WFP
World Food Programme

SAVING LIVES
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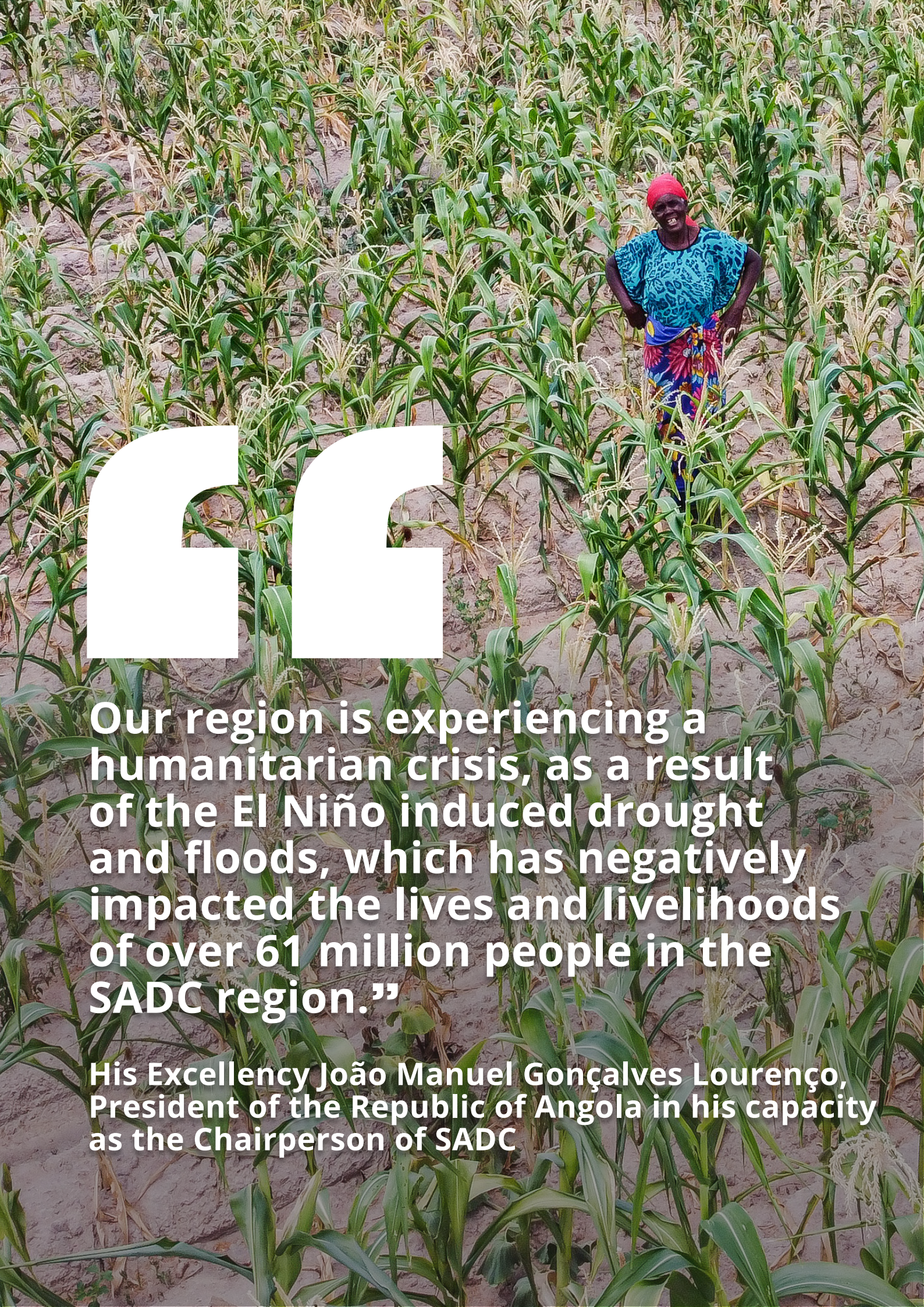
Regional Bureau Johannesbourg

WFP Southern Africa Drought Hotspot Analysis

May 2024



Our region is experiencing a humanitarian crisis, as a result of the El Niño induced drought and floods, which has negatively impacted the lives and livelihoods of over 61 million people in the SADC region.”

