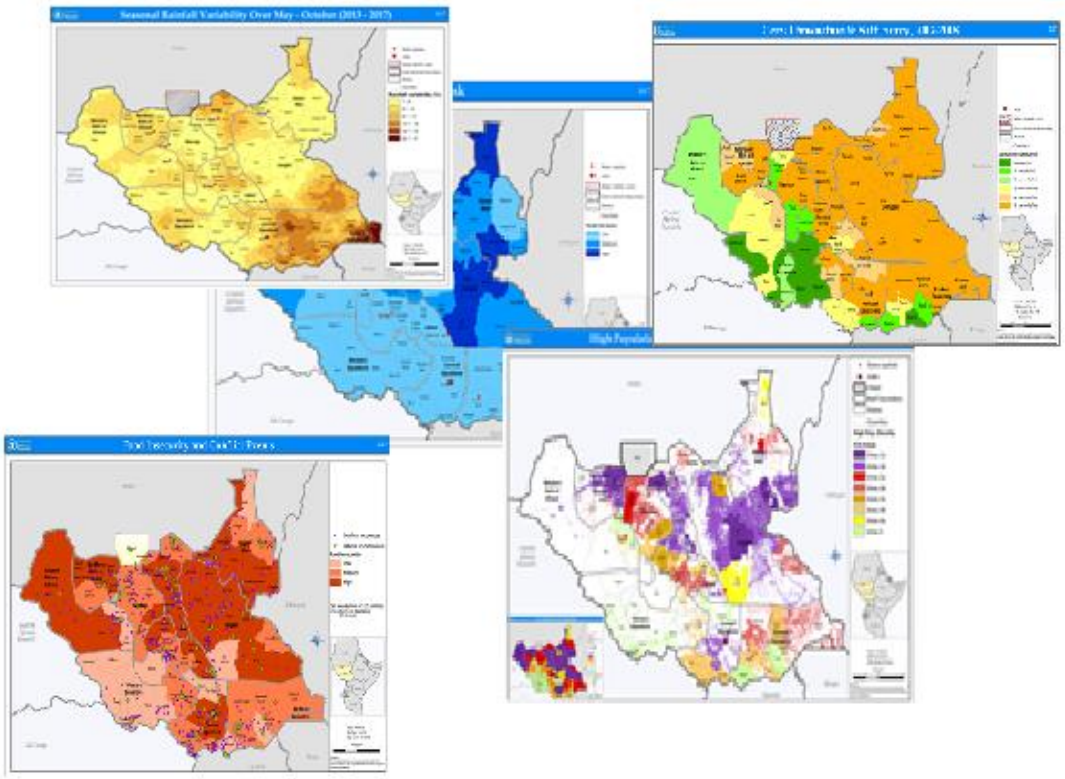
South Sudan Integrated Context Analysis

Juba
South Sudan

21 December 2018

Macroeconomic and Vulnerability Analysis for South Sudan



Analysis done in November 2018

This analysis was commisioned by the United Nations World Food Programme South Sudan Country Office and conducted in collaboration with the Regional Bureau VAM Unit, Nairobi. The analysis geared towards understanding the macroeconomic and vulnerability trends for South Sudan to inform resilience programming.

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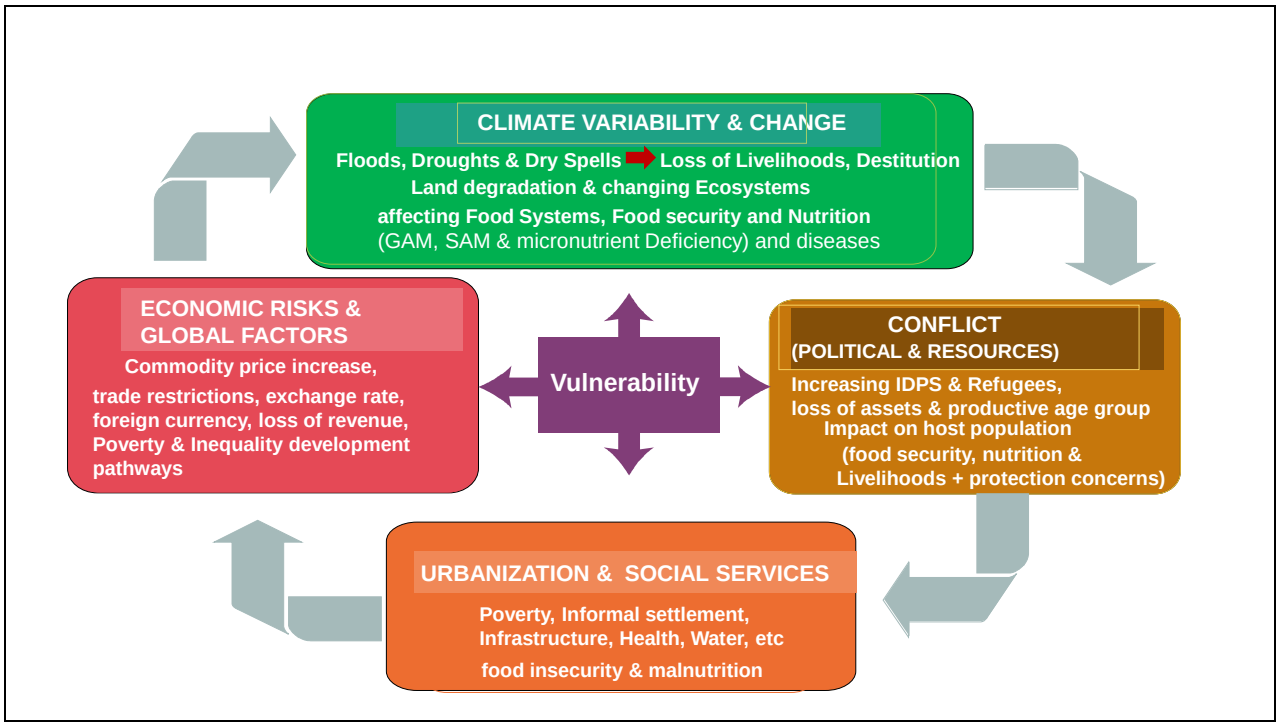
Acronyms and abbreviations

