in South Sudan of “family MUAC” approaches to monitoring global acute malnutrition. COVID also demonstrated a need for renewed emphasis on urban food security issues (024). Price monitoring had to be ramped up (026), and there was renewed concern about agricultural markets and inputs (051) and more distanced, qualitative approaches to data collection (030).

## Sudan

### Overview

Of all countries in the region, Sudan has probably undergone the most profound change in the past two years and is in the process of transition to democracy. Under the former regime, the information system was very restrictive, including early warning information for early action. This is now changing, but the system is under intense pressure. This year has seen not only the COVID-19 crisis—which appears to have hit Sudan harder than other countries—and desert locusts, but also, a macro-economic crisis and heavy flooding of the Nile, in addition to other more routine hazards. Conflict continues in some areas. And at year’s end, there is now also a refugee crisis in the east as people flee fighting in Tigray. Respondents simultaneously described inadequate information and information overload, and some users were appealing for help in assessing the current situation. PIN numbers are higher than ever, with a steep increase in mid-2020. Initially predicted to go back down, information late in the year indicates the numbers will remain at historic highs.

### Existing Information/Action Systems

The system is now being coordinated by a Food Security Technical Secretariat, but there are numerous actors on the information side. The Humanitarian Aid Commission (HAC) is still a player; FAO, WFP, UNICEF, and OCHA are all involved. FEWS NET, VAM, and IPC are all active in country (034, 037, 038, 048). Krishnamurthy et al. (2020) assessed the accuracy of FEWS NET predictions by IPC classification, and found that FEWS NET predicted food security in Sudan correctly between 70 percent and 90 percent of the time, with particular accuracy in the “higher productive areas” as opposed to predominantly pastoral areas and those that experience more regular crises (they even found that food insecurity would be overestimated in more crisis-prone areas). Earlier, NGOs were leading local systems, but most of these have shuttered (055). On the early action side, the field is significantly less crowded. With regard to flooding—a recurrent hazard—no system exists to warn at-risk communities when the Nile is going to flood—especially in the greater Khartoum area, but also in other riverine areas.

### Governance of System

The Food Security Technical Secretariat is the lead on the government side. It convenes the IPC Technical Working Group. The UN side has numerous actors, and coordination is sometimes a constraint (038). The system was very restrictive under the Bashir regime, is much improved since 2019, but is still coming to grips

with a less restrictive political space. It is not quite clear who has the convening power for early action under the new circumstances (037).

## Data

**Collection.** Data collection is similar to other countries in the region. Market information is collected by WFP and FEWS NET. WFP supervises surveys for the IPC, which collects the standard food security outcomes indicators. A major gap is nutrition information—the most recent anthropometric information is from the S3M (Simple Spatial Survey Methodology) survey in January 2018, so over two years old. Macroeconomic information is coming mostly from the World Bank, including remittance information, which is a critical piece of the puzzle. This information is not necessarily tied into the usual EW-EA systems but is a critical piece of the puzzle this year given the economic crisis, the urban livelihoods crisis and the extremely high prices of food. Regional cooperation could help significantly with flood early warning, but tensions over the Grand Renaissance Dam on the Blue Nile in Ethiopia are preventing good communications over water levels (038). Other natural hazards are being tracked by WFP (rainfall, drought) and FAO (desert locusts). Only limited information on conflict is available, and information on the impact of COVID is fairly generic.

**Analysis.** Given the number of actors involved in data collection, it is not surprising that it is not all coming together in one place (037). The IPC is pulling together information on food security and making projections on the PIN number (which is at historically high levels for the post-harvest season). FEWS NET continues to issue updates on the food security situation with forecasts three times a year. But for information other than food security outcomes, users are expected to conduct their own analysis, using the information that is out there (037, 038, 065).

## Links to Early Action

**Dissemination.** All the actors mentioned above issue reports but, as noted, with the exception of food assistance needs, the implications for action are not always clear. This is particularly the case this year with so many hazards facing the country. Data sharing between agencies is a constraint (037).

**Early Action.** As a result of the above, information is relatively poorly linked to action (036, 037). Humanitarian assistance, not mitigative or preventive action, is the main focus (048, 054). Given the nature of the threats this year—especially the macro-economic factors—the best course for early or mitigative action is not as clear as it might be under other circumstances. The government proposed a cash transfer program to respond to the twin threats of the COVID pandemic and the lockdown, the overarching macro-economic crisis, and the attendant extremely high prices of food and fuel. But most observers noted that the magnitude of the response was inadequate relative to the need.