His Excellency João Manuel Gonçalves Lourenço, President of the Republic of Angola in his capacity as the Chairperson of SADC

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1. Rationale

Across Southern Africa, even in years of good harvest, many smallholder farming households deplete their own food reserves and there is reduced food availability 3 to 5 months before the next harvest (November to March), referred to as the lean season. To identify areas most at risk of food insecurity during the lean season, governments and partners undertake yearly crop assessments followed by vulnerability assessments.[1] The results are issued around early July,[2] which usually leaves sufficient time for the mobilization of resources (4 to 6 months).

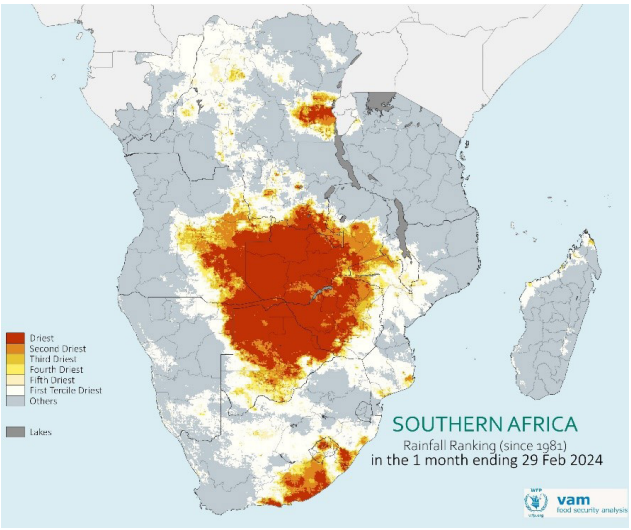


Figure 1: Rainfall Rank map for February 2024, shows the rank of the February 2024 rainfall in the 1981-2024 record.

This year is different. A climate-related food security crisis is unfolding across Southern Africa as an El Niño-induced drought brings about harvest failure, livestock deaths and deteriorating water, sanitation, and health (WASH) conditions as well as reduced generation of hydroelectric power. Over large parts of Angola, Botswana, Madagascar, Malawi, Mozambique, Namibia, South Africa, Zambia and Zimbabwe, a long and extensive dry spell affected crops at the time when moisture was most critical for plant development. February brought the lowest rainfall on record together with a month-long heat wave with temperatures 5 degrees above average. Consequently, in the most affected areas no meaningful harvest is expected.

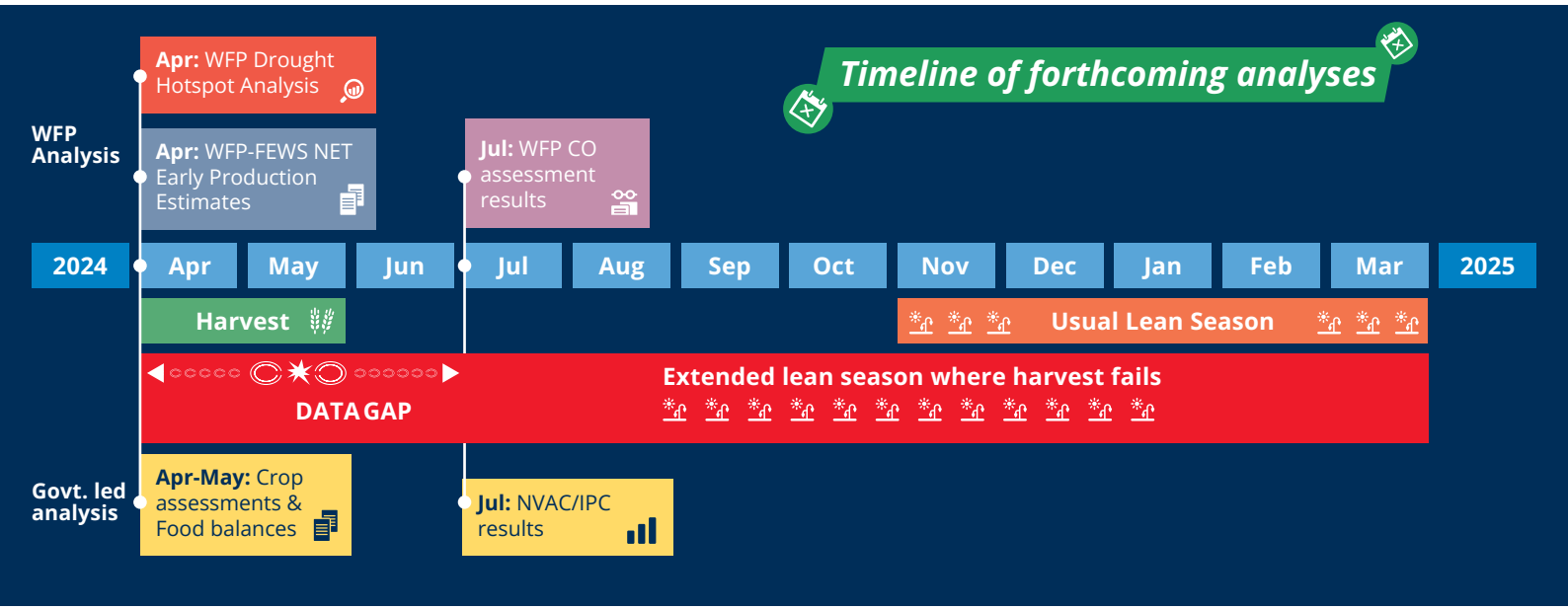
Three countries have already declared national disasters due to the drought: in Zambia, of the 2.2 million hectares of maize planted, 1 million hectares have been destroyed; in Malawi, of the 1.7 hectares of maize planted, 749,000 hectares have been affected; and in Zimbabwe, the harvest is estimated at 868,000 metric tonnes, leaving a food cereal deficit of 680,000 metric tonnes.

