

Image 1: Hotspot areas

**4. Both global and regional climates are changing given that the levels of greenhouse gases in the atmosphere will continue to rise. This presents threats with serious ecological, social, and economic consequences, and also has an impact on food security.**

**5. Unprecedented increased food insecurity was experienced during extreme climatic events of 2011, 2015 and 2016.**

- The acutely food insecure population in the region decreased from 17 million in 2011 ( La Niña) to 10 million in late 2013 before increasing again to 18 million in September 2015 (El Niño), then to 23 million in September 2016 (La Niña) and reaching a peak of 27 million in July 2017. This was worsened by conflict in South Sudan.
- The droughts of 2011, 2015 and 2016 increased needs, with north-eastern, south, and south-eastern Ethiopia; northern and coastal Kenya; and most of Somalia being the most affected areas in the region (Image 2).

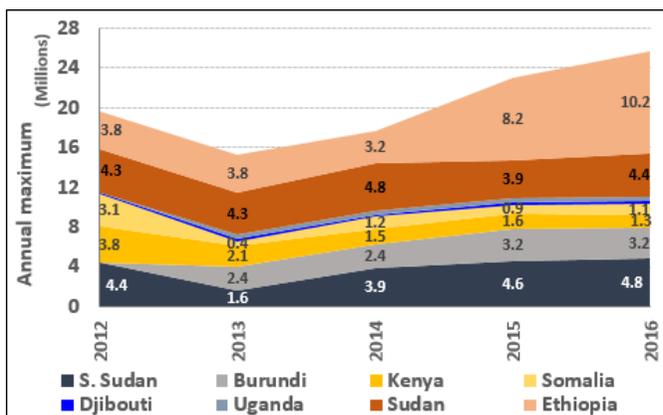
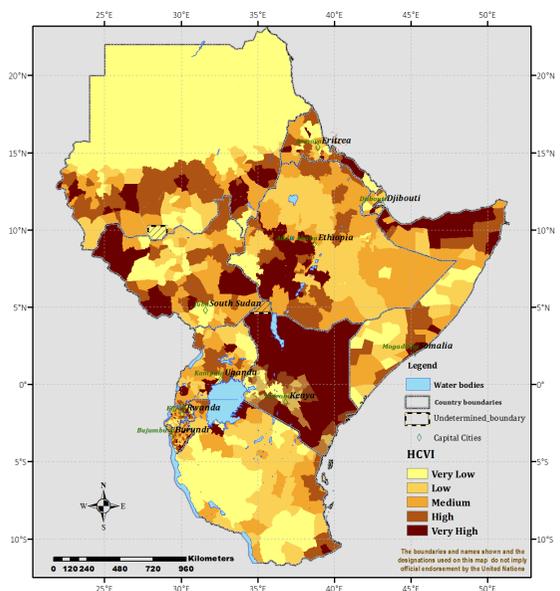


Image 2: Annual maximum number of food insecure people in need of humanitarian assistance since 2012

**6. Population growth continues to outpace increased agricultural production, adding to the challenges of addressing poverty and food insecurity, especially for the 75% of the population dependent on smallholder rain-fed agriculture and markets in semi-arid areas.**

**7. High cereal prices affected food access due to the droughts of 2015 through 2017.** This was worsened by countries restricting cross-border trade, which affected food availability in markets especially in the southeast region between Ethiopia and Somalia, between Tanzania and its neighbours, and between Kenya and Ethiopia. Therefore, there was a need to support and regularize cross-border trade.

**8. The Hunger and Climate Vulnerability Index (HCVI) - A composite index incorporating socioeconomic and environmental indicators that are highly correlated and relevant to food insecurity.** It provides a multidimensional analysis of vulnerability, depicting the geographic areas where climate risks exacerbate food insecurity (Image 3).



For the detailed Atlas, visit:

<http://www.icpac.net/index.php/applications/research-development.html>

# POLICY BRIEF

## Greater Horn of Africa (GHA) Regional Climate Risk and Food Security Atlas



*Increased frequency and intensity of climate variability appears through highly variable and erratic rainfall together with rising temperatures, floods and droughts. They are a major driver of vulnerability in the region, in addition to political conflict. The "Atlas" creates a strategic tool to help guide adaptation planning, programme design, and policy making for national and sub-national government agencies, UN agencies and non-governmental organizations in the Greater Horn of Africa (GHA).*