ACF	Action Against Hunger
ACLED	The Armed Conflict Location & Event Data Project
CFSAM	Crop and Food Supply Assessment Mission
CPI	Consumer Price Index
CV	Coefficient of Variation
DRR	Disaster Risk Reduction
FEWS NET	Famine Early Warning System Network
FSMS	Food Security Monitoring System
GAM	Global Acute Malnutrition
GIS	Geographic Information System
GDP	Gross Domestic Product
HFS	High Frequency Surveys
ICA	Integrated Context Analysis
IPC	Integrated Phase Classification of Food Security
MESA	Monitoring of the Environment for Security in Africa
MODIS	Moderate Resolution Imaging Spectroradiometer
NBS	National Bureau of Statistics
NDVI	Normalised Difference Vegetation Index
NPGS	Number of Poor Growing Seasons
POC	Protection of Civilian
RCMRD	Regional Centre for Mapping of Resources for Development
SAM	Severe Acute Malnutrition
SSP	South Sudan Pound
SPI	Standardised Precipitation Index
UNEP GRDP	United Nations Environment Program Global Risk Data Platform
USD	United States Dollar
WFP	World Food Programme
WHO	World Health Organisation

Introduction and Background

South Sudan since attaining its independence in 2011, has faced several challenges that has derailed the development trajectory. Barely three years into its independence political related conflict broke out in December 2013, with a peace agreement signed in 2015 resulting in a short-lived peace period in early 2016. War broke out again in July 2016 and continued to 2018 with yet another peace agreement signed in September 2018. The episodes of war ravaged livelihoods, destroyed assets, the macro-economic factors (exchange rate depreciated, foreign currency shortfalls and inflation increased to three digits) deteriorated, oil production decreased due to marketing disagreements with Sudan, worsened off by the fall in global oil prices between 2013 and 2015, people lost lives and over 4 million people were internally and externally displaced. Agricultural production decreased, the national cereal deficit continued to increase, and the food insecurity levels continued to increase. Given the current environment, the country has a composite of interacting factors driving vulnerability as depicted in Figure 1 below.

Figure 1: Interacting Factors affecting Vulnerability in South Sudan



The ICA, aims at analysing most of the factors and come up with conclusions on the depth of vulnerability and conclusions on programme implications. This report aims to look at the trends in vulnerability to food and nutrition security in South Sudan based on the Integrated Context Analysis (ICA). The analysis has been broadened to include other relevant aspects considered to influence food and nutrition security in the country such as macro-economic factors, the markets, production and conflicts. ICA is an analytical process that contributes to the identification of broad national programmatic strategies, including resilience building, disaster risk reduction, and social protection for the most vulnerable and food insecure populations in the different ICA Areas and categories. The analysis is evidence-based and provides conclusions on what broad programmatic strategies are appropriate for the different

counties in South Sudan and can be used by agencies, the government and other parties interested in resilience programming.

The analysis is based on the historical trends across several technical and sectoral disciplines. The analysis overlay or cross-tabulate different thematic areas, to provide geographic areas with convergence of factors (hazards/shocks, food security and nutrition) and provide programmatic implications thereof. The trend analyses provide an understanding of what has happened in the past and provide a basis for projecting the indicators into the future as a proxy of the situation, and provide short, medium, and longer-term programming requirements.

The analysis considered vulnerability from the context of impact on food security from changing macro-economic environment, shocks based on the natural hazards experienced in the country (floods and droughts) and land degradation resulting from natural and anthropogenic factors. In addition, nutrition, livelihoods, population, production (crops), markets and conflicts were built into the analysis as other factors that influence vulnerability.

Using a GIS environment, a combination of recurring food insecurity and shock risks are analysed and overlaid to identify combinations of broad programmatic strategies that may be required to address the challenges of food insecurity and vulnerability to natural risks in a more holistic manner. The recommendations form the basis for discussion with technical expertise of governments, partners, communities, and affected populations to come up with appropriate interventions for strengthening resilience.

Chapter 1: Summary of the Findings

- **The integrated context analysis** categorises South Sudan into **Categories 1 to 5** (related ICA Focus Areas) based on their levels of recurring food insecurity and exposure to natural shocks. The most vulnerable counties (ICA category 1) are in Jonglei, Unity, Northern Bahr el Ghazal, Western Bahr el Ghazal, Upper Nile states as well as Juba county in central Equatoria. This calls for interventions that address protracted food insecurity as well as DRR and early warning to minimise shock risks. The least vulnerable are parts of Western Equatoria under ICA category 5.
- ***Recurring and Acute food insecure population:*** The cumulative impacts of civil war on the economy and production systems has resulted in deteriorating food insecurity in the country. The average number of food insecure population has increased in the last four years (April 2015-Sept 2018) to 4.81 million compared to a 5-year average (May 2014-Sept 2018) of 4.44 million. Similarly, the population that is recurring (chronically) food insecure increased from 2.82 to 3.79 million over the two periods. Additionally, 1.61 million people are likely to be food insecure in case of a shock.
- ***Level of seasonal food insecurity:*** In a normal year, the lean season runs from May to September, hence most households face a consumption gap after depleting the available food stocks and rely more on the markets. The situation improves as household consume their own produced and stocks from harvests from October through April the following year. However, in the last 5-years, due to conflicts and insecurity, most households faced increased harvest shortfalls, leading to an early start of the lean season. Majority either relied on unusual coping mechanisms including extensive consumption of wild foods as well as a heavy dependency on humanitarian aid for survival.
- ***Distribution of food insecurity by IPC phase classification:*** the trend analysis of phase classification data revealed high food insecurity levels in most counties of Jonglei, Unity, Northern Bahr el Ghazal, Western Bahr el Ghazal, Upper Nile states and Juba in central Equatoria. Most of these areas also coincide with high insecurity incidences and natural shocks.
- ***Nutrition:*** Available data from the FSMS rounds at state level show that malnutrition among children under 5-years is high in Unity, Northern Bahr el Ghazal, Warrap and Upper Nile states. Jonglei, Western Bahr el Ghazal and Lakes states have medium levels. Malnutrition in South Sudan is complex and linked to inappropriate care practices, inadequate access to health services, diseases, inappropriate hygiene and sanitation, food insecurity, cultural beliefs and traditions, worsened by impacts of conflicts and insecurity. While coverage for response is being enhanced, there is need to promote innovative approaches mainstreaming responses to tackle the underlying causes for sustainability.
- ***Natural shocks:*** flood risk is the main natural shock that affect several counties in South Sudan especially in low lying areas along the Nile and Sobat corridors. Most at risk counties are Bor South and Uror (Jonglei), Ulang, Luakpiny/Nasir, Manyo and Renk (Upper Nile); Bentiu, Rubkhona, Mayom and Koch (Unity); Twic, Gogrial East and Gogrial West (Warrap); and Aweil East and Aweil South (Northern Bahr el Ghazal). There was however no available data on affected populations to classify level of exposure.