Where harvests have failed, households will require food assistance until the next harvest in April 2025, constituting a continuation of the previous lean season. In the immediate term, food assistance will need to be provided to affected households to mitigate the impact of lost income and food from the failed harvest. Furthermore, the number of people requiring food assistance will increase dramatically as we near the regular lean season period (November 2024 to March 2025), as more communities deplete their food reserves and food prices increase.

To respond to the crisis, there is a clear and urgent need to develop an analysis of drought affected food insecure populations and post-harvest food insecurity as we await the results of government-led vulnerability assessments in July. The **WFP Southern Africa Drought Hotspot Analysis** seeks to close this information gap by identifying the magnitude and the locations of the unfolding crisis. The aim is to provide sufficient information for an immediate response and to plan for the impending lean season, which will be severe.

1 These assessments are coordinated by government-led national vulnerability assessment committees (NVACs), and WFP COs are active participants. These assessments often feed into IPC analyses.

2 Results are presented at the annual SADC Dissemination Forum each July and published in the SADC Synthesis Report on the State of Food and Nutrition Security in Southern Africa", often co-authored by WFP RBJ.



2. Methodology

The **WFP Southern Africa Drought Hotspot Analysis** was conducted using a **composite drought index (CDI)** and the **most recent**, **government-endorsed food security data** (IPC, National Vulnerability Assessment Committees (VACs), Multidimensional Poverty Index (MPI) or national poverty data) in order to estimate number of people exposed to, affected by and in need of assistance - both in the shorter-term and in the longer-term for the upcoming lean season - as a result of drought conditions to inform response planning and advocacy efforts.

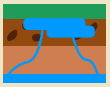
At the regional level, this allowed for a comparison of likely impact across countries and brought to light the regional scale of the disaster. Country-specific analyses have been developed upon request to identify those in need of assistance (IPC3+ or equivalent in severe drought conditions) and those in need of immediate assistance (IPC4+ or equivalent in severe drought conditions) to inform the prioritisation of assistance.

2.1 WFP Composite Drought Index (CDI)

WFP Geospatial and Remote Sensing (GRS) unit developed a composite drought index with the objective of deriving an index that conveys the performance of the agricultural season in an easy-to-understand numerical scale, where performance means the quality of crop and pasture development. The WFP Composite Drought Index (CDI) consists of the key variables of the water cycle, which are often used for early warning activities:

AVAILABILITY
RAINFALL

DEMAND
REFERENCE EVAPOTRANSPIRATION



STORAGE
SOIL MOISTURE

The index situates these variables in the historical record by means of a single 0-100 Index, with 0 the driest and 100 the wettest. The index accounts for the variable importance of different phases of the season by giving more weight to anomalous behaviour in the wetter stages of the season.