## POLICY IMPLICATIONS

Climate variability and change, manifested as extreme events, have resulted in increased livestock, crop and human diseases, crop failures and livestock deaths, land degradation and reduced crop production. These lead to increased economic costs to governments, food insecurity, malnutrition and loss of livelihoods in affected areas, especially arid and semi-arid areas of the region. The following essential actions by both governments and partners will help to reduce increasing vulnerability and achieve the Sustainable Development Goals (SDGs):

- Reform government policies, development plans and programmes on sectors most vulnerable to climate change and mitigate its related impacts.
- Adapt farming systems through interventions such as increased irrigation, water harvesting, risk transfers (insurance) and considering changing to drought tolerant species to address climate variability, especially in hotspot areas.
- Strengthen resilience building initiatives to cope with increased extreme climatic events and changing ecosystems.
- Strengthen safety nets to protect lives and livelihoods of the most vulnerable, as both harvest failures and food commodity prices continue to increase in the region while livelihoods, especially for the most poor, are shrinking due to the climatic impacts.
- Establish land and resource management policies and plans to address increased population and utilization of marginal lands, which have resulted in increased land degradation.
- Review policies on the management and use of the existing Strategic Food Reserves (SFRs) or establish them to address high food commodity prices and reduced food availability associated with climate variability and some trade restrictions in the region.
- Integrate food security, nutrition and sustainable agriculture into regional, national, and local policies.

## OBJECTIVES OF THE ATLAS

The Heads of State and Governments at the Summit on the Horn of Africa Crisis in Nairobi in September 2011 declared their commitment to end drought emergencies and vulnerabilities in the IGAD region once and for all. Governments and partners have since implemented various initiatives to reduce drought emergencies in their respective countries. As a contribution to understanding drought emergencies and vulnerabilities, ICPAC and WFP using the Swedish Climate Adaptation Fund analysed climate risks and their impact to set baseline information. The "Greater Horn of Africa Climate Risk and Food Security Atlas" was created to map past climate trends, identifying geographic patterns of hazards, vulnerability, and aligning with trends in food security. The Atlas generates information essential for resilience building, climate risks mitigation and adaptation to address climate change impacts in order to achieve food security and improve nutrition goals. The Atlas examines and analyses most of the drivers of vulnerability in the GHA, of which the majority are influenced by the climatic variability as outlined in Box 1 below.

### Box 1: Drivers of vulnerability

- **Frequent hazards\*** (droughts, dry spells, floods);
- **Environmental and land degradation\***;
- Animal and Crop **diseases and pests\*** that negatively impact on production;
- **Human disease\*** (e.g. malaria) that lowers labour availability for production and food utilization;
- High population density increasing demand for food compared to production potential;
- **Eroded livelihoods\*** and increase in urban population and slums;
- Malfunctioning markets, trade **policies and high food prices\***;
- Poverty;
- Weak institutional capacity and low access to basic services;
- **Conflict** resulting from political differences and **trans-boundary competition over resources\***.

\* Impacted by climate

## KEY MESSAGES

**1. Highly variable rainfall patterns, intensity and distribution (late season start and ends early) have affected agricultural production systems resulting in emergencies in the region.**

Rainfall variability is driven by complex topographical features such as the Rift Valley System, mountains, plateaus, and large inland water bodies; El Niño/La Niña; the Inter-Tropical Convergence Zone (ITCZ) and ocean temperature anomalies.

**2. The frequency of extreme weather events has increased in recent years associated with climate variability and change resulting in more crop and livestock diseases; livestock deaths and total crop losses culminating into frequent emergencies, food insecurity and infrastructure damages.**

- El Niño/Southern Oscillation (ENSO) is associated with suppressed rains in the northern sector and floods in the equatorial sector of the region.
- La Niña has an opposite effect, resulting in droughts in the equatorial sector of the region.
- El Niño was associated with the droughts of 1982, 1987, 1991, 1997, 2002, 2006, 2009 and 2015 in parts of Ethiopia and northern Somalia. But it was also linked to abnormally wet conditions such as floods in the equatorial sector.
- La Niña was associated with the droughts of 1984, 1988, 1998, 1999, 2007, 2010, 2011 and 2016 for southern and central Somalia, north-eastern and coastal areas of Kenya, south-eastern Ethiopia and Tanzania and wet conditions in the northern sector.

**3. The impact of land degradation and variability of rainfall has resulted in visible hotspots (areas most affected by triple hazards of droughts, floods and land degradation) in parts of northern Ethiopia, eastern Kenya, southeast Tanzania and northern Sudan. The increased dryness in some areas means there is need to adapt agricultural production systems to apparent climate change (Image 1).**