Disaster & Food Security Early Warning System

Special Issue: Agromet Update

2023/2024 Agricultural Season

Issue 05 Month: March **Season: 2023-2024** **29-03-2024**

Highlights

- **A record mid-season dry spell of over 50 days has affected vast parts of the region including, Angola, Botswana, DRC, Malawi, Mozambique, Namibia, Zambia, and Zimbabwe. These areas have received the lowest rainfall for the late January to early March timeframe in at least 40 years. Extended analysis indicates that in central parts of the region, 2024 has recorded the driest February in over 100 years. In some areas, the drought translated to an effective end of the rainfall season.**
- **South Africa has also been affected by the drought in some of its main maize-growing areas, and its latest official maize production estimates are down 19% from last year's record crop.**
- **The drought has severely impacted crops with widespread permanent wilting of crops reported in many parts of Malawi, Zambia, and Zimbabwe. Malawi and Zambia have declared a state of national disaster due to the drought.**
- **Given the number of countries affected, and severity of impacts, including traditionally high-producing countries, preliminary analysis suggests that the region will need to import grain from outside the region to meet its cereal requirements.**
- **The drought has also negatively affected vegetation and water availability for livestock, with well below average vegetation conditions observed in Botswana, Namibia, South Africa, Zambia and Zimbabwe. Drought-related cattle deaths and poor livestock conditions have been reported.**
- **Water levels are very low in some areas, with Kariba Dam, shared between Zambia and Zimbabwe, at its lowest for this time of year. This threatens electricity generation in the region.**
- **Heavy rains in parts of Madagascar, Mozambique, Malawi, and Tanzania caused flooding, displace populations and cause damage to property and infrastructure.**
- **Stakeholders need to urgently coordinate and implement integrated strategies for water resource management, conduct comprehensive assessments of crop and livestock conditions, ensure immediate support to affected communities, and evaluate current and forecast regional cereal staple stock levels until the 2025 harvest.**

Regional Rainfall Summary

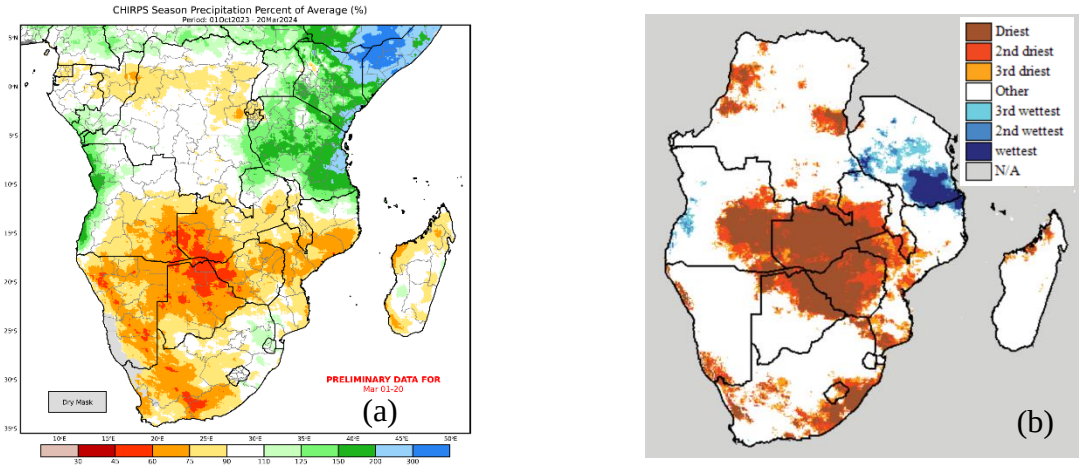

Figure 1. (a) Seasonal rainfall to date from 1 October to 20 March 2024 as a percent of average. (b) Rainfall for the 51-day period from 21 January to 10 March 2024 as a rank. Source: UCSB CHC

The southern and central parts of the region have to date received well below average seasonal rainfall to date, as of 20 March 2024 (Figure 1a). Angola, Botswana, Madagascar, Malawi, Mozambique, Namibia, South