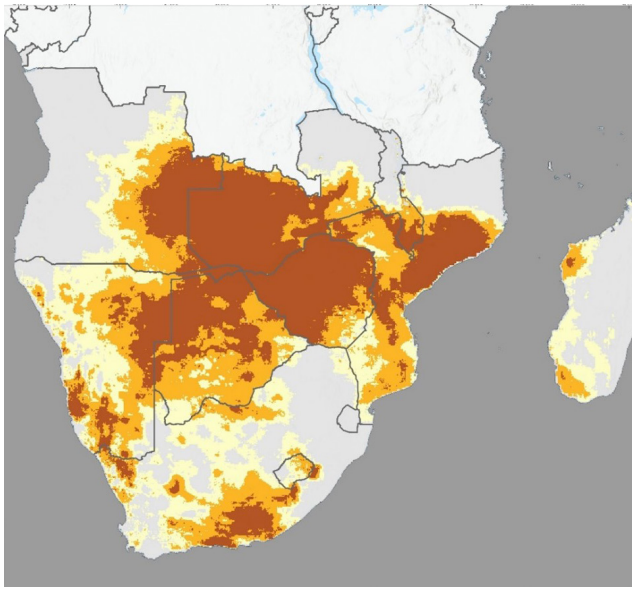


Figure 3: Map of Composite Drought Index (CDI) for WFP Southern Africa Drought Hotspot Analysis

The CDI is calculated over the duration of the rainfall season to identify areas most affected by drought conditions. It can also be derived for sub-seasonal periods of interest (over 1 to 3 months for instance) to assess specific water stress events that may have severe impacts on the harvest. This is particularly useful in the case of seasons with very uneven rainfall distribution, such as was the case in 2023/24 and was leveraged for the analysis in Zimbabwe, Mozambique and Lesotho.

2.2 Drought and Food Insecurity

To estimate the location and severity of drought impacts, we consider the population's vulnerability to food insecurity together with drought exposure at subnational level and determine populations who are "drought affected." There is a well-established relationship between **drought conditions** and a **decline in agricultural production** and there is a relationship between reduced agricultural production and food insecurity, where the most vulnerable populations suffer the most. The avenues for this impact to occur are two-fold:

- **Loss of Expected Income and Food** - the drought conditions result in a poor harvest, affecting smallholder farmers who rely on the harvest for their food and income. Additionally, seasonal daily wage workers who depend on farming activities during the harvest for their livelihood also suffer a loss of income.
- **Reduced Availability of Staple Cereals Leading to Higher Prices** - the reduced agricultural output also leads to a scarcity of staple cereals. This scarcity drives up the prices of these essential food items in the local area, thereby reducing the purchasing power of individuals.

As a result, vulnerable populations in drought affected areas are likely to experience a **compound impact** of the drought on their purchasing power. This is due to the combined effect of a loss of income, due to poor harvest outcomes and reduced work opportunities, and a rise in the prices of essential food items in local markets, due to reduced availability of cereals, which will subsequently affect their food security.

2.2.1 DROUGHT AFFECTED

As such, ***'Drought Affected'*** is estimated by considering all people currently classified as IPC 2 (vulnerable to food insecurity) and IPC 3+ (food insecure) in areas exposed to drought conditions as "drought affected".

The estimates have been developed in collaboration with country offices and are being validated with partners in country (*see Annex 1 for information on the data sources and country-level consultations*).

Table 1: Drought Affected People Results

Country	Drought Affected People
Malawi	6,310,000
Zambia	6,060,000
Zimbabwe*	6,000,000
Mozambique**	2,670,000
Angola	1,160,000
Madagascar***	690,000
Namibia	420,000
Lesotho	190,000
TOTAL	**23,500,000**

