FEWS NET – East Africa:

User Needs & Expectations

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USGS/FEWSNET

Dar-Es-Salaam, 21 - 24 February. 2011

Outline:

1. **Overview: FEWS NET (Mandate, Coverage & Activities)**

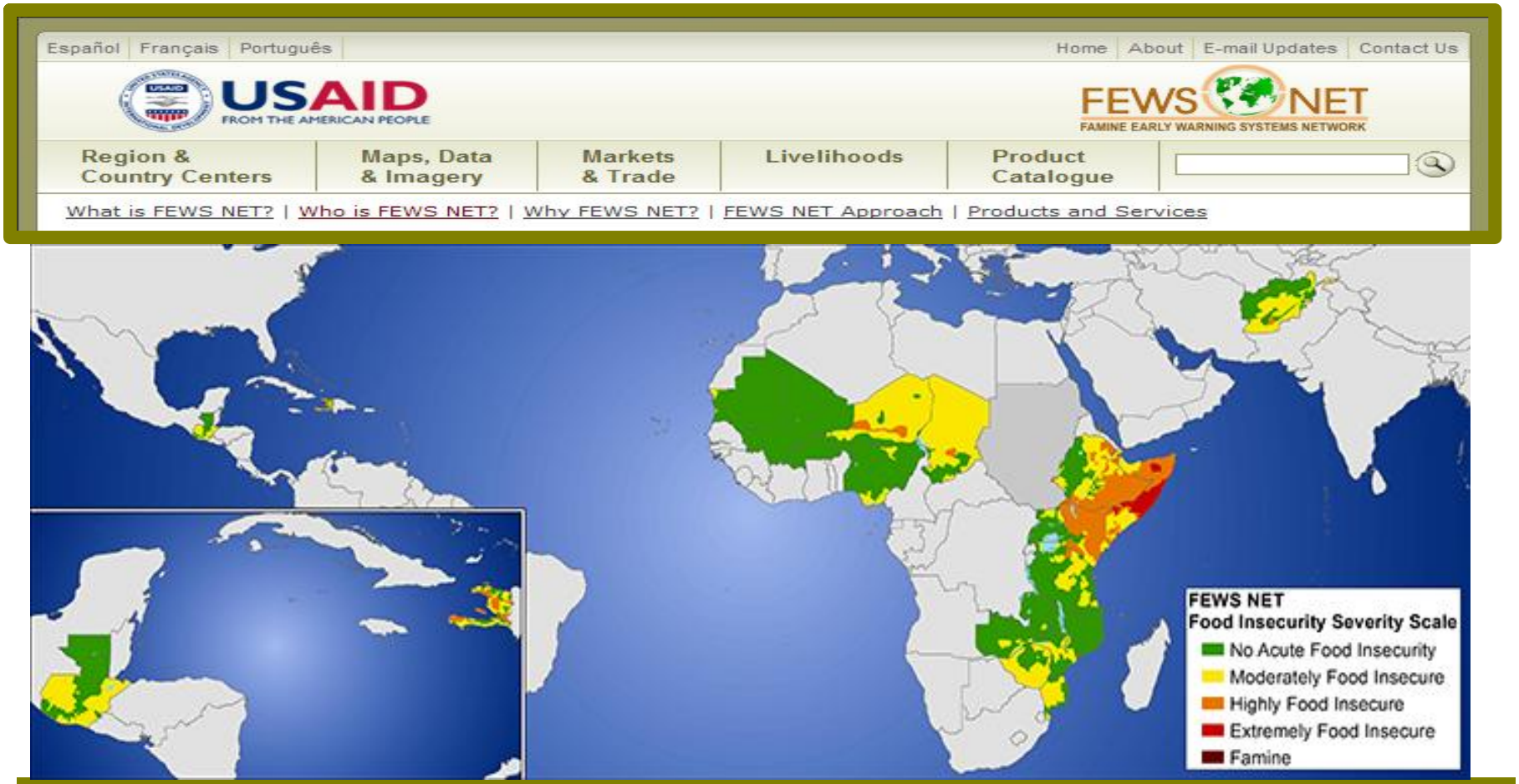
2. **Needs & Challenges: Early Warning & Monitoring**
   - Spatial and Temporal resolution
   - Time-lines & Reliability
   - Agro-Hydro-Climatic characterization: Vulnerability Mapping
   - Seasonal Forecasts interpretation & assimilation
   - Regional/National climate change scenarios

3. **Opportunities & Recommendations**

4. **Conclusion**

USAID/Famine Early Warning Systems – **NETwork**

http://www.fews.net



1. Covering over 26 countries in Africa, Afghanistan, Central America and Haiti.
2. Over 20 years experience in food security monitoring, analysis & early warning in sub-Saharan Africa.
3. Work in collaboration with International, Regional & National Partners…

The vision and working assumptions for FEWS NET:

Appropriate information, provided to the **right people** in the **right way**, is a powerful tool for **saving lives** and **supporting livelihoods**.

Appropriate information	right people	right way	saving lives	supporting livelihoods
Using a rigorous analytical framework to connect a field reality to ongoing decision making.	Building networks of information providers and decision-makers who have the power to make important changes	Developing consensus around good information and building capacity in African institutions to meet specific information needs.	Encouraging appropriate targeting of emergency provisions and services both geographically and to particular income groups within an area.	Identifying appropriate policies and development initiatives to help rural (and urban) households become better off and to prevent future food crises.

“ Overall Goal: Save Lives & Livelihoods”

FEWS NET Livelihood-based Approach:

http://www.fews.net

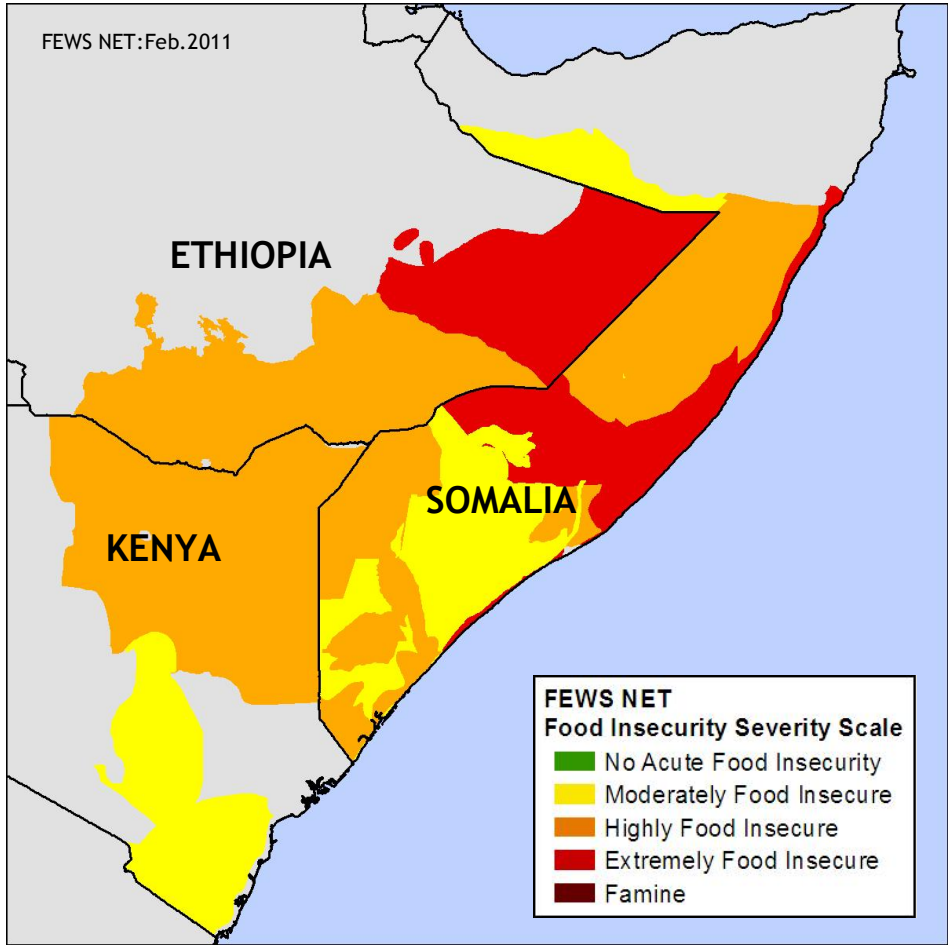
- **Livelihood (socio-economic)- based Monitoring & Analysis** of food security indicators:
  - **Availability (**food production**)**
  - **Accessibility (**Markets & Trade**)**
  - **Utilization (**Nutrition & Health**)**
  - **Stability of these indicators (**Volatility**)**

All these are highly impacted by both Weather/Climatic & Non-Climatic factors…

Example: Current Food Security Status

Roughly 4.7 million people in the "scenario" areas are currently unable to make the investments needed to maintain current livelihoods. A significant proportion are also unable to meet basic food and water needs required for survival.