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Africa, Zambia and Zimbabwe have received below average seasonal rainfall to date. The driest part of this period was from 21 January 2024, when the central and south-eastern parts of the region experienced extremely dry, hot conditions, for over 50 days. Areas affected by this severe dry spell include eastern Angola, eastern Botswana, southern DRC, eastern Lesotho, southern Malawi, central Mozambique, south-eastern South Africa, Zambia, and Zimbabwe. Rainfall in these areas is ranked as the lowest on record for the approximately 50-day period (21 January – 10 March) since 1981 (Figure 1b). An extended analysis carried out by the UCSB Climate Hazards Center, combining different datasets indicate that in central parts of the region, this is the driest February in over 100 years, with only 1992 being comparable in dryness. The record mid-season dry spell is associated with El Nino, and was exacerbated by a high pressure system centred over the region that has persisted since mid-January to date.

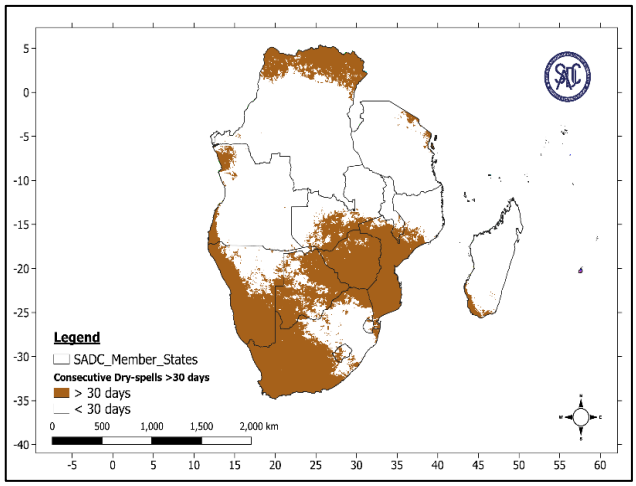

Figure 2: Consecutive dry days more than 30 days

Heavy rains in parts of the Region

Western Angola, eastern DRC, northern Mozambique, Tanzania, and northern Zambia had above average seasonal rainfall. Southern Tanzania experienced one of its wettest rainfall periods between late January and early March (Figure 1). Some heavy rains were reported in Madagascar (6th to 11th February) affecting 6 regions of the country and caused loss of life and damage to critical infrastructure. In Tanzania, heavy rains in Manyara and Dar es Salaam region caused landslides and damage to crops and critical infrastructure. Malawi reported flooding in Nkhotakota district in central region and Karonga district in the north, displacing about 7,000 people and damaging crop fields. In southern Mozambique 48,000 people were affected by Severe Tropical Storm Filipo in mid-March, while further flooding occurred in southern Mozambique in late March due to continued heavy rainfall. Tropical Cyclone Gamane made landfall in north-eastern Madagascar on 27 March. It was forecast to bring heavy rainfall, strong winds and storm surge northern Madagascar. To date, five tropical cyclones/storm (Alvaro, Belal, Eleanor, Filipo, Gamane) have affected Eswatini, Madagascar, Mauritius, Mozambique and South Africa between January and March 2024.

Crop Conditions

The extended dry conditions have had a widespread, severe impact on crops, as it occurred at a time when cereal crops are generally most susceptible to water deficits. A crop-specific water balance modelling analysis