- In the period 2013-2017 May-October period, only 2016 recorded moderate to severe meteorological drought (SPI<-1.0). However, there was high inter-annual rainfall variability especially in the southeast region of the country covering Eastern Equatoria state and Pibor county. Interventions for enhancing household adaptive capacity to such variability could be required to minimise possible production (livestock and crops) losses.
- Unlike meteorological droughts, moderate to high incidences of agricultural droughts characterised by below-average growing conditions were noted in parts of Jonglei, Unity, Upper Nile, Northern and Western Bahr el Ghazal states that were attributed to effects of dry spells due to uneven distribution during the growing season. Kapoeta East and Renk counties, due to the high rainfall inter-annual variability were among those vulnerable to high levels of agricultural drought risk.
- **Land degradation**: is another risk factor affecting parts of Western Equatoria (Mundri East, Mundri West and Mvolo); Lakes (Wullu); and Eastern Equatoria (Ikotos, Torit and Budi) and attributed to opening of land for agricultural and livestock production purposes. There is need for concerted efforts to alleviate land degradation through proper land management practices to minimise negative effects on production.
- ***Other drivers of vulnerability:*** in addition to natural shocks, food insecurity and malnutrition, the sub-optimal performance of markets and rising food prices, effects of conflicts/insecurity, insufficient food production need to be addressed. Focus should be on strengthening the macroeconomic environment for market actors to effectively operate; To build resilience and increase production, the purchasing power of households through safety nets; conflict resolution; facilitating service provision and capacity strengthening among farmers should be enhanced.
- **Macroeconomic situation**: since independence in 2011, South Sudan has undergone several economic shocks that have reduced the government's ability to raise revenue and provide the required services to its people. They economic shocks emanated from the worsening gross domestic product following the decline in global oil prices between 2013 and 2015, and reduced oil production and marketing over disagreements with Sudan, which reduced the government's main revenue stream; the civil war whereby the government spends the limited available financial resources on military operation than in provision of services; devaluation of the currency in December 2015 that worsened the exchange rates and increased inflation. These economic shocks negatively affected the performance of the economy, consequently increasing the cost of living for most of the population.
- ***Programmatic Implications:*** this report is based on ICA guidelines, provides broad programmatic areas for the five ICA Categories and areas (Map 1 and Table 1). Further discussions between partners, government and the affected communities are to identify location or county specific interventions that will alleviate food insecurity and minimise shocks while building household resilience in the long-term.

Map 1: ICA Areas based on food insecurity, natural shocks and high population density

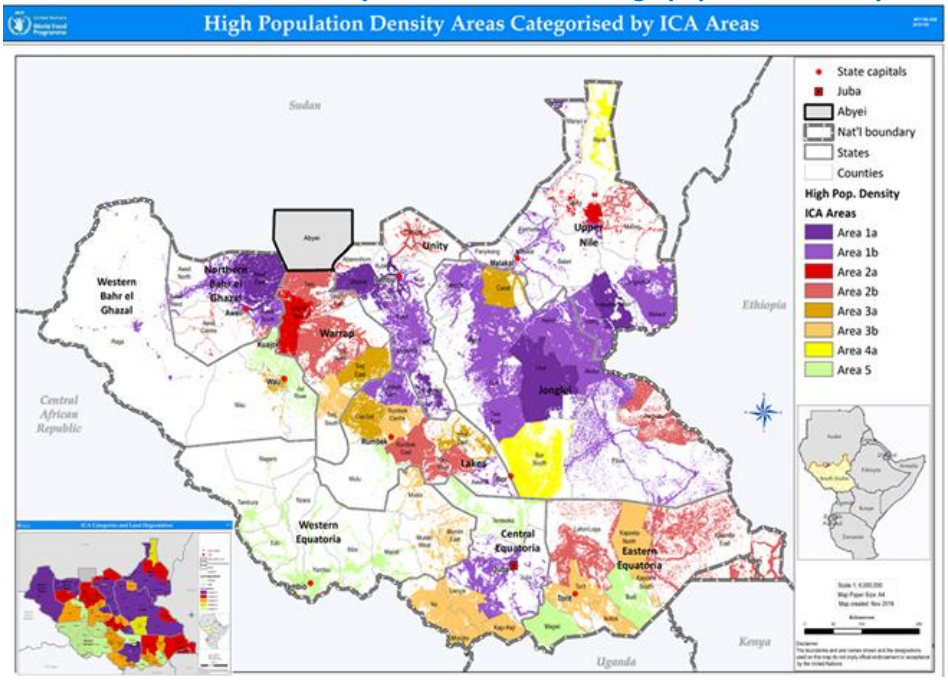


Table 1: Programmatic Implications for different ICA classification

Risk of Exposure to	Recurrence of Food Insecurity		
Natural Shocks	**LOW**	**MEDIUM**	**HIGH**
LOW	**Area 5** **CATEGORY 5** Enhance DRR and mitigate against land degradation and other risks	**Area 3B** **Area 3A** **CATEGORY 3** For Category 3 (Are3a and 3b) exposed to low shocks and medium to high food insecurity should be targeted with long-term food programmes to alleviate food insecurity, predictable social protection and safety nets, early warning	
MEDIUM	**Area 4B** **CATEGORY 4** For Category 4 with potential pockets of food insecurity but no clear entry points for food security programmes, DRR (early warning and preparedness) be emphasized.	**Area 2B** **CATEGORY 2** For Category 2 (Area 2a and 2b), which has medium food insecurity and high to medium shocks should be targeted with seasonal safety nets combined with specific interventions on shocks and stressors. Aim should be to support seasonal food insecurity and post-recovery measures in case of shocks.	**Area 1 B** **CATEGORY 1** For Category 1 (Area 1a and 1b) with high shocks and food insecurity, population with recurring food insecurity should receive predictable safety nets to meet the level of vulnerability. This should be accompanied by disaster risk reduction, early warning and resilience programmes to reduce the impact of high prevalence of natural shocks (floods and droughts).
HIGH	**Area 4A**	**Area 2A**	**Area 1A**

Chapter 2: Objectives of the Analysis and Methodology

2.1 Objectives

The overall objective of this analysis is to understand the depth of shocks, macro-economic environment and vulnerability context that drives food insecurity and malnutrition based on secondary data. This results and conclusions will inform resilience programming. The analysis is aimed at identifying:

- the changes in macro-economic factors that influence the purchasing power of households
- areas of convergence between recurring food insecurity and natural shocks so as to identify where relief, early recovery, disaster risk reduction and resilience building efforts and development may be required.
- seasonal variations in food insecurity that should be considered in programme design to better align, complement and harmonise programme responses and interventions.
- trends in numbers of food insecure populations, the estimated long-term and seasonal caseloads for planning and programme design.
- other factors that increase vulnerability to food insecurity and malnutrition.

The analysis employed two steps: trend analysis of macro-economic environment; an integrated context approach in analysing vulnerability to food insecurity and exposure to hazards. Details are provided in section 2.2 and 2.3.

2.2 Trend analysis of the macro-economic indicators

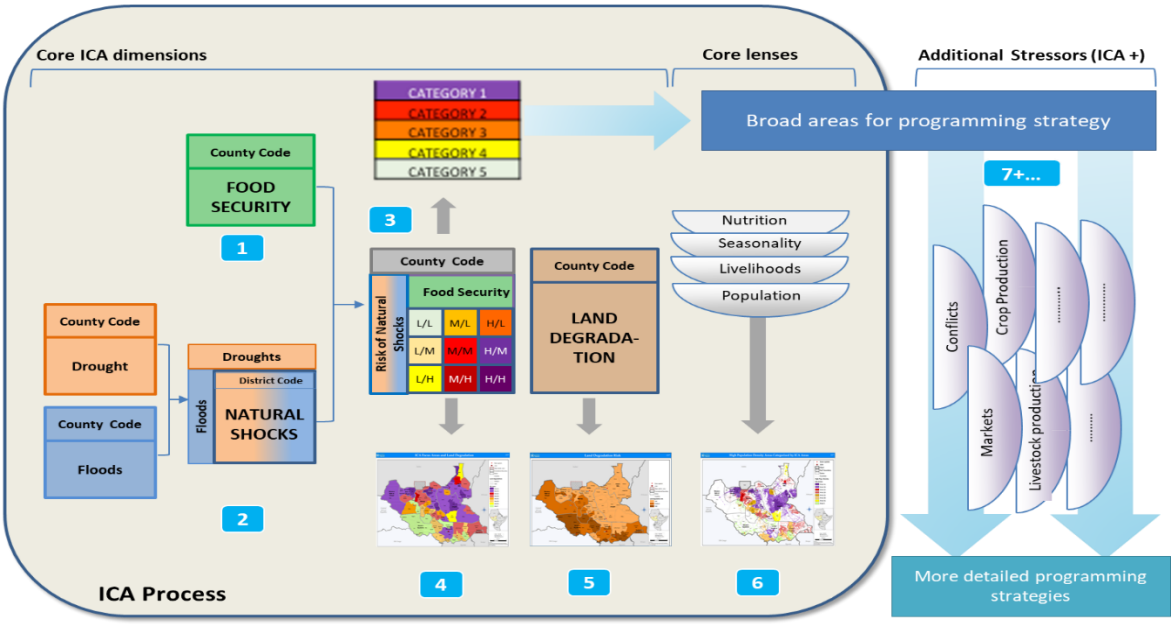
The existing macroeconomic environment emanates from the parameters and rules implemented by government to regulate how a country trades, and its' policies for long-term economic growth. The parameters are broadly classified as those that target international resource flows (e.g. exchange rate regulations); monetary regime (interest rates); and those set to finance a government's own operations and fiscal mechanisms (e.g. taxation and public expenditure).

The analysis focused on analysing trends of major macro-economic indicators (inflation, exchange rates, gross domestic product and poverty) over the years using secondary data to understand how the changing macroeconomic context may have affected the economic and the purchasing power of households and consequent food insecurity.

2.3 Computation of the Core ICA Dimensions

The analysis employed the integrated context analysis approach and considered food insecurity, natural shocks (floods and droughts) and land degradation as the core dimensions of concern. In addition, the analysis considered nutrition, seasonality, livelihoods and population, as well as stressors (food and livestock production, markets and conflicts) that directly and indirectly influence food and nutrition security. The analytical approach employed for the integrated context is summarised in Figure 2 and the sub-sections that follow.

Figure 2: Analytical steps employed in the analysis



2.3.1 Food security

Food insecurity analysis relied on existing integrated phase classification data for the period 2013 to 2018 and only considered the current rounds of analysis as they reflected the actual food insecurity situation and numbers of people in need. Projections were not considered, due to the number of assumptions built into the analysis. The analysis considered two aspects:

- The **frequency** of IPC phase classification in county from September 2013 to September 2018, which was multiplied by severity to provide a weighted score that was ranked, and the results classified into 3 levels depicting low (1), medium (2) and high (3).
- The **proportion/percentage** of population in phases 3 to 5 in each county from September 2014[1] against a threshold of 20 percent. Each county was then weighted and ranked based on the number of rounds with proportions greater than the threshold, the difference between the average food security value and that of national average (the greater the difference the more serious the food security situation), and the amount of fluctuation of the area values from the county's own average value.

The results of the two were cross-tabulated to show areas of very low to very high food insecurity and then classified into 3.

Seasonality in food security: On seasonal front, the same approach was applied for the periods May to September depicting the period during which households have less access to food, and October to April as the post-harvest period when households are expected to have good to fair access to food in a normal year.

Number of food insecure people: An estimated long-term planning figure was calculated by considering the average number of severe food insecure population (IPC phase 3 to 5) from

[1] September 2014 marked the beginning of analysis at county level. Previous rounds provided the IPC results at state level

May 2014 – September 2018. In addition, the maximum number of food insecure (acute food insecurity) that could result in case of a shock was established by considering the average of the two highest figures; while the number of people who are persistently food insecure (chronic food insecure) considered the average of the two lowest. A consideration of a short-term period of between 2015 and 2018 was further made given the changes in food insecurity that have occurred in the recent years. The difference between the acute and the long-term planning average provided an estimate of possible incremental number of people who could slip into severe food insecurity should a shock event occur. The approach was repeated in calculation of estimated food insecure people in the two seasons.

2.3.2 Nutrition

Nutrition analysis relied on the available GAM prevalence rates at State level from the Food Security Monitoring System (FSMS) covering the period August 2014 to December 2017. The frequency of GAM prevalence above the World Health Organisation (WHO) critical threshold (15%) was multiplied by a weighting factor to generate a final score that was categorised the states in to three: low, medium and high levels of malnutrition. The results were overlaid with food insecurity to identify areas faced with high food insecurity and high malnutrition.

2.3.3 Rapid onset shocks (floods)

There was lack of data on floods at national level and the analysis used the gridded datasets by UNEP GRID[2] showing areas of occurrence and frequency. The gridded dataset was first masked to the extent of South Sudan, and the percentage surface area of each county under risk of flooding was calculated and categorised into 3. Similarly, the flood frequency was extracted by county and categorised into 3 and incorporated into the analysis. Area analysis and frequencies were based on thresholds indicated in steps 1 and 2.

1. Calculation of surface percentage of flood prone areas, with results categorised into 3 classes

Percent of surface area at flood risk by **County**			
% of surface area at flood risk	**<= 17.5%**	**17.5% to 40%**	**>40%**
ICA reclassification	Low (1)	Medium (2)	High (3)

2. Estimated frequency of flood events with results categorised into 3 classes

Maximum flood frequency by **County**			
Maximum flood frequency	**0-2 events**	**3-10 events**	**10-17 events**
ICA Reclassification	Low (1)	Medium (2)	High (3)

The outputs of the two calculations were combined into a single layer expressing the flooding risk situation extent (i.e. percentage of flood prone surface area) and the frequency of occurrence by county. The results were classified into three (3) levels based on natural jerks in ArcGIS to reveal areas of low, medium and high flooding risks. The number of people affected by floods over the years was unavailable for inclusion as the third component.

[2] https://preview.grid.unep.ch/

	Maximum flood frequency		
% of surface area at flood risk by **county**	**Low (1)**	**Medium (2)**	**High (3)**
Low (1)	Very Low	Low	Moderate
Medium (2)	Low	Moderate	High
High (3)	Moderate	High	Very High

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Maximum flood frequency X **% of surface area at flood risk** by **County**			
	2 -3	**4**	**5 - 6**
ICA Reclassification	Low (1)	Medium (2)	High (3)

2.3.4 Slow onset shocks (droughts)

Droughts result from insufficient rain (meteorological) or from inadequate soil moisture to support vegetation growth leading to stressed conditions or failure (agricultural drought). Both meteorological and agricultural droughts were analysed and thereafter combined to reveal the most affected areas. This was based on fact that while meteorological droughts result from insufficient rain, it's the agricultural droughts that significantly affect the population by compromising production (crop and pasture) due to inadequate soil moisture.

2.3.4.1 Meteorological droughts

The analysis of meteorological droughts using the standardised precipitation index (SPI) over the May-October season over the 2013-2017 period did not reveal severe drought conditions (below -1.00) except for 2016. Discussions further revealed that while seasonal rainfall totals may be adequate, it is the distribution across the season that is of concern as it leads to dry spells in some areas. Hence, the analysis focused on inter-annual rainfall variability in the last 5-years to identify areas where variation in seasonal totals could jeopardise livelihood activities.

2.3.4.2 Agricultural droughts

Computation of agricultural droughts relied on remotely sensed Normalized Difference Vegetation Index (NDVI) by the Moderate Resolution Imaging Spectroradiometer (MODIS)[3]. The analysis primary focused on the May-October season with the assumption that poorer vegetation growth resulted from stressed water conditions or due to dry spells.

Using NDVI data from 2013 to 2017, a maximum seasonal value for each of the May-October growing seasons was computed. The seasonal value was compared with a 17-years long-term average and areas below 90% were assumed as having experienced sub-optimal growth due to drought condition or dry spells. The frequency of occurrence in the last 5-years provided an estimate on the number of poor growing seasons (NPGS) per pixel. Using zonal statistics, the maximum number of poor growing seasons per County was extracted and classified into 3 as shown below.

Secondly, the proportion of the county surface area affected by below-average growing conditions was computed and categorised into 3 levels. A cross-tabulation of percent surface area and maximum number of poor growing seasons was then combined to generate the overall results in 3 levels.

[3] https://terra.nasa.gov/about/terra-instruments/modis -this was due to high resolution at 250m but started operations in 2000, hence, data availability spanned from 2001 to present.

1. Overall number of poor growing seasons

Maximum number of poor growing seasons by **County**			
Prevalent number of poor growing seasons	**0-2 PGSs**	**3 PGSs**	**4-5 PGSs**
ICA reclassification	Low (1)	Medium (2)	High (3)

2. Percent of county area under poor growing conditions during May-October period

Average number of poor growing seasons by **County**			
Percent surface area affected	**<1.65**	**1.65-6.33**	**>6.33**
ICA reclassification	Low (1)	Medium (2)	High (3)

3. Combined area and number of poor growing seasons during May-October period

Area and number of poor growing seasons by **County**			
	2	**3-4**	**5-6**
ICA reclassification	Low (1)	Medium (2)	High (3)

In addition, the coefficient of variation for the main growing season was computed using the seasonal NDVI to inform dynamics in growing conditions from year to year (2013-2017).

2.3.5 Combined natural shocks (Floods and droughts) risk score

The results of floods and droughts risk score were combined into a single layer depicting the natural shocks risk score with variation from very low to very high-risk occurrence, which was then classified into the 3 ICA levels as shown below.

	Drought risk score by County		
Flooding risk by County	**Low (1)**	**Medium (2)**	**High (3)**
Low (1)	Very Low (2)	Low (3)	Moderate (4)
Medium (2)	Low (3)	Moderate (4)	High (5)
High (3)	Moderate (4)	High (5)	Very High (6)

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Exposure to natural shocks (combined) by **County**			
Exposure to natural shocks (combined values)	**2-3**	**4**	**5-6**
ICA reclassification	Low (1)	Medium (2)	High (3)

2.3.6 Land degradation risk

Land degradation is not as severe as in other countries in the region. The analysis considered the seasonal land degradation index product generated by the Regional Centre for Mapping of Resources for Development (RCMRD) and the Monitoring of Environment for Sustainability in Africa (MESA) for the October 2014 – March 2015 to investigate the extent of the environmental problem. The index gives degradation levels of severity from very low (1) to high (5).

The level/severity of degradation in each county was extracted using zonal statistics based on majority value. Then the proportion of surface area under level 4 and 5 (high to very high) in each county was calculated and categorised into 3 (step 1 and 2). The results of severity and percent surface area covered were then combined and categorised into 3 as shown below (step 3).

1. Computation of severity of degradation by County

Level of degradation based on majority of pixels by **County**			
	1-2	3	4-5
ICA reclassification	Low (1)	Medium (2)	High (3)

2. Computation of surface area under moderate to very high degradation by county

Percent surface area under moderate to very high levels of degradation by **County**			
	<10.1%	10.1-35%	>35%
ICA reclassification	Low (1)	Medium (2)	High (3)

3. Computation of the combined severity and proportion of surface area

	Proportion of County under level 4 & 5		
Severity/level of degradation	**Low (1)**	**Medium (2)**	**High (3)**
Low (1)	Very Low (2)	Low (3)	Moderate (4)
Medium (2)	Low (3)	Moderate (4)	High (5)
High (3)	Moderate (4)	High (5)	Very High (6)

⇩

Combined exposure to land degradation by **County**			
	2-3	**4**	**5 - 6**
ICA Reclassification	Low (1)	Medium (2)	High (3)

2.3.7 Overlay of natural shocks (Floods and droughts) and land degradation

The results of natural shocks (floods and droughts risk score) were overlaid with land degradation to show areas of convergence.

2.3.8 ICA AREAS & CATEGORIES

The results of the food insecurity and natural shocks (floods and droughts) were cross-tabulated to generate the ICA areas and categories. ICA areas and categories help in identifying the most vulnerable areas and provides general guidance for interventions.

2.4 Other Core Issues

2.4.1 Livelihoods

The livelihoods information was generated based on FEWSNET 2013 livelihood zones. Each county was assigned the livelihood zone that takes much of its surface area as a proxy for the dominant livelihood. An overlay with Villages/settlements, each assigned with the respective ICA category of the location it is in to identify settlements located in areas of high food insecurity and shocks.

2.4.2 Densely populated areas facing food insecurity and shocks

The Landscan 2015 population density - a global dataset that estimates densities based on land cover, roads, slope, villages, among other factors – was analysed to show the spatial distribution by number of persons per square kilometre. Areas with population density above

6.3 persons (average household size by World Bank[4]) were assigned with ICA areas classification to help identify areas of human concentration with high food insecurity and shocks.

2.5 Additional factors that influence vulnerability

There are other factors that drive vulnerability to food and nutrition insecurity in South Sudan including market systems for both food and livestock, access to services, and effects of conflicts/insecurity. The following section outlines how they were incorporated in the analysis.

2.5.1 Production and flow of food commodities

Markets play a critical role in movement of food from areas of surplus production or ports of entry for imported commodities to areas with no/deficit production. Similarly, markets allow households to sell livestock and raise income for buying food. Using available market information by FEWS NET, the trade flows of locally produced food commodities were mapped to identify areas where access to food may be hindered by limited production or physical inaccessibility to markets.

Using cereal production data captured by the Crop and Food Supply Assessment Mission (CFSAM) from 2013 to 2018, the consumption/production ration for each year by County was calculated to reveal areas with recurrent gaps in consumption requirements.

2.5.2 Conflicts and insecurity

Conflicts influence food insecurity by limiting access to agricultural land, wild foods and markets, hindering the transportation and supply of needed food commodities through market channels, displacing populations, curtailing productive activities and disrupting livelihoods. Data compiled by the Armed Conflict Location & Event Data Project (ACLED)[5] was downloaded and analysed to reveal trends and areas most affected by conflicts since July 2011. Additionally, data on aid workers affected by conflicts was obtained from the Aid Workers Security Database[6] to show where attacks on humanitarian responders have occurred since insecurity increases the operational risk that could hinder assistance to needy populations.

[4] Household size by World Bank, 2016 (*microdata.worldbank.org/index.php/catalog/2778/download/39504*
[5] https://www.acleddata.com/
[6] https://aidworkersecurity.org/

Chapter 3: Findings

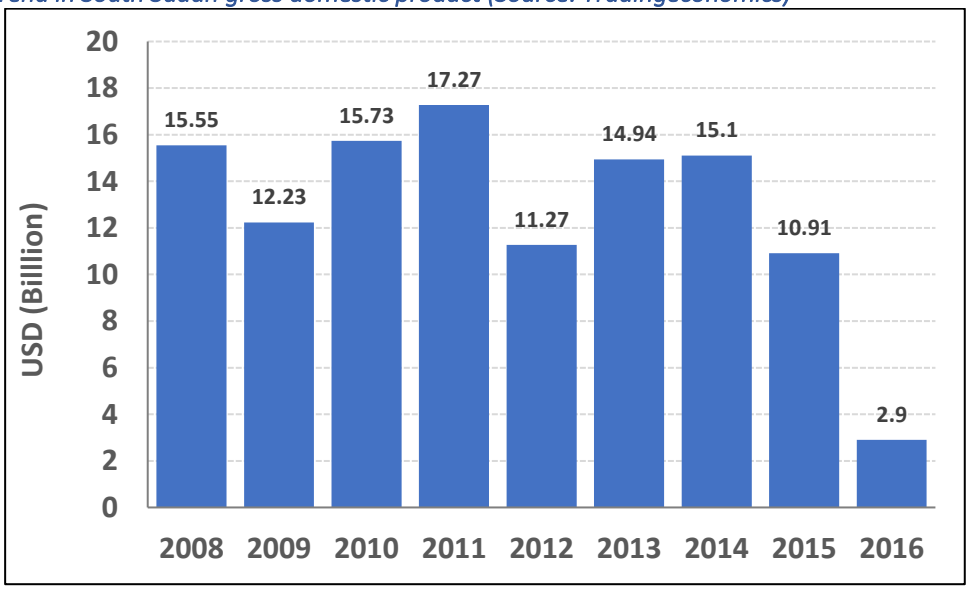
3.1Macro-economic environment

3.1.1 Gross Domestic Product (GDP)

South Sudan is a young nation that attaining its independence in 2011. The economy relies heavily on oil production - the most oil-dependent country in the world - with oil accounting for the bulk of its exports of about 60 percent of the Gross Domestic Product (GDP) and more than 95% of government revenues[7].

In recent years, the economic performance has been hindered by the decline in global oil prices (from USD110 per barrel in 2014 to about USD50 in 2017) and the reduction in oil production following the outbreak of civil war by end of 2013. South Sudan enjoyed an average GDP of USD 12.88 billion from 2008 to 2016[8], reaching an all-time high of USD 17.27 billion in 2011 (figure 3). The GDP however declined following the conflicts to USD 2.90 billion in 2016. It's expected to be at USD 1.00 billion by end of 2018 and projected to reach USD 2.00 billion by year 2020[9].

Figure 3: Trend in South Sudan gross domestic product (Source: Tradingeconomics)

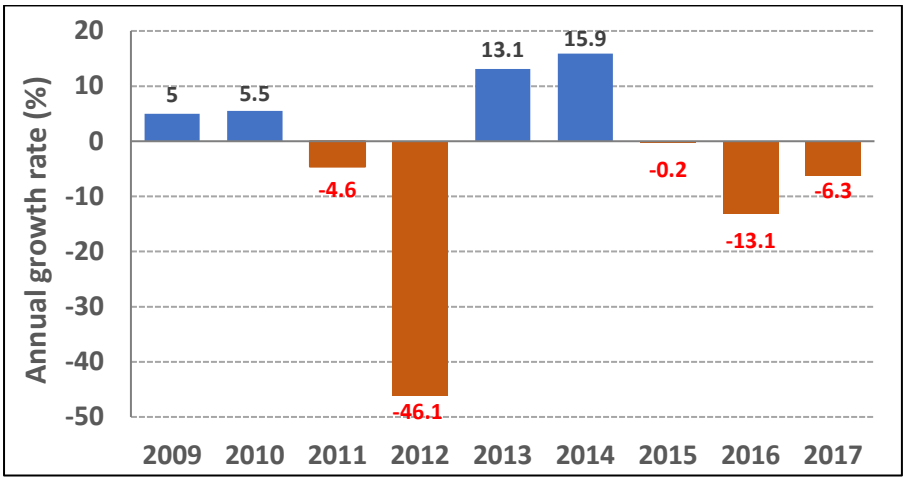


The above indicates fluctuating annual growth rate in GDP from year to year with the lowest being in 2012 and 2016 (figure 4). According to Trading Economics econometric models, the growth rate is expected to reach 5.40 percent by the end of 2018 and 6.66 percent in 2020[10].

The implication of declining GDP and negative growth rate is the government's inability to raise adequate revenues to implement its programmes including the provision of basic services and other development programmes (including those targeting crop production and livestock sector) that would enable the country to meet its food requirements.

[7] https://www.afdb.org/en/countries/east-africa/south-sudan/south-sudan-economic-outlook/
[8] https://tradingeconomics.com/south-sudan/gdp
[9] https://tradingeconomics.com/south-sudan/gdp
[10] https://tradingeconomics.com/south-sudan/gdp-growth-annual

Figure 4: South Sudan GDP Annual growth rate



3.1.2 Worsening exchange rate

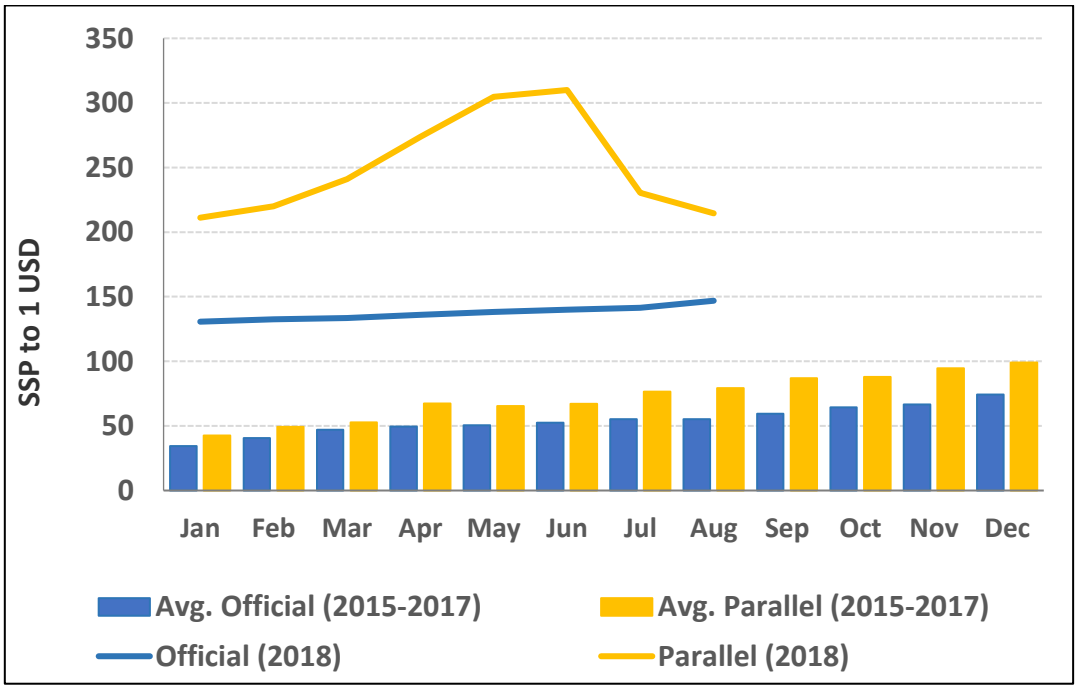
After gaining independence in 2011, the Bank of South Sudan adopted and maintained a fixed exchange rate regime pegged at SSP 2.96 per 1 USD. The pegged exchange rate system was unable to meet the demand for US dollars given that the economy was experiencing problems associated with the 2012 oil production/export shutdown; civil war from December 2013. The worsening exchange rate led to higher defence spending, disruptions of oil production, and higher risk perceptions of investors; and the global decline in oil prices between 2013 and 2015[11].

Given these circumstances, the sustenance of the official exchange rate became increasingly unrealistic. From mid-2014, because of the increasing demand for US Dollars, the parallel market rate rose from about SSP 4/US$ to SSP 17/US$ by late 2015. The widening gap between the official and parallel exchange rates discouraged investment and spurred further rent-seeking[12]. To keep pace with increasing inflation and currency depreciation pressures, the Bank of South Sudan devalued its currency by adopting a floating system in which the value of the Pound against the US dollar was to be determined by the prevailing market forces.

Since then the value of the Pound to the US Dollar increased with the parallel market exchanging at a higher rate than the official market (figure 5). In 2018, the situation worsened in comparison to the 2015-2017 average, with the parallel exchange rate reaching over SSP 300 by May and June 2018 but started declined since then. The high exchange rate of the SSP to the US Dollar consequently led to increased cost of importing goods by traders (including food). This reduced the amount of food available in the country. It also increased the cost of fuel as well as transportation costs such that movement of food commodities was affected leading to increased prices, increased cost of living and reduced consumption.

[11] https://www.wfp.org/content/south-sudan-special-working-paper-devaluation-pound-food-security-implications-january-2016
[12] https://www.afdb.org/en/countries/east-africa/south-sudan/south-sudan-economic-outlook

Figure 5: Exchange rate of the South Sudanese Pound to the USD in official and parallel markets



3.1.3 Increased poverty

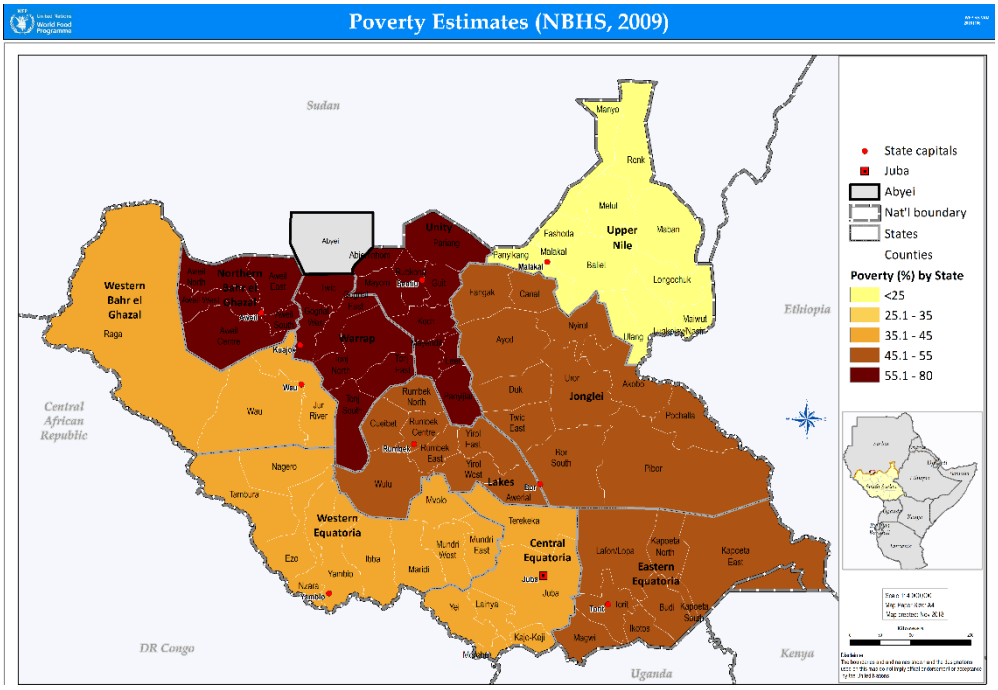
The 2008 census and the 2009 National Baseline Household Survey (NBHS) estimated poverty levels in South Sudan at 51 percent. The highest levels of poverty were estimated in Northern Bahr el Ghazal, Unity and Warrap states with over 55 percent of the households living below the poverty line (map 2). This was followed by Jonglei, Lakes and Eastern Equatoria states with between 45 and 55 percent of the households. By the time the country gained independence in 2011, poverty was estimated to have declined to 47 percent[13]. However, given the fact that most government revenue emanated from sale of oil, the economic and political shocks experienced by the country from 2012 heightened the poverty levels to 57 percent by 2014[14].

Since then the situation has further worsened as revealed by the World Bank/NBS High Frequency Surveys (HFS) of 2015 whereby 66 percent of the population (two out of three persons) in South Sudan are estimated as living below poverty line. Although poverty is higher in rural (68 percent) compared to urban (50 percent) areas, those in urban areas are subject to market price shocks driving them into food insecurity.

[13] microdata.worldbank.org/index.php/catalog/2778/download/39504

[14] Based on simulations of the 2008 census data and the 2009 NBHS data sets

Map 2: Poverty estimates in South Sudan in 2009



3.1.4 Worsening consumer price index and inflation

The worsening economic situation in South Sudan and the devaluation of the South Sudanese pound in December 2015 has led to an increased cost of food and other goods and services as revealed by the consumer price index (figure 6). The general cost of a standard basket for general items and that of food and non-alcoholic beverages rose from around SSP 430 in January 2016 to over SSP 7000 by mid-2018. Between December 2014 and September 2018, the inflation rate reached an all-time high of 835.70 percent in October of 2016 and a low of -0.75 percent in January of 2015 (figure 7). As a result, many households have been unable to access adequate quantities of food pushing them into food insecurity.

Figure 6: Trend of consumer price index

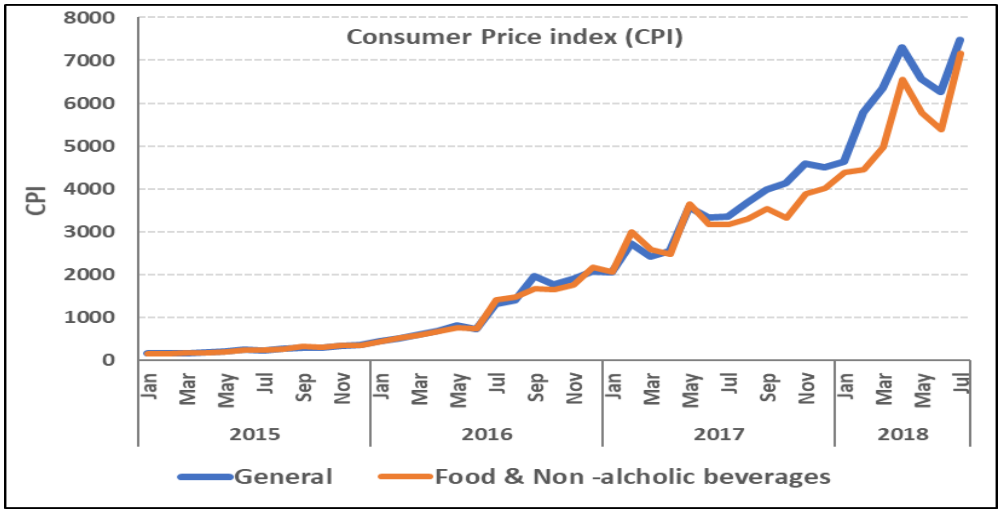