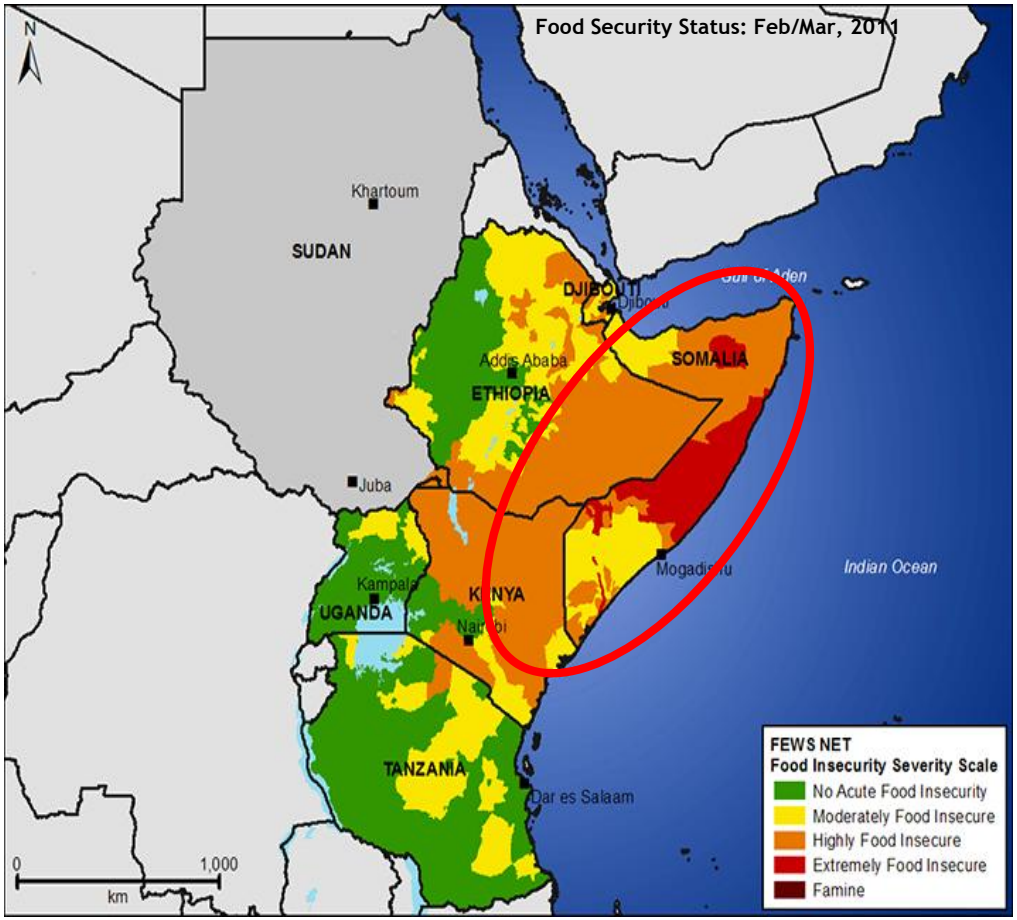
Scenario areas	Est. food insecure pop.
Somalia[1]	~2.1 million
Kenya[2]	~1.5 million
Ethiopia (Somali	~1.1 million
Total	**~4.7 million**

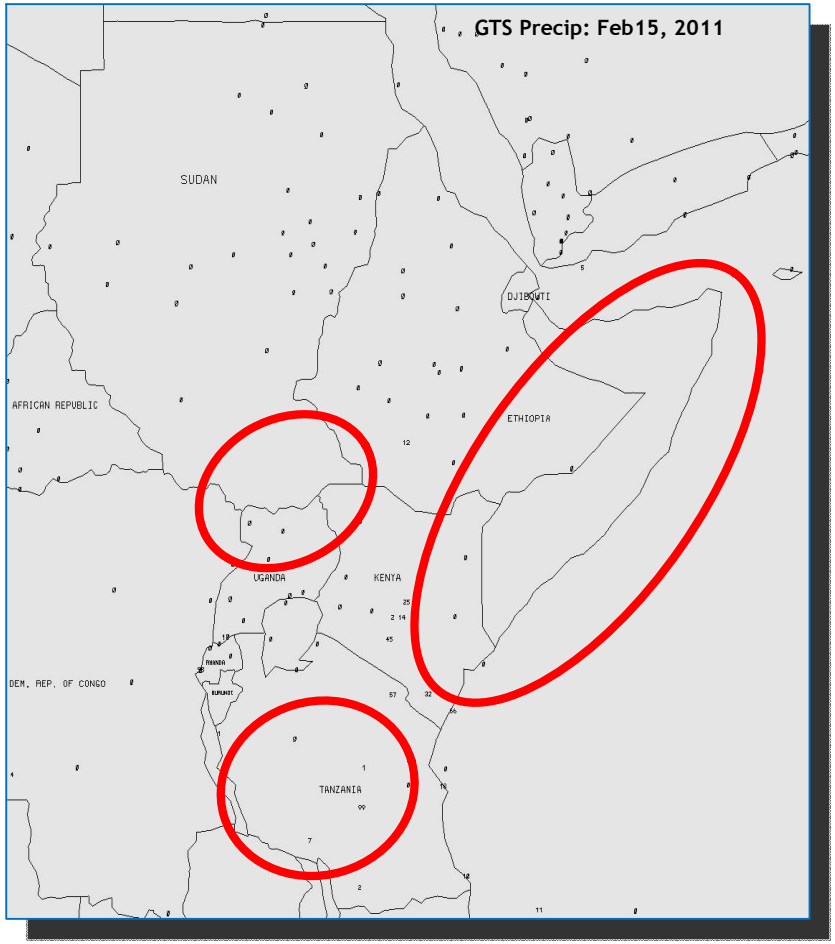


[1] FSNAU post-Deyr analysis (national total = 2.4 million)
[2] Short-rains assessment findings (national total = 2.44 million)
[3] February 2010 Humanitarian requirements document (national total = xx million

Needs & Challenges:

1. **Spatial & Temporal resolution for continuous monitoring …**

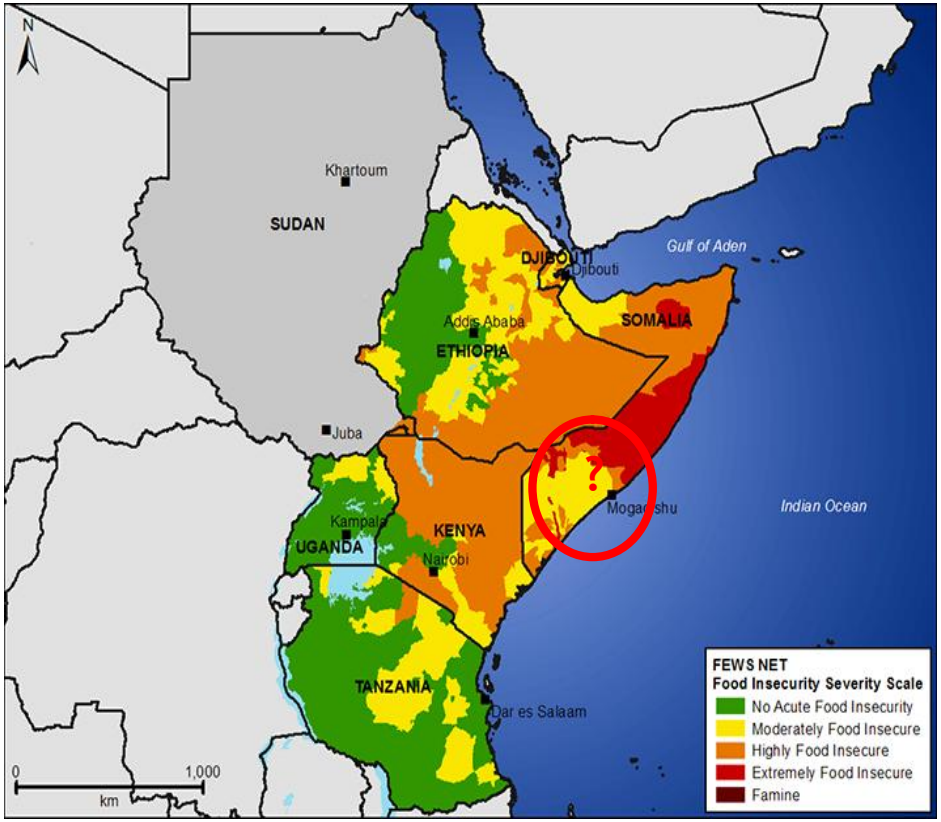


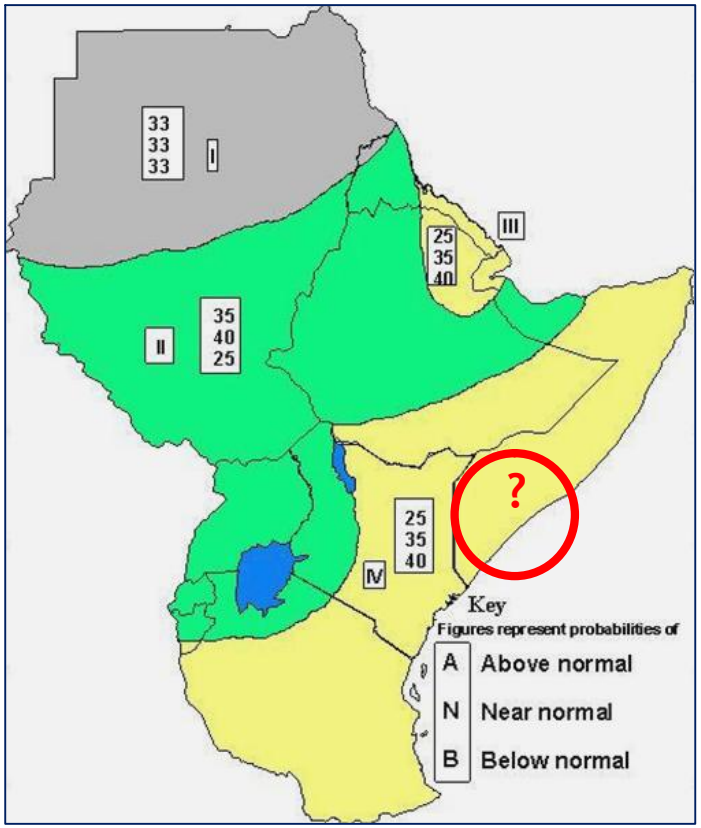


1. **Sparse meteorological observations to support comprehensive Agro-Hydro-Climatic monitoring in chronically food insecure regions.**
2. GTS disseminated observations are inconsistent/irregular and impact on our basic products (RFE and surrogate) for trends/change analysis..

Needs & Challenges:

2. Spatial & Temporal resolution for early warning/ seasonal forecasts…



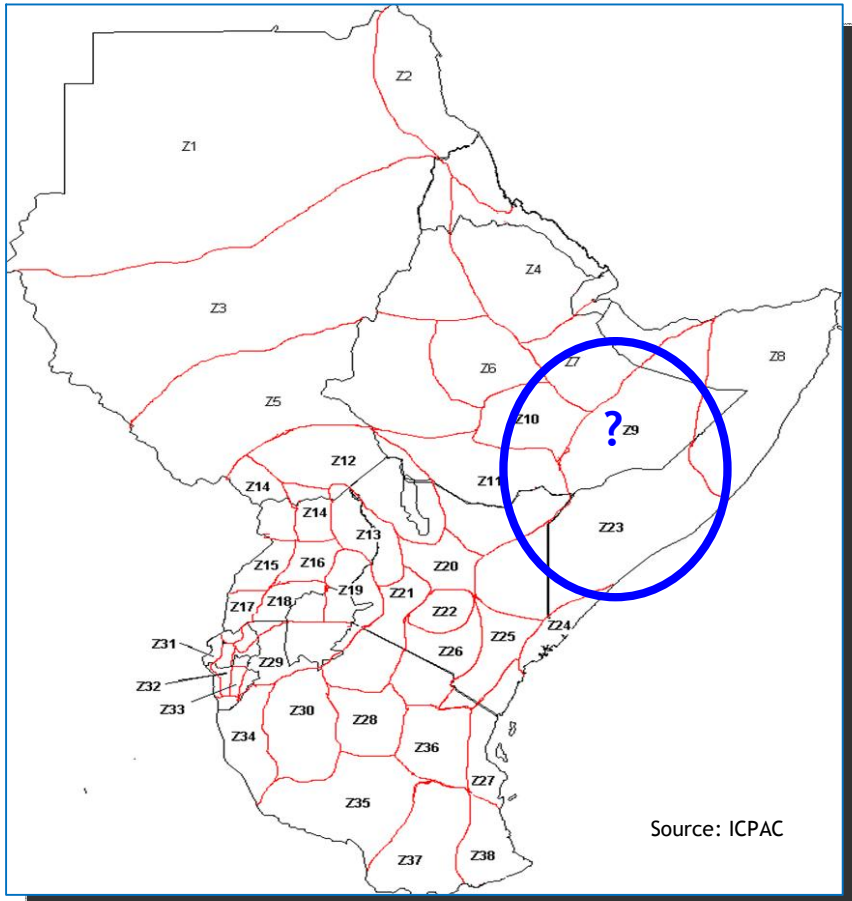


1. Need to improve on the spatial scales of the forecasts to "very least" correspond to identified climatic – zones in the countries/region. Generalized forecast's lead to many ambiguous assumptions ..
2. Timeliness of forecasts is very important and 1-month lead time is useful ….but, too late is NOT useful.
3. Information on onset, distribution and cessation of rainfall is very important.
4. Need to improve on translating seasonal/monthly forecasts from meteorological drought to agricultural and hydrological drought risks, to reduce assumptions on the possible Ag. Production prospects…
5. Surface temperature observations and forecasts are becoming more increasingly important. with recurrent drought.

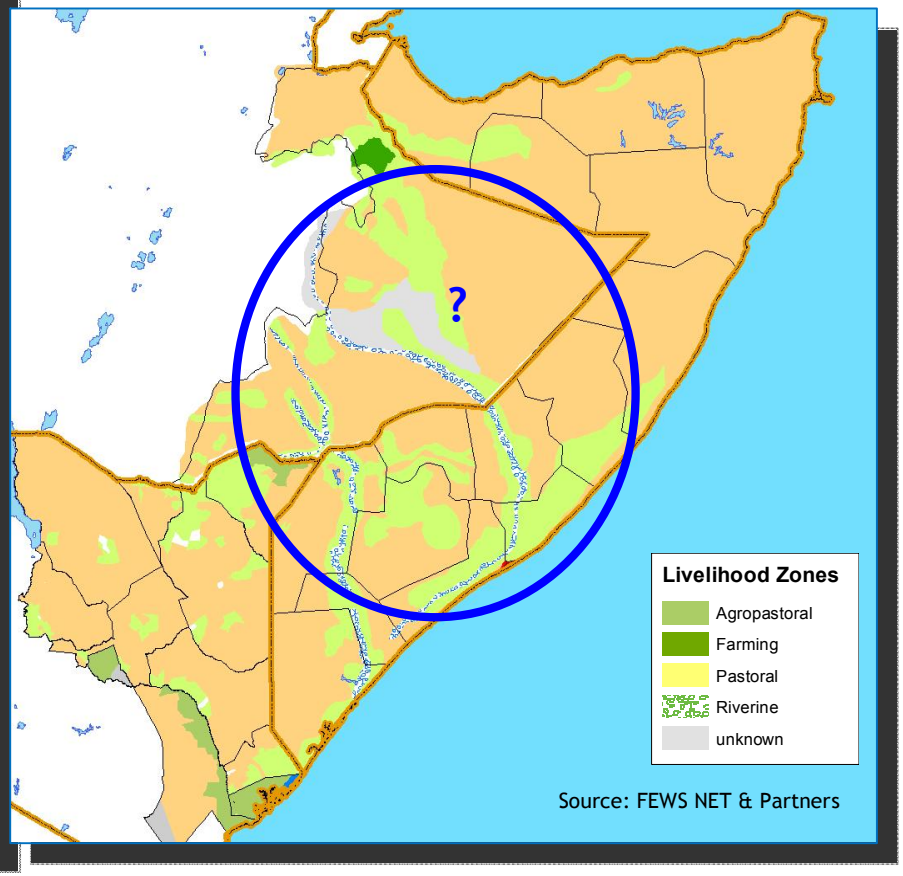
Needs & Challenges:

3. Improve spatial resolution to support better monitoring and early warning of livelihood zones…

Homogeneous climatic zones



Simplified Livelihood Systems

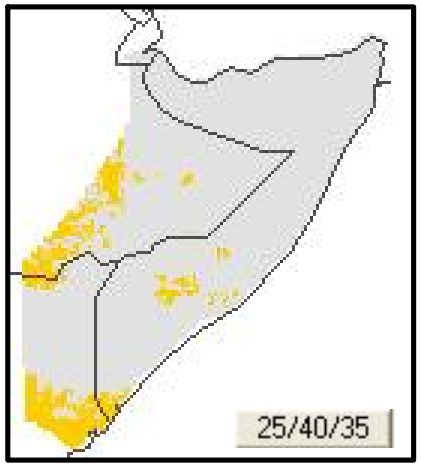


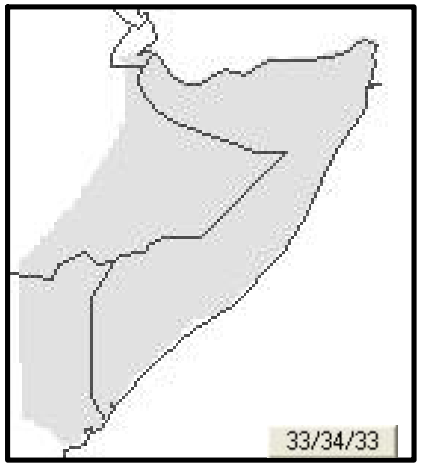
1. Detailed forecasts at national/regional scales to support better early warning and monitoring of food productions systems across diverse livelihoods, with regard to determined homogeneous climatological zones..

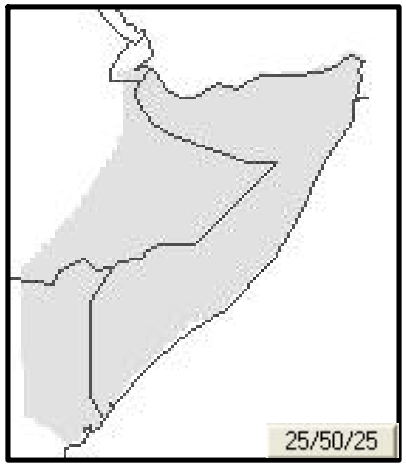
Needs & Challenges:

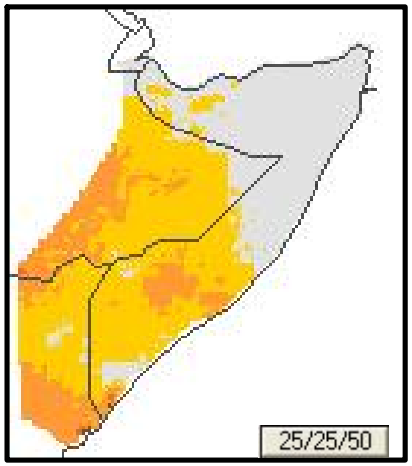
“Value of Near-Normal Seasonal Forecast”
(Sharpen the forecast & include reliability/confidence levels)

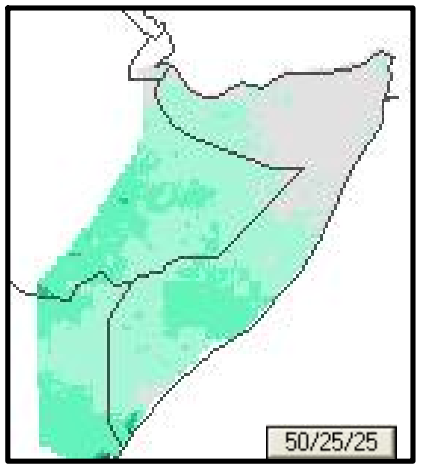
- Seasonal Forecast (25,40,35), Climatology (33,34,33) and others (25,50,25)

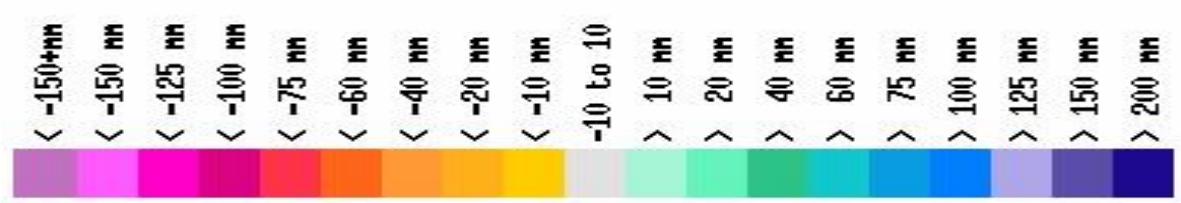








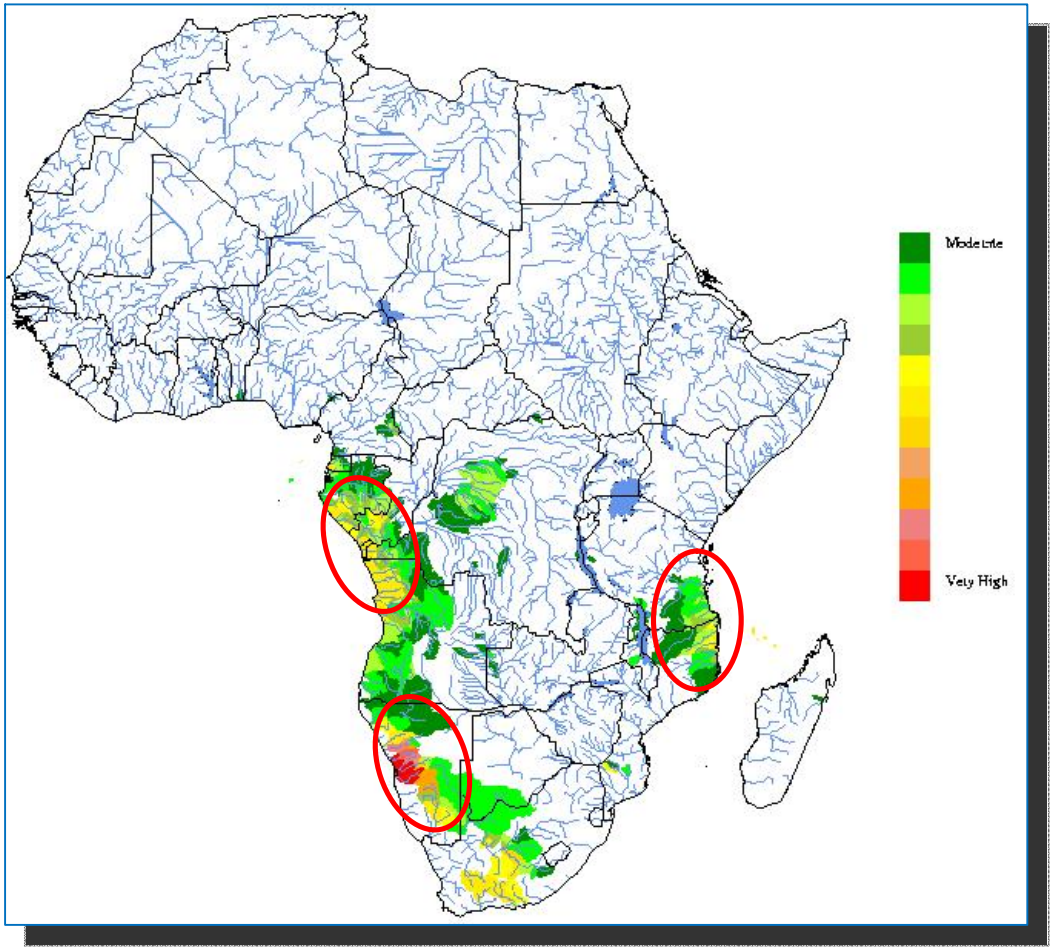


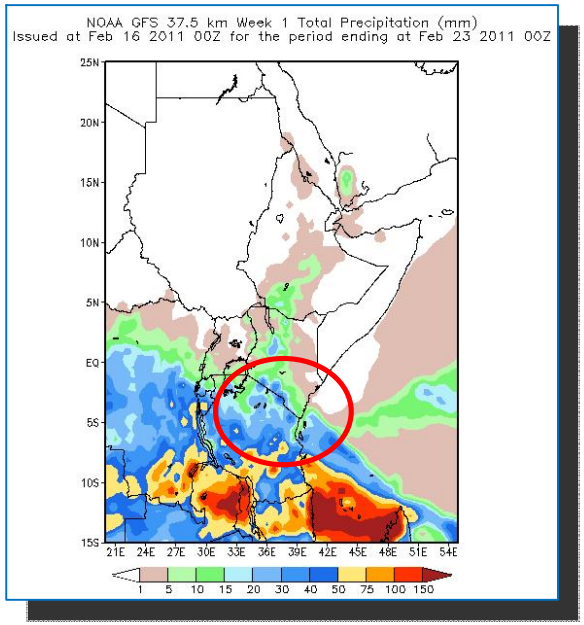


Needs & Challenges:

Hydro-Climatic Monitoring & Early Warning

Basin Excessive Rainfall Map (BERM): 10 Feb. 2011



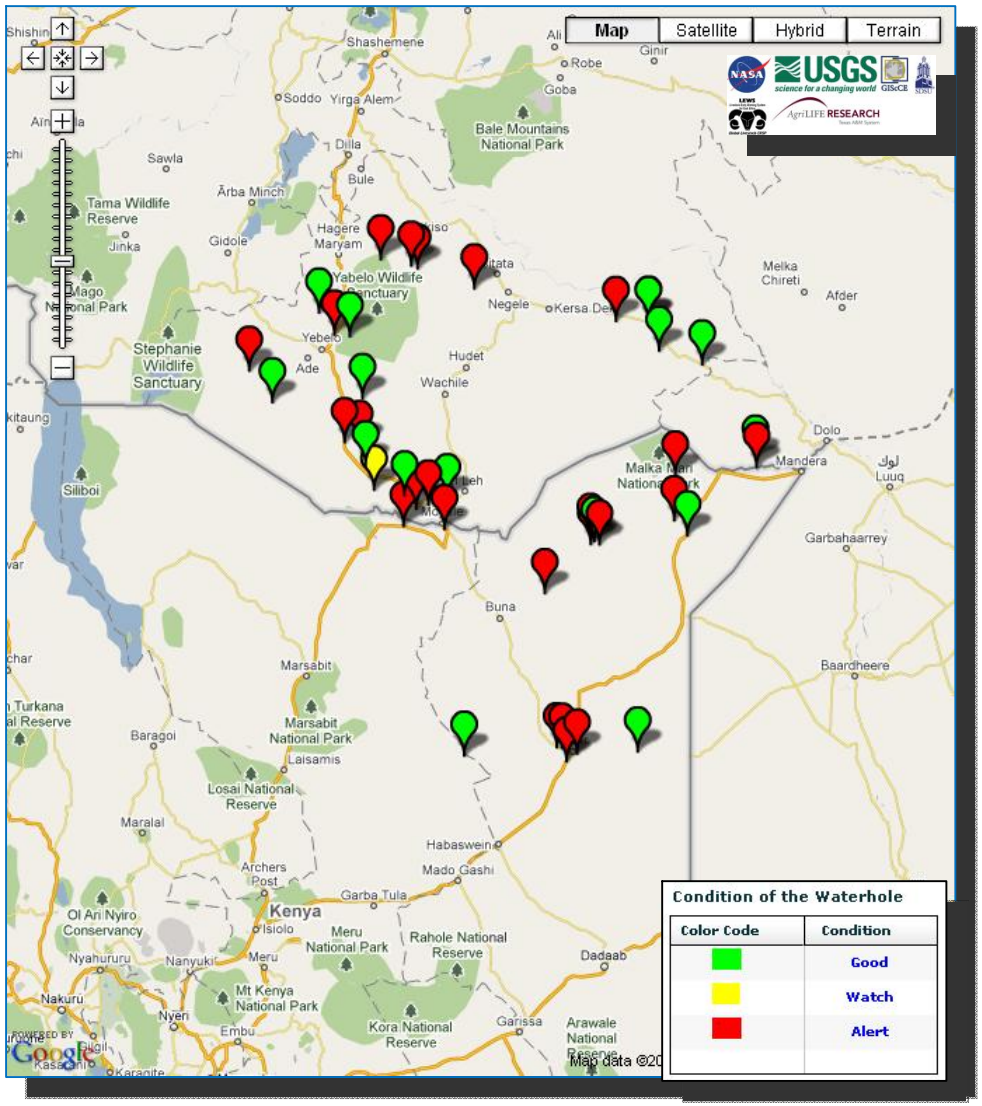


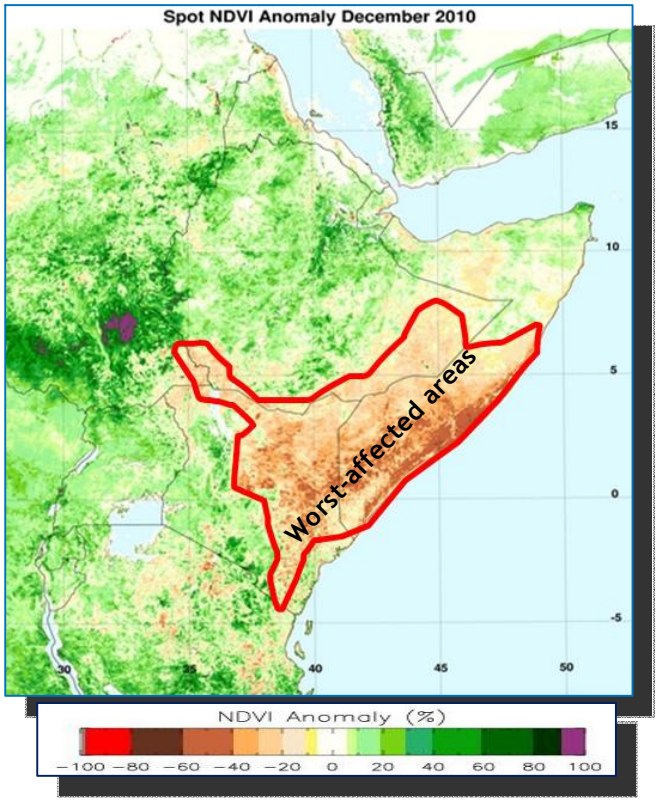
1. Need for **river-gauge obs.** & **weekly regional scale weather** forecasts to calibrate GeoSFM (stream-flow) models for **flood monitoring and risk mapping.**

Needs & Challenges:

Rangeland Resources Monitoring & Early Warning

Surface Water Monitoring (WaterMon): Feb. 2011





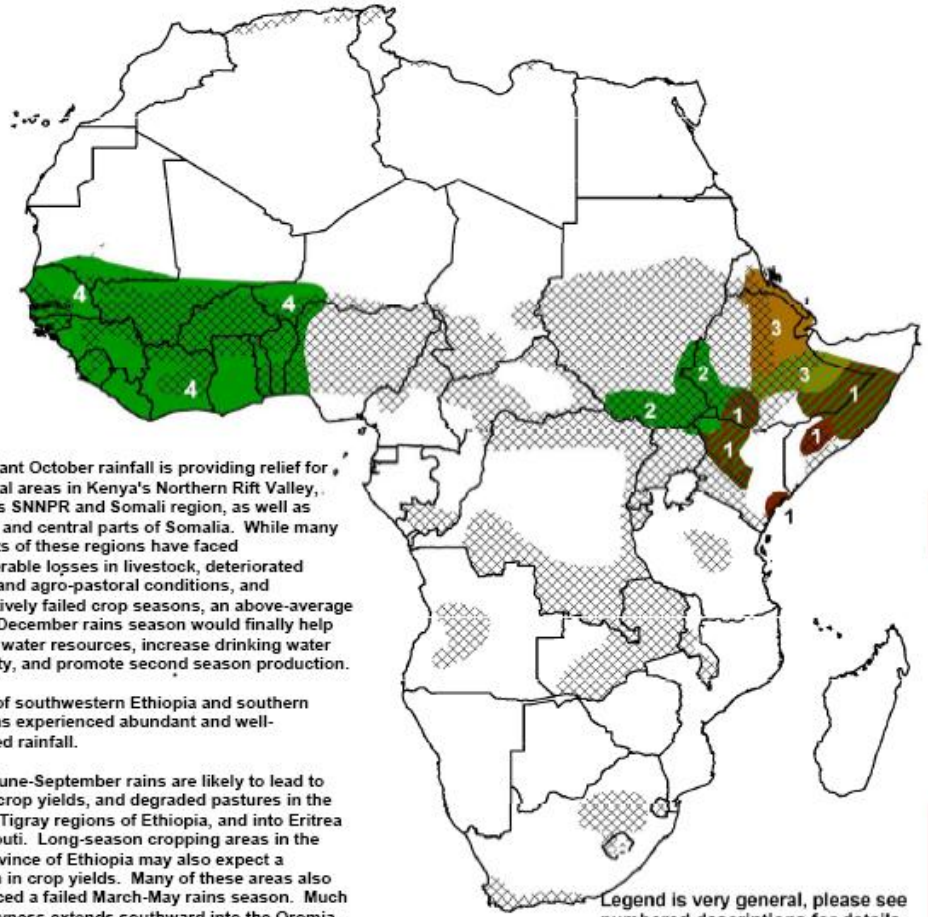
1. Need for daily/dekadal **surface temp.** & **evaporation obs.** to **support better rangeland resource monitoring and forecasting,** if/where possible.

http://watermon.tamu.edu/high.html

Dar-Es-Salaam, 21 - 24 February. 2011

The USAID FEWS NET Weather Hazards Impacts Assessment for Africa
October 30 – November 5, 2008

- Remnants from Tropical Cyclone "Three" in the Gulf of Aden produced significant amounts of rain across many areas of northern Somalia and eastern Ethiopia. Increased moisture associated with this tropical disturbance has further increased Oct-Dec seasonal rain totals across the Greater Horn.
- Another week of fair rainfall continues to promote early season cropping activities in parts of the Maize Triangle and southern Zimbabwe, however many other regions in southern Africa are beginning to experience a delay in early season rain totals.