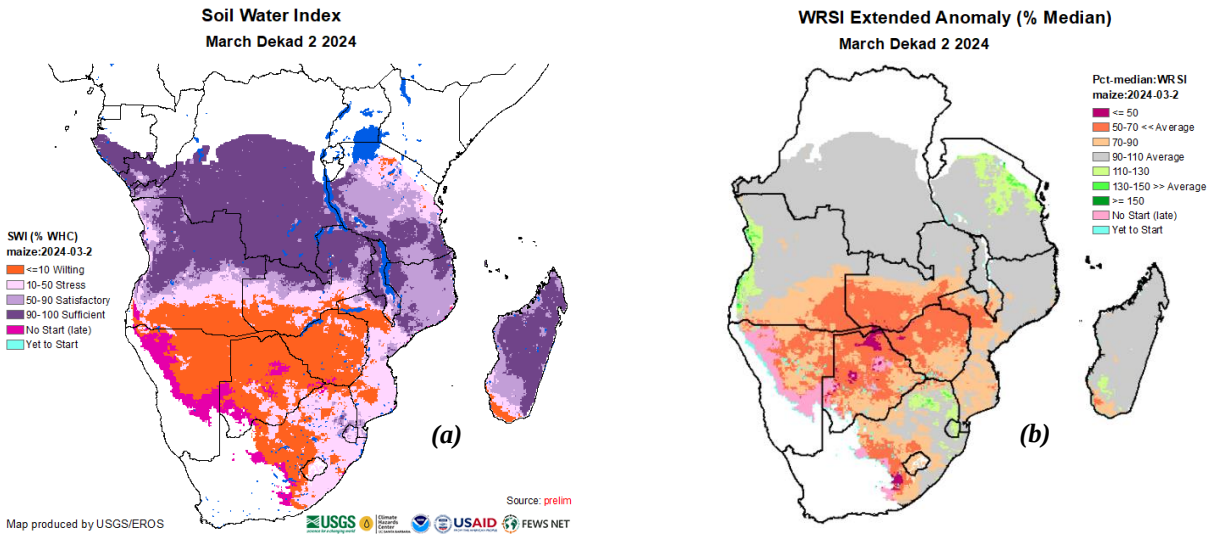

Figure 3. (a) Soil water index and (b) Water requirements satisfaction index (WRSI) percent of median, as of 20 March 2024. Source: USGS/FEWSNET

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using rainfall and evapotranspiration throughout the season suggests that as of 20 March, soil moisture was near wilting point across the southern half of the region (Figure 3a). Furthermore, the water requirements satisfaction index (WRSI) is well below average in the central parts of the region (Figure 3b), indicating that these areas have experienced greater water deficits than usual due, a condition that indicates reductions in crop yield. Information by mid-March from several countries, including Malawi, Zambia, and Zimbabwe, indicates that maize crops in many areas had reached permanent wilting point, or were under severe moisture stress. Reports and observations indicated that small grains such as sorghum and millet had generally fared better than maize, as fields in some areas with permanently wilted maize had some yield for small grains in the same vicinity. In addition to dry spell impacts in southern and central Malawi, Malawi also reported the impact of Fall Armyworm infestation countrywide, as well as crops being flooded and washed away in central and northern Malawi. Malawi and Zambia have both declared a state of national disaster due to the drought. South Africa was also affected by the drought conditions, and their updated crop production estimates released on 26 March includes a revised maize production estimate of 13.26 million MT, down 11% down from the 5 year average, primarily as a result of the February-March dry conditions experienced there. Although South Africa February rainfall was not among the driest on record like in central parts of the region, many of its main maize growing areas received between 50 – 80% of average rainfall during this time, including prolonged dry spells in some areas, resulting in a below average WRSI in key areas (Figure 3).

Vegetation, grazing and livestock.

Vegetation conditions across the southern half of the region deteriorated considerably in the past month due to the dry conditions in the central and south-eastern areas. The normalized difference vegetation index (NDVI) is below average in large areas of southern Angola, Botswana, Lesotho, southern and central Mozambique, Namibia, South Africa, southern/western Zambia, and Zimbabwe (Figure 4). Many of the areas with poor vegetation conditions are primarily grassland areas where livestock is an important livelihood asset. Pasture and livestock were noted to be in poor condition in Namibia and Zambia due to prolonged dry spells recorded in the previous and the current seasons. In Zimbabwe, over 9,000 drought-related cattle deaths have been reported, and over 1.4 million cattle were reported as being at high risk of drought conditions and death due to lack of pasture and water. In Botswana, wildlife were also affected by the dry conditions. Although up-to-date information on impact on livestock and wildlife is still being compiled, the rainfall patterns and vegetation conditions observed from satellite and ground observations indicate that livestock and wildlife will face severe challenges due to shortages in pasture and water availability.