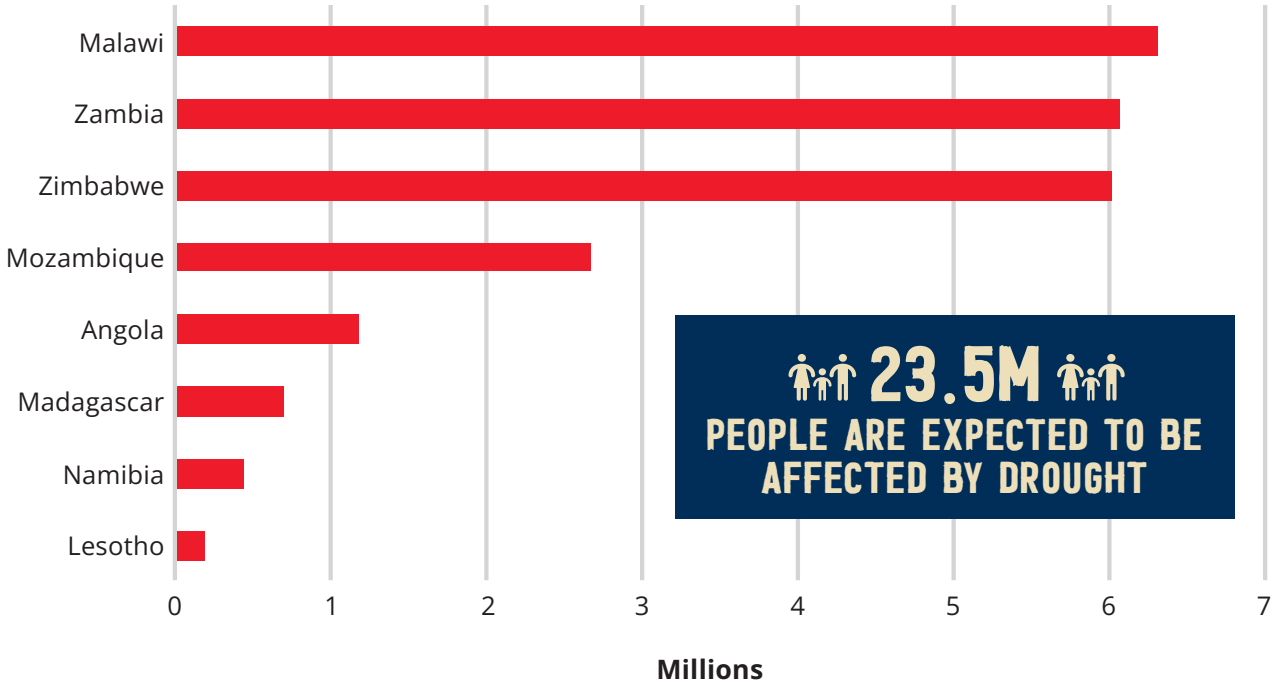
* For **Zimbabwe**, 'Drought Affected' considers customised ARC model and urban ZimVAC endorsed by the Government and partners and used in the humanitarian appeal

** For **Mozambique**, the 'drought affected' population is IPC 3+ people in severe and intense drought areas and was informed by additional field data

*** For **Madagascar**, the IPC covers only the Grand Sud

In Eswatini, the model did not identify any areas experiencing severe or intense drought and Eswatini has generally been spared the extremely dry conditions experienced in the region. The Democratic Republic of Congo (DRC), the Republic of Congo (RoC) and Tanzania are not considered in the Drought Hotspot Analysis as these countries follow a different seasonal cycle. In Tanzania, El Niño brings above average rainfall and in DRC and ROC, the rainfall patterns and the influence of oceanic currents are driven by complex atmospheric circulation patterns. Further contextual information on the impact of El Niño in these countries is provided in Section 3.

The countries with the highest number of drought-affected people are Malawi, Zambia, Zimbabwe, Mozambique, and Angola.



2.2.2 VULNERABLE POPULATIONS

In order to provide a comprehensive view of the anticipated food insecurity in the Southern Africa region due to the likely impacts of the drought, we considered the pre-existing food security conditions across all countries in the region where WFP operates and the populations whose food security conditions are likely to deteriorate due to the drought. This approach allows us to estimate the number of people who are likely to be food insecure after the 2024 harvest if no mitigation measures are taken.

The estimation considers that all individuals who were classified as IPC 3+ or equivalent (food insecure) in the Regional Vulnerability Assessment Committee 2023 and that all IPC 2 (vulnerable to food insecurity) in areas severely affected by drought conditions, who are likely to become food insecure due to the drought conditions in those areas, will constitute the ***'Vulnerable Population'***.

The purpose of this calculation is to inform the planning of assistance in the region for the forthcoming lean season, which is of paramount importance as it is expected to commence earlier, endure longer, and be more severe, as well as to address the longer-term food security needs in the region.

It is important to note that countries who have not experienced direct and severe impacts from the drought event, namely Eswatini, Tanzania, DRC and ROC, are considered in the calculation of 'Vulnerable Populations' in order to provide a complete picture of expected food insecurity in the region.

Table 2: Vulnerable Population Results

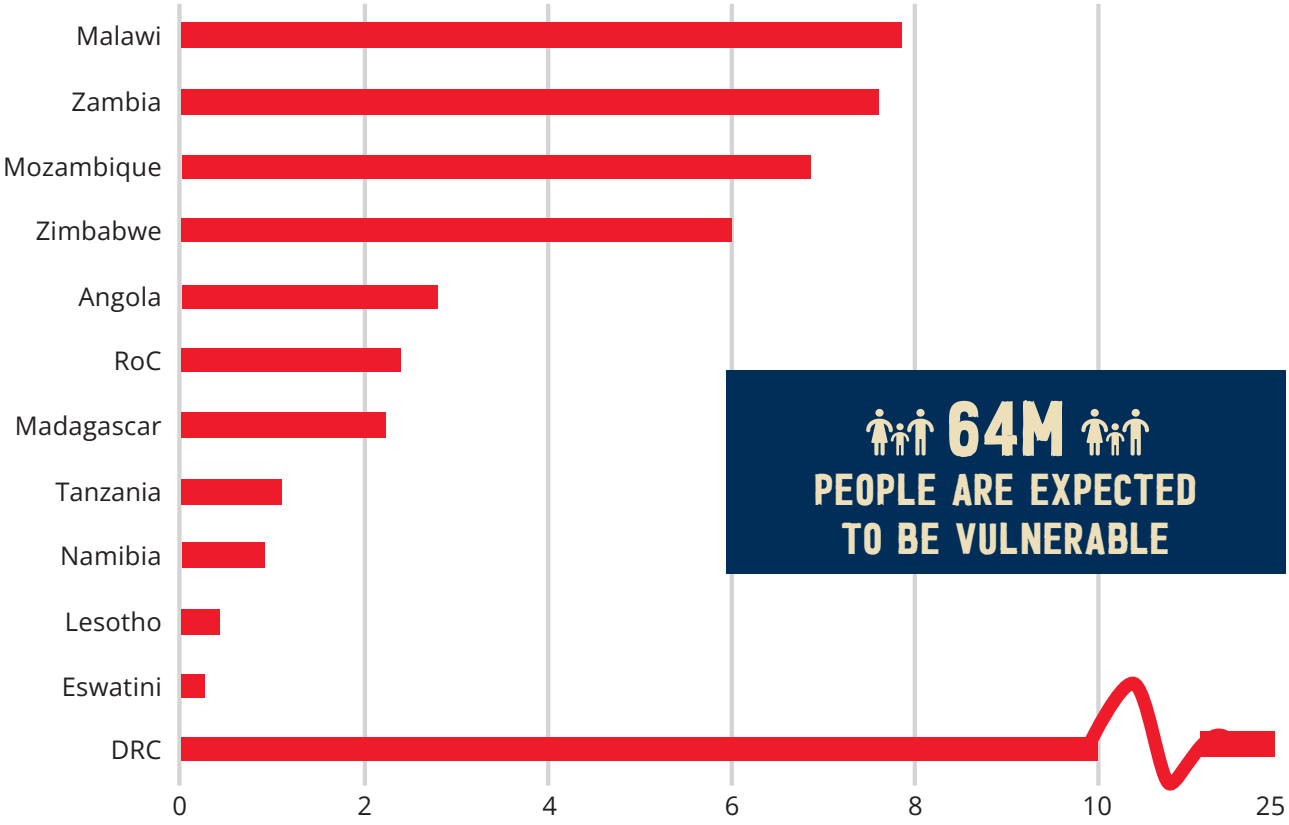
Country	Drought Affected People
DRC	25,400,000
Malawi	7,900,000
Zambia	7,600,000
Mozambique*	6,900,000
Zimbabwe**	6,000,000
Angola****	2,800,000
ROC	2,400,000
Madagascar***	2,200,000
Tanzania	1,100,000
Namibia	900,000
Lesotho	400,000
Eswatini	300,000
TOTAL	**63,900,000**

* For **Mozambique**, 'Vulnerable Population' considers IPC 2 in Severe Drought only

** For **Zimbabwe**, 'Vulnerable Population' considers the customised ARC model endorsed by the Government and partners

*** For **Madagascar**, the IPC covers only the Grand Sud
**** For **Angola**, 'Vulnerable Population' is latest IPC and 'Drought Affected'

The countries with the highest number of vulnerable people are likely to be DRC, Malawi, Zambia, Mozambique and Zimbabwe.



3. Additional country context

DID YOU KNOW?

El-Niño's impact varies across Southern Africa, bringing floods to the northern part due to above-average rainfall. Consequently, El-Niño can cause both droughts and floods in this region.

Moreover, even countries not directly affected by these hazards may face repercussions on their food security due to the interconnected nature of regional economies.

DEMOCRATIC REPUBLIC OF CONGO

The Democratic Republic of Congo (DRC) has been facing several challenges over the past six months. A complex conflict persists in eastern DRC characterised by the presence of many armed groups. The ongoing conflict has caused an increase in displacement and a significant deterioration of the humanitarian situation.[3][4]

The country has been experiencing torrential rains since November 2023, which have resulted in widespread flooding. This has had a direct impact on over 100,000 people, leading to the loss of 7,000 hectares of crops that were in the maturation stage.[5] The overflow of the Congo River and its main tributaries has compounded the situation, damaging shelters, crops, food reserves, and essential household items, affecting over 150,000 people.[6] This has necessitated the relocation of some residents.

In addition to the flooding in the west, Lake Tanganyika in the east has seen a considerable rise in its water levels. This has resulted in the loss of between 100 and 150 meters of coastline over the past three years. The rising water levels have led to the destruction of several schools, thousands of houses, and significant urban road infrastructure in Kalemie city.[7]

A cholera epidemic affects the territories of Likasi, Mitwaba, Kipushi, Kambove, and the city of Lubumbashi, with 723 cases and 23 deaths recorded in Lubumbashi.[8]

The southeastern region of the DRC, which heavily relies on neighbouring countries such as Zambia and Tanzania for food supplies, is facing its own set of challenges. Since 2019, the Grand Katanga region has been dealing with a phenomenon of cassava rot. This has resulted in the loss of thousands of hectares of crops and the destruction of seeds due to bad weather.[9] Moreover, this year a poor harvest is announced

3 Ibid.
4 IOM DTM March 2024
5 Food Security Cluster, Rapport sur les catastrophes liées El Nino RDC – Avril 2024
6 Ibid.
7 Food Security Cluster, Rapport sur les catastrophes liées El Nino RDC – Avril 2024
8 Cellule d'Analyses des Indicateurs de Développement (CAID), Bulletin LOKOLE, Février 2024
9 Food Security Cluster, Rapport sur les catastrophes liées El Nino RDC – Avril 2024

for Zambia.[10] This situation poses a risk of aggravating the cereal crisis.

TANZANIA

For much of the season, the northern part of the region has seen rainfall ranging from average to above average and Tanzania, in particular, has consistently experienced above-average rainfall causing flooding and landslides in the country.[11]

Heavy rains in Dodoma, Singida, Tabora, Shinyanga and Simiyu have affected the planting calendar for farmers. The majority could not plant on time, as some farms could not be attended to due to heavy rains or access to the farms was impeded due to river overflow cutting off feeder roads. The prolonged excessive moisture resulted into plant stress during germination and seed dormancy in few cases.[12] Despite the challenges posed by the flooding and excessive moisture early in the season, there are positive expectations for the harvest.[13]

Finally, there has been an increase in the prices of several staple consumer products. For instance, the prices of corn flour, cassava flour, and cowpea have increased by 20 percent, and local rice by 17 percent.[14] These economic factors, combined with the other challenges, present a complex situation for the DRC, impacting overall food security.

ESWATINI

The 2023/24 season has been marked by unpredictable rainfall and rising temperatures, resulting in a challenging period for the food production sector. A significant portion of the population, around 70 percent, is rural and relies on agriculture for their livelihood.[15] The potential of El Niño has led to a decrease in production and livelihood opportunities, negatively impacting food security and the economy. Despite normal to above-average rainfall patterns for the season, incidents of prolonged dry spells, hailstorms, and extreme temperatures have compromised overall agricultural production.