1) Abundant October rainfall is providing relief for many local areas in Kenya's Northern Rift Valley, Ethiopia's SNNPR and Somali region, as well as southern and central parts of Somalia. While many local parts of these regions have faced unrecoverable losses in livestock, deteriorated pastoral and agro-pastoral conditions, and consecutively failed crop seasons, an above-average October-December rains season would finally help recharge water resources, increase drinking water availability, and promote second season production.

2) Much of southwestern Ethiopia and southern Sudan has experienced abundant and well-distributed rainfall.

3) Poor June-September rains are likely to lead to reduced crop yields, and degraded pastures in the Afar and Tigray regions of Ethiopia, and into Eritrea and Djibouti. Long-season cropping areas in the Welo province of Ethiopia may also expect a reduction in crop yields. Many of these areas also experienced a failed March-May rains season. Much of this dryness extends southward into the Oromia, Somali, and SNNP regions of Ethiopia, however ample October rainfall is expected to help saturate soils and promote the development of maize and sorghum crops in these regions.

4) Above-average rainfall since the beginning of July has resulted in increased water availability and favorable crop conditions across much of western Africa.

http://www.cpc.ncep.noaa.gov/products/fews/briefing.htm

Continuous Monitoring, Analysis & Updating

Unseasonable amounts of rain from tropical systems affect Greater Horn and regions in southern Africa

The passage of Tropical Cyclone "Three" in the northwestern Indian Ocean produced ample amounts of rain across many of the climatologically dry regions near the Gulf of Aden. In the last week, widespread precipitation totals in excess of 30- 40 mm were observed across the Sool and Sanaag regions of Somalia, with locally heavier amounts in the Bari region and other local areas along the coast (**Figure 1**). Much of the moisture associated with tropical system was also observed further south, producing average to above-average rainfall across the Oromia and Somali regions of Ethiopia, as well as into the Shabelle and southern regions of Somalia.

Extreme isolated totals (>100 mm) were also observed north of Mogadishu, and local areas downstream in the Shabelle river basin. Since early October, heavy rains have reportedly attributed to rising river levels across southern Somalia, as there are increased concerns of flooding if above-average rains continue. To date, above-average precipitation in October has resulted in favorable crop conditions across many areas where inputs are available for second season production (**Figure 2**).

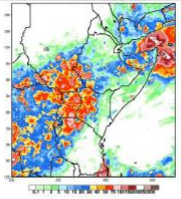
Further south, another tropical disturbance (formally tropical cyclone "ASMA") produced plentiful amounts of rain in parts of Madagascar and northern Mozambique / southern Tanzania. While these areas have not begun their start of season, this rainfall is expected to promote early season soil conditions and increase drinking water availability.

Precipitation forecasts over the next seven days show another week of moderate to heavy rains across the Greater Horn. Rainfall totals ranging between 30 -50 are expected across the drier parts of Ethiopia and Somalia, with high probabilities for significant rainfall further south into parts of central Kenya and northern Tanzania.

A delayed start of season for cropping regions in South Africa.

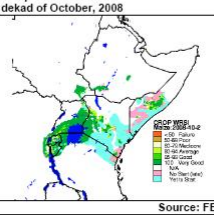
Since abundant rains were observed in early October, there are parts of the eastern Cape and KwaZulu-Natal regions of South Africa that are now beginning to experience a delayed start of season. Satellite-derived rainfall analyses indicate seasonal rain deficits have been increasing gradually over the past two weeks (**Figure 3**). While rainfall totals are currently below-average for this time of year, this has not thwarted early season cropping activities as ground moisture analyses remain near normal.

Figure 1: Satellite Derived Rainfall Estimates (mm)
From October 19th to October 25th, 2008



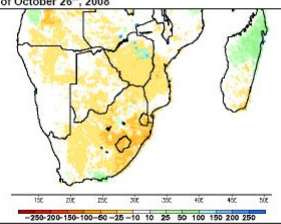
Source: FEWS/NOAA

Figure 2: Crop WRSI for Maize
As of 2nd dekad of October, 2008



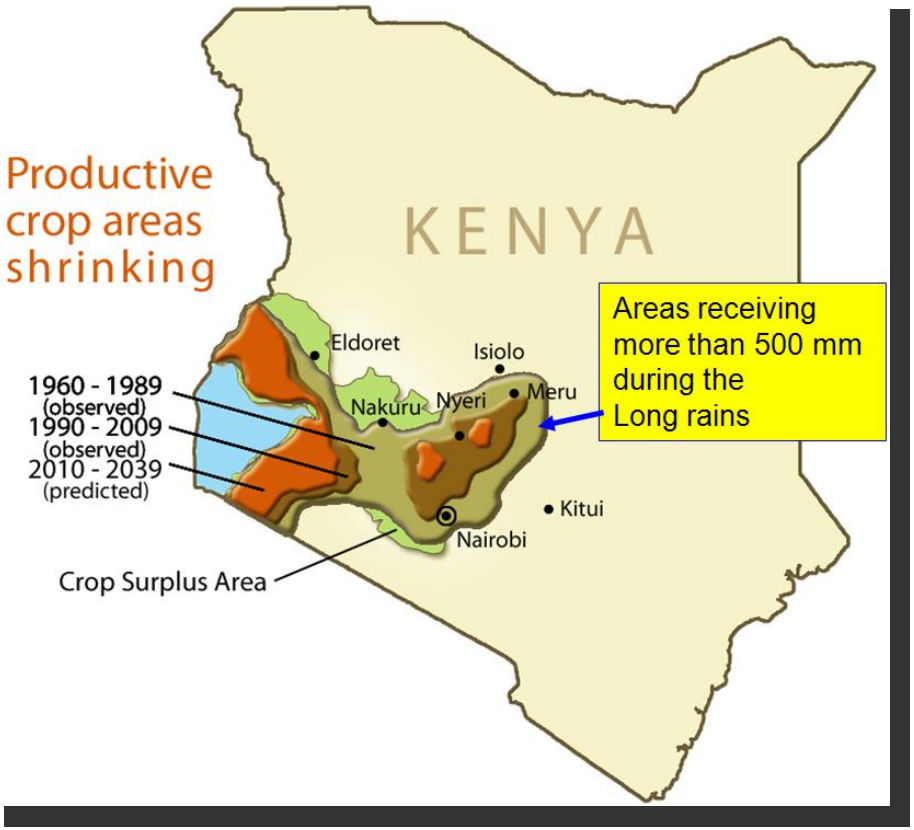
Source: FEWS/USGS

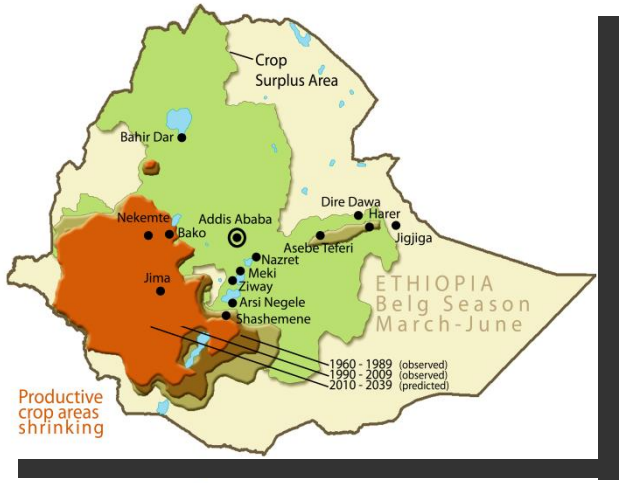
Figure 3: Rainfall Anomalies (mm)
As of October 26th, 2008