## Assessment

**Strengths.** There are several recent improvements. The information collection/analysis system is becoming more multi-dimensional. And the country and its government are now more open to making changes in the system.

**Gaps.** The country has been hit by multiple shocks in the same year, which has nearly overwhelmed the system. Numerous gaps remain. Several respondents noted the lack of baseline information on Sudan, making current-status information hard to interpret in context (048, 065). Lack of information on river levels make flood mitigation, or even warning at-risk communities, impossible. Data sharing remains a major constraint—at least in part a hangover from a time when information sharing was potentially dangerous (037, 048, 054). In some ways this year has led to too much information and insufficient analysis of the overall situation (038, 065). The link between the existing information and response or early action is without

doubt the biggest gap. Finally, most of the response is oriented towards humanitarian action, not mitigation or prevention.

**Response to COVID-19.** Information on COVID was limited, but both the pandemic and the lockdown significantly worsened an already bad situation. Urban populations were reportedly more affected, although information was mostly not available on urban populations, and assessment methods have been tailored to rural livelihoods. Macroeconomic issues, food prices, drastic drops in remittances, and other shocks magnified the impact of COVID on urban populations, and clearly there was only limited information on all of these, complicating both response planning and targeting of limited resource (037, 038, 065).

## Uganda

### Overview

Uganda's national EW system is oriented towards meteorology and is more of a weather forecasting system than an EW-EA system in the sense of the terms used by much of the rest of the region. Much of the country has good and predictable rainfall, so EW in the traditional sense is a minimal need. The northeast is more prone to both drought and conflict and has been the site of chronic food insecurity. Food security information is only one component of the national early warning system—health information is also very important.

### Existing Information/Action Systems

Uganda national EW system produces weather forecasts for agricultural producers and annual crop assessments (035). The more shock-oriented EW systems that have existed in the past have mostly been used in Karamoja region, on the border with South Sudan and Kenya, and, despite some level of conflict at times, that system mostly focused on drought. The Drought Early Warning System (DEWS) was operated by the Ministry of Agriculture, Animal Industries, and Fisheries (MAAIF) with participation from some NGOs and UN agencies (Akwango et al. 2017), but that project has come to an end. A move was made in 2019 to begin a food security and nutrition early warning system for Karamoja but it is not clear that this occurred (035).

FEWS NET operates in Uganda. IPC has been implemented in Uganda since 2007 and is the main source of food security outcome information. CEWARN (the regional conflict early warning mechanism) still nominally operates in the "Karamoja cluster." Uganda Red Cross collaborates with the International Federation of Red Cross and Red Crescent Societies Climate Centre on storm and flood prediction nationwide and operates an EW-EA system independently in the Karamoja and Teso regions of Uganda.

### Governance of System

The system is government led, with significant UN and NGO input. The overall management of the system is now coming together under the Office of the Prime Minister (064), which coordinates the amalgamation of information from a variety of sources.

### Data

**Collection.** Data on weather, crop production, and threats to production (pests, diseases) are collected and analyzed by the MAAIF. The IPC system is the main producer of food security outcome information. Given the nature of livelihood systems in Uganda, adopting the Chronic Food Insecurity (CFI) tool has been discussed (the AFI tools used in much of the rest of the region continue to be used in the Karamoja region). FEWS NET collects market price data. The National Health Information Management System was developed as the threat of Ebola arose on its western border (064).

**Analysis.** Data are analyzed by the same agencies as above. The overall analysis and updates now come from the Office of the Prime Minister.

### **Links to Early Action**

**Dissemination.** A monthly bulletin is now issued by the Office of the Prime Minister, although it currently does not always reach the community level (064). An unusual and innovative feature of the original DEWS was that it broadcast messages on radio in local languages—something that most EW systems do not do. DEWS has now been closed down, although several options for renewed EW analysis are on the table.

**Early Action.** The climate information may trigger early action—in the case of pests or prolonged dry spells—or at least rapid response in the case of flooding. Government is responsible for early action in the event of drought or other production shock or a public health shock. WFP continues to respond to food insecurity (035).

### **Assessment**

The Uganda system is not as expansive as those in other countries in the region, but it is well suited to its own needs. Other countries could incorporate public health information, as well as their more intentional dissemination of information to affected populations.

**Response to COVID-19.** There was a lockdown, and the government used information on food security to target some response to hard hit locations. As elsewhere in the region, urban populations were the hardest hit.

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