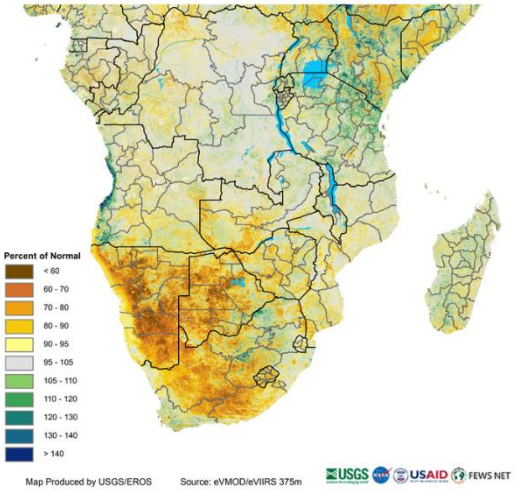

Figure 4. Vegetation Index (NDVI) expressed as percent of average for 11-20 March 2024. Source: USGS/FEWSNET

Water availability

The dry conditions experienced in the central parts of the SADC region pose significant challenges to water resources. Given the reduced rainfall and extended dry spells, water levels in reservoirs, rivers, and groundwater sources are likely to diminish, impacting irrigation capacities, hydroelectric power generation, drinking water supplies and ecosystem health. Monitoring by the Zambezi River Authority suggests that as of 26 March, the Kariba dam was at its lowest level historically for this date, and continues to decrease at a time of year when it would typically increase. Information from the South Africa's Department of Water and Sanitation as of 26 March indicates that aggregated nationally, dams are at 86% of full supply capacity, with levels of individual dams ranging from over 100% to several dams having under 40%. Lesotho dam levels were reported at 94.8% full and Eswatini major dams are at 100.1% full. Zimbabwe's national water authority reported that as of 18 March, levels of major dams in the country ranged from 98.1% to 3.1%. Additional assessment is required to accurately determine the level of surface and groundwater availability for areas affected by the drought, and make appropriate preparations to ensure water security for vulnerable communities going into the remainder of the year.

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Declarations of national state of disaster

Malawi and Zambia have declared States of Disaster due to the drought impacts. The Malawi declaration which covered 23 out of the country's 28 districts indicated that close to 2 million farming households have been affected by the drought conditions and would require food assistance of around 600,000 MT. The Zambia declaration indicated that over 1 million families in 84 of the country's 116 districts have been affected by the drought. Zambia's water and energy supply is also affected by the drought, as 85% of Zambia's electricity is supplied by hydroelectrical power generation.

Regional cereal availability

With several of the region's biggest maize producers being affected by drought conditions this season, there is uncertainty regarding the region's cereal self sufficiency, and whether there will be a need to import grain from outside the region. A detailed regional cereal balance sheet analysis incorporating available cereal stocks, requirements and production estimates is required to get an accurate indication of this. In the interim, a preliminary maize balance sheet analysis based on historical production analysis, agrometeorological models and various assumptions regarding maize requirements and stock levels, suggests that a regional maize shortfall will be experienced during the 2024/2025 marketing year, and the region is likely to require maize imports from outside the region. Figure 5 shows the average maize productivity for each administrative region, overlaid with areas that either experienced one of the driest February on record, or below average Water Requirements Satisfaction Index (WRSI). The analysis indicates that. The analysis shows that many of the region's high producing areas have been affected by the dry weather conditions.

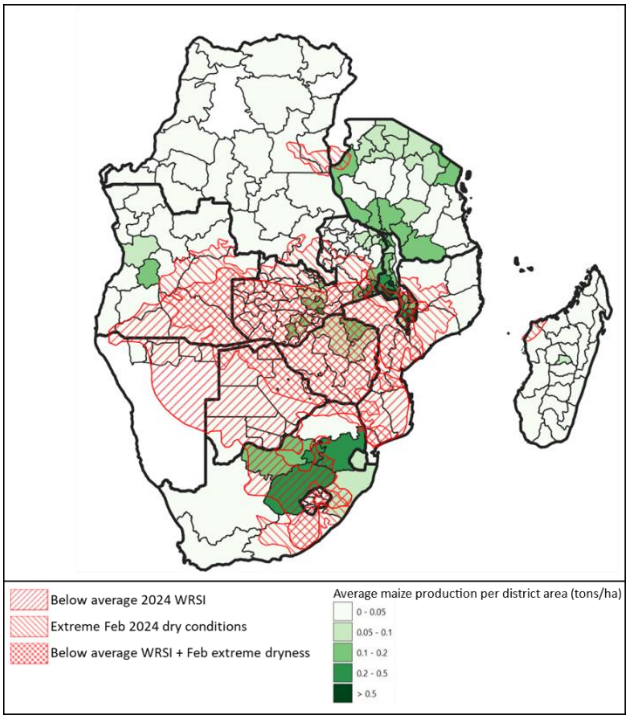

Figure 5. High maize production areas overlaid with Water Requirements Satisfaction Index (WRSI) performance and occurrence of severe February dryness.
Source: SADC/FEWS NET

Implications of the drought for various sectors.