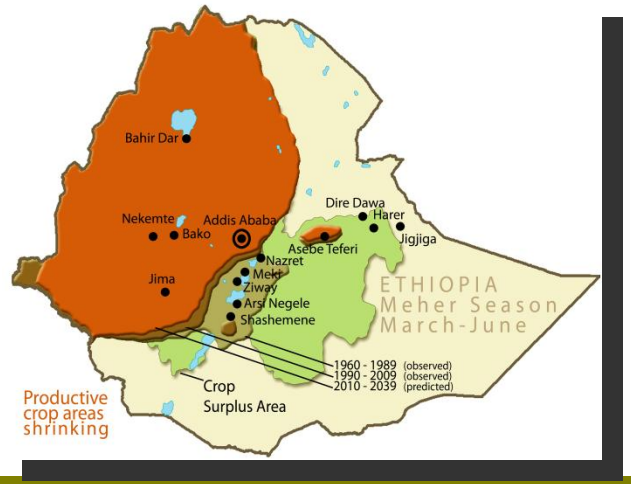


Source: FEWS/NOAA

FEWS NET: National / Regional Climatic Scenario's



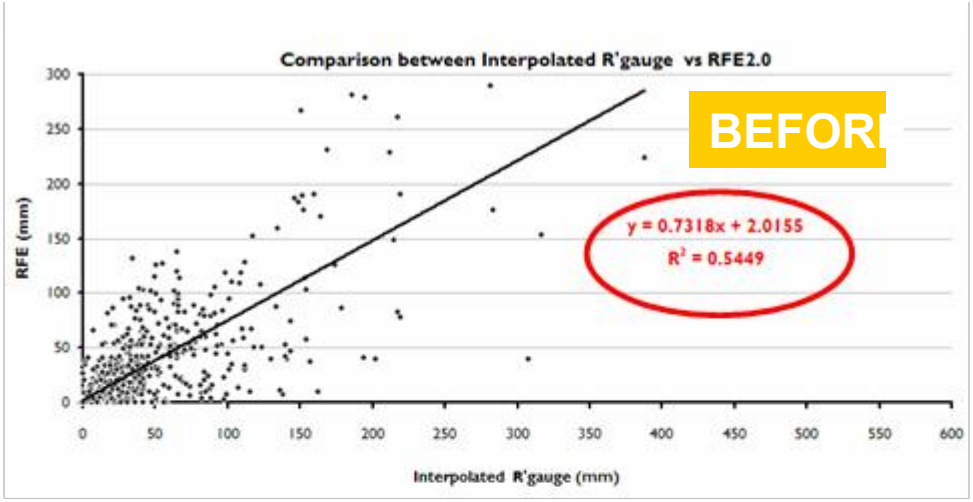


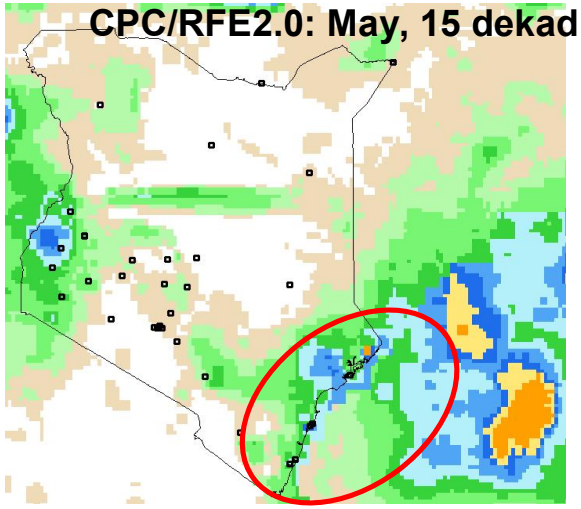


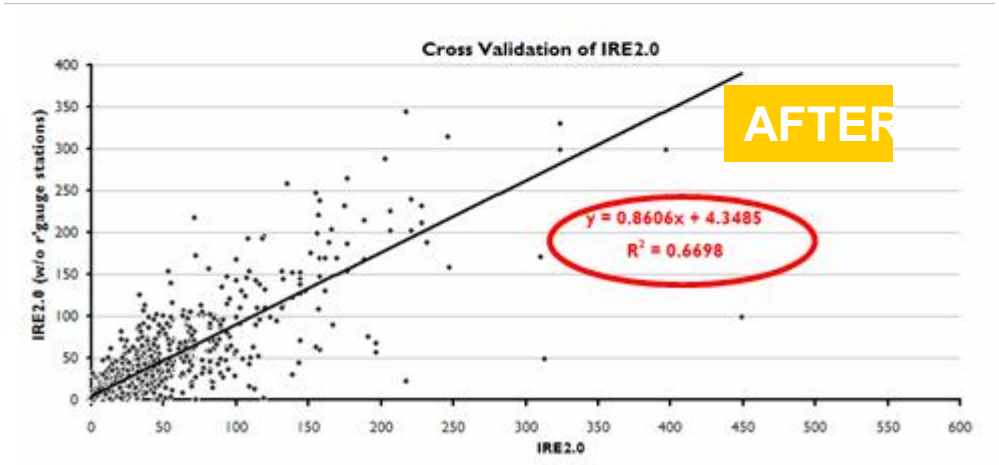
1. With increased climatic variability / undetermined climate change trends in the region..
   - there is a need for national scale climate change scenario's for both rainfall and temperture and implications to Ag. Production and water resources.
   - Identification of areas with high inter-seasonal to monthly rainfall variability
2. Expected to support short- to long-term development programs aimed at sustainable livelihoods.

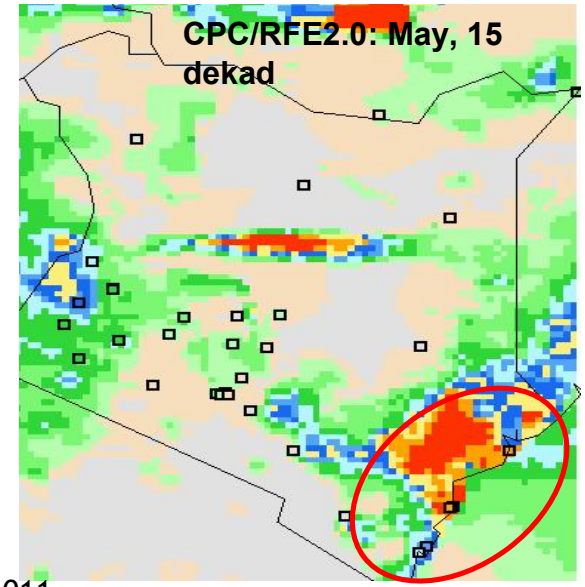
Opportunities:" Maximize on Available Met. Observations"

Kenya Coastal Strip: RFE2.0 Validation & Improvement with Non-GTS raingauges



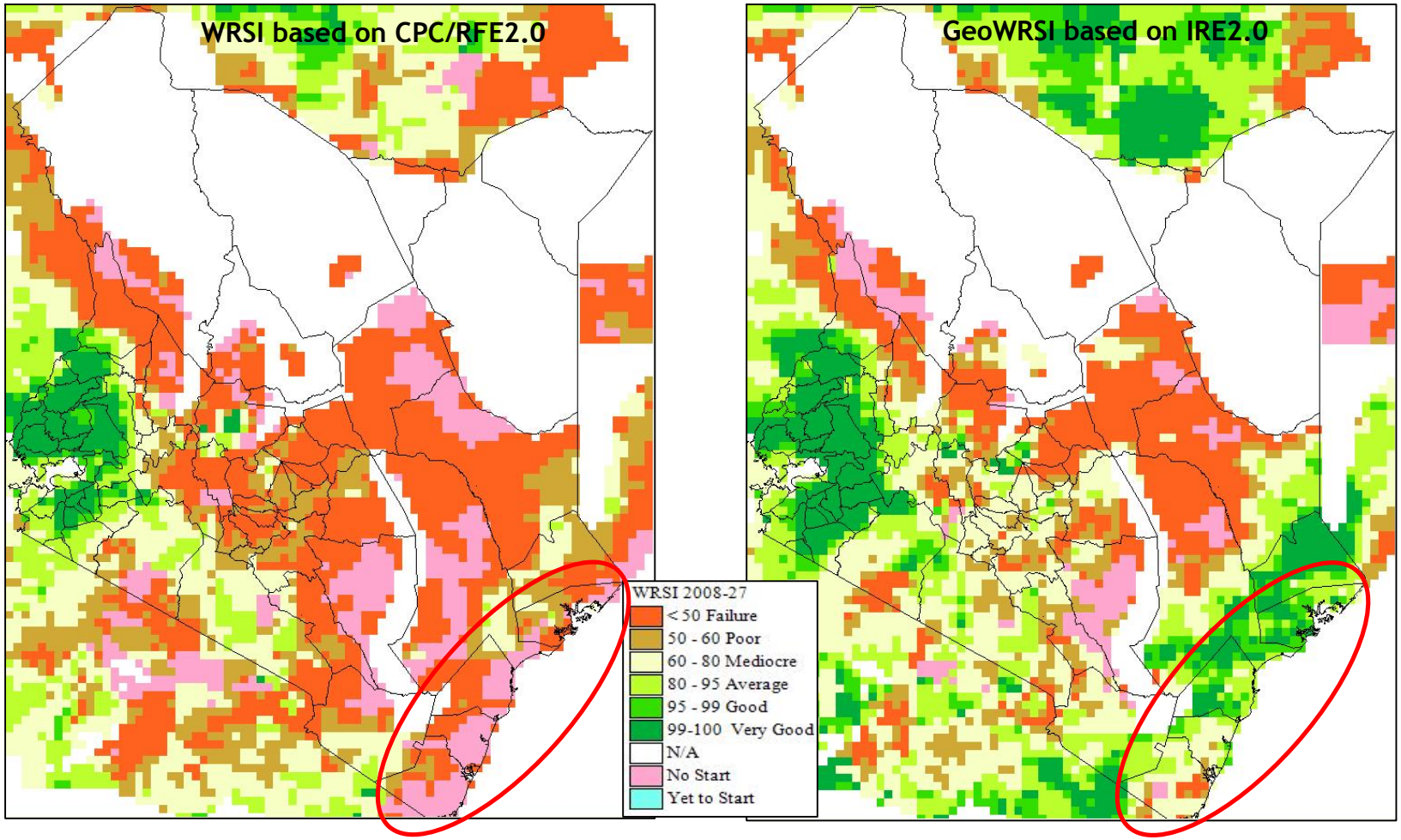




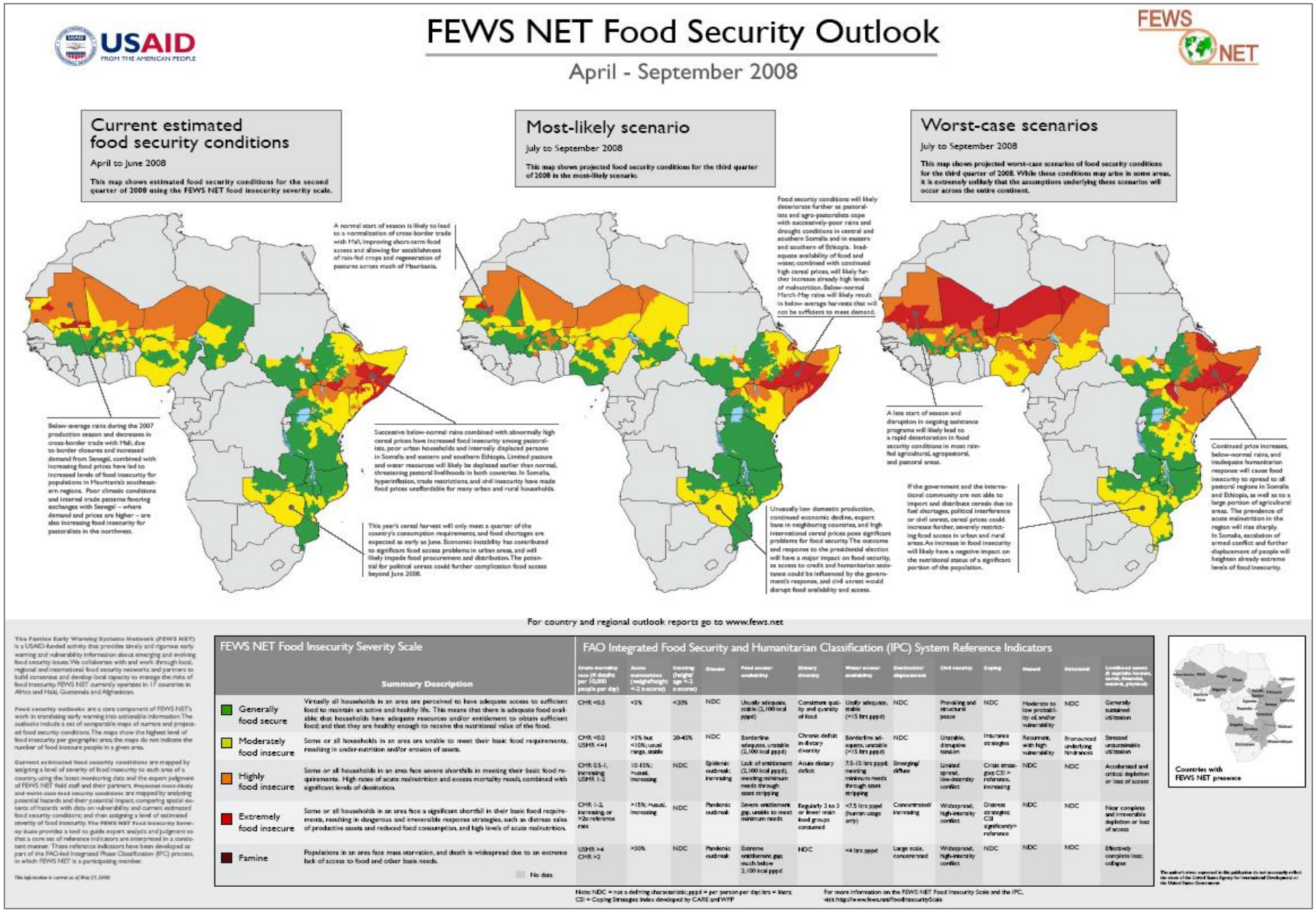


Opportunities:" Better Crop/Rangeland monitoring”

Impacts of Improved RFE (IRE) on Crop Monitoring



Qns: How can we improve FS Monitoring & Early Warning?



Major Network Partners

US Partners ….

USGS science for a changing world

UC Santa Barbara Geography Est. 1974

USDA

NOAA

NASA

International/ Regional Partners …

Food & Agriculture Organization

World Food Programme

IGAD/ICPAC

Regional Centre for Mapping of Resources for Development

RATES

Partners within countries….

Ministries of Agriculture and Livestock, **National Met. Services**, UN Agencies, Disaster Management Units, Other Early Warning Projects, NGOs, Private Sector, etc…

Opportunities & Recommendations

1. Monitoring:

- **Short-term:** Work with the National Met. services & partners to Improve Rainfall Estimates (RFE's) using readily available non-GTS raingauges.
- **Long-term:** increase raingauge observations to cover all vulnerable livelihood zones across the GHA region.
- **Characterize Agro-Hydro-Climatic hotspots**; to support vulnerability/risk mapping and improved monitoring and early warning.

2. Forecasting:

- **Strong/moderate La-Nino & El-Nino events:** sharpen the seasonal forecasts to help detect better extreme weather events.
- **Weak/neutral events:** more regular seasonal weather updates, with special focus on climatic-hot spots (vulnerable areas).
- Include **"level of confidence/reliability"** in the forecasts to support decision-making

3. Partnership & Applications Developments:

- **Identify key partners, competencies & strengthen collaboration**
- **Leverage on existing capacities in the region.**

Conclusion

1. Meteorological/Climate agencies are **providing valuable decision support information** to the food security sector.

2. Need to work more closely with the **sector/end-users' in identifying and prioritizing their needs, capacities**, so as to **improve their early warning and monitoring capacities at sub-national level, national and regional level**.

Thank you…

FEWS NET Food Insecurity Severity Scale

Summary Description

Generally food secure	Nearly all households have adequate access to sufficient food to maintain an active and healthy life, without depending on external assistance. This means that there is adequate food available; that households have adequate resources to obtain sufficient food; and that they are healthy enough to receive the nutritional value of the food.
Moderately food insecure	Some or all households are barely able to meet their basic food requirements on their own. To meet their requirements, they are relying on external assistance and/or coping strategies that begin to erode their asset base.
Highly food insecure	Some or all households face shortfalls in meeting their basic food requirements. Negative household response strategies are prominent, including reduction in the quantity and/or quality of meals, and/or increased depletion or liquidation of assets. Rates of acute malnutrition are above normal.
Extremely food insecure	Some or all households face a severe shortfall in their basic food requirements. Reduced food intake is widespread, resulting in significantly increased rates of acute malnutrition and gradual destitution.
Famine	Destitution and starvation become prominent, and populations face high mortality risk, due to an extreme lack of access to food and other basic needs.