The land under cultivation for maize, the staple food crop, is estimated to decrease by 30-40 percent.[16] This is primarily due to the El Niño phenomenon and the high cost of inputs. This situation will adversely affect vulnerable households that heavily rely on agriculture for their livelihood, as they face the prospect of reduced harvests and fewer income opportunities. The country is preparing for an extended lean season during the consumption period, with expectations of escalating food insecurity and malnutrition levels. Overall, maize production is projected to significantly decline this season, leading to increased food gaps at the household level.[17]

The government and humanitarian agencies are vigilantly monitoring the situation as the effects of El Niño could have far-reaching impacts, disrupting education, healthcare, and the broader economy. The challenge ahead is formidable, considering that around 300,000 people were estimated to need humanitarian support during the peak of the lean season.[18]

10 Geoglam Crop Monitor for Early Warning
11 WFP Seasonal Monitoring
12 Masika rains to ease current hotness–TMA
13 Geoglam Crop Monitor for Early Warning
14 Ibid.
15 WFP Eswatini
16 WFP Eswatini CO
17 Ibid.
18 IPC Eswatini: Acute Food Insecurity Situation for October 2023 - March 2024 (Projection)

Annex 1 - Data Sources and Country-Level Consultations

Countries	Data Sources	Country-Level Consutlations
Angola	WFP calculations using MPI data (2014) projected to 2024 population projection and WFP Composite Drought Index (CDI) [Oct-Feb]. The Vulnerable Population is the latest IPC and the 'Drought Affected'.	Estimates developed in collaboration with country office and presented to the Resident Coordinator and Humanitarian Inter-sector Coordination Group.
Democratic Republic of Congo (DRC) *(Vulnerable Population Only)*	IPC July 2023 to December 2023.	Estimates developed in collaboration with country office.
Eswatini	WFP calculations using IPC Projection October 2023 to March 2024 and WFP CDI [Oct-Feb].	Estimates developed in collaboration with country office and are being validated with partners in country.
Lesotho	WFP calculations using IPC Projection October 2023 to March 2024 and WFP CDI [Jan-Feb].	Estimates developed in collaboration with country office and are being validated with partners in country.
Madagascar	WFP calculations using IPC October 2023 to January 2024 and WFP CDI [Oct-Feb]. Please note IPC analysis only covers Grand Sud.	Estimates developed in collaboration with country office and are being validated with partners in country.
Malawi	WFP calculations using IPC Projection October 2023 to March 2024 and WFP CDI [Oct-Feb].	Presented to BHA (local), donors and UN agencies.
Mozambique	WFP calculations using combined IPC 2023 and 2022, field monitor observations and WFP CDI [Jan-Feb].	Presented to INAM and MADER.
Namibia	WFP calculations using IPC Projection October 2023 to March 2024 and WFP CDI [Oct-Feb].	Estimates developed in collaboration with country office and are being validated with partners in country.
Republic of Congo *(Vulnerable Population Only)*	CFSVA conducted in 2023 (unpublished).	Estimates developed in collaboration with country office.
Tanzania *(Vulnerable Population Only)*	IPC November 2023 to April 2024 (official government VAC figure used).	Estimates developed in collaboration with country office.
Zambia	WFP calculations using IPC Projection Oct 2023 to Mar 2024 and WFP CDI [Oct-Feb].	Presented and endorsed by resident coordinator, government, donors and partners.
Zimbabwe	ARC customised model, which involved inputs from the Zimbabwe Meteorological service (MSD) and the vulnerability layer was decided by the Food and Nutrition Council of the government, with support from WFP and partners.	ARC customised model endorsed by the government and partners and used in the UN Appeal.

Acronyms

CDI	Composite Drought Index
DHA	Drought Hotspot Analysis
DRC	Democratic Republic of the Congo
GRS	Geospatial and Remote Sensing (unit)
IPC	Integrated Food Security Phase Classification
MPI	Multidimensional Poverty Index
ROC	Republic of the Congo
VAC	National Vulnerability Assessment Committees
WASH	Water, sanitation and health
WFP	World Food Programme

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World Food Programme
Via Cesare Giulio Viola 68/70,
00148 Rome, Italy - T +39 06 65131
wfp.org