While the impacts of the drought have already been outlined for agriculture and hydrology, several other sectors are typically affected by droughts of this severity, and will need to be carefully accounted for in a comprehensive multi-sectoral drought response plan. In WASH, water scarcity can likely exacerbate sanitation and hygiene issues, increasing the risk of waterborne diseases. The health sector could see a rise in malnutrition and heat-related illnesses, necessitating preparedness and response mechanisms. Education risks disruption as children may be required to assist in fetching water or their families' agricultural efforts, impacting attendance and learning. Energy sectors, especially those reliant on hydroelectric power, can face reduced capacity, necessitating a shift towards alternative sources to maintain supply, or alternatively increased loadshedding which has a direct impact on economic performance. Livestock and cropping systems will require targeted interventions to mitigate losses and support food security, potentially through the introduction of drought-resistant crop varieties and supplementary feeding programs for livestock. Urban areas may experience water rationing, impacting households and businesses, while the economic impacts could be broad, affecting employment, income levels, and food prices. Addressing these challenges requires coordinated efforts across sectors and stakeholders, informed by national and regional contingency plans, as well as lessons learned from previous droughts, in order to implement drought mitigation, preparedness, and response strategies, ensuring the sustainability and resilience of communities affected by these severe conditions.

Recommendations

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- As the agricultural season nears its end amidst **severe dry and hot conditions in many central parts of the region**, stakeholders, including governments and cooperating partners, need to coordinate and implement adaptive and resilient strategies that will mitigate the impact on all affected sectors including crops, livestock, food security, livelihoods, WASH, energy, health, education, infrastructure, and economic development. There is a critical need for an integrated multi-sectoral approach to address the immediate impacts of these challenges on the affected sectors, while catering to the medium- and long-term recovery and development needs. Such an approach will be required to not only alleviate the current crisis but will also lay a robust foundation for sustainable development, enhancing the region's resilience to future climate shocks.

- There is an urgent need for **comprehensive national assessments** of crop conditions, livestock health, water availability, and overall livelihood impacts of the drought. To the extent possible, these assessments should be reconfigured to facilitate continual updating and reporting as more accurate information becomes available. These assessments are crucial for accurately determining the extent of damage and areas requiring immediate intervention and will not only guide targeted relief efforts but also inform policy development and program implementation aimed at enhancing agricultural resilience. Further, Member States need to start preparing for in-depth assessments that will inform response.

- Affected Member States need to take concerted action to manage water resources efficiently, considering the largely deficit rainfall season. Given the variability in rainfall patterns across the region, there is a need to prioritize the allocation and **use of water resources** to sustain agricultural activities. This may involve the enhancement of water harvesting techniques, investment in efficient irrigation systems, and the promotion of practices that reduce water wastage.

- Member States are encouraged to **provide immediate safety nets to support communities and farmers** affected by adverse weather conditions. This support could include the provision of emergency water supplies, and other forms of social protection including cash transfers. Additionally, Member States need to consider initiatives to support winter cropping in areas where applicable, including provision of appropriate seed varieties. It is also important for governments to work closely with local and international partners to mobilize resources for emergency response and recovery efforts.

- Considering the extensive impact of the current drought conditions, which have not spared traditionally high-producing, maize-exporting countries within the region, there is an **urgent need to conduct a detailed assessment of the current and projected regional cereal staple stock levels through to the 2025 harvest**. This evaluation should encompass the **potential need for cereal imports from outside the region to ensure food security and stabilize markets** across affected member states. Such assessments will provide critical insights for strategic planning, enabling timely interventions to address possible shortfalls and mitigate the risk of food insecurity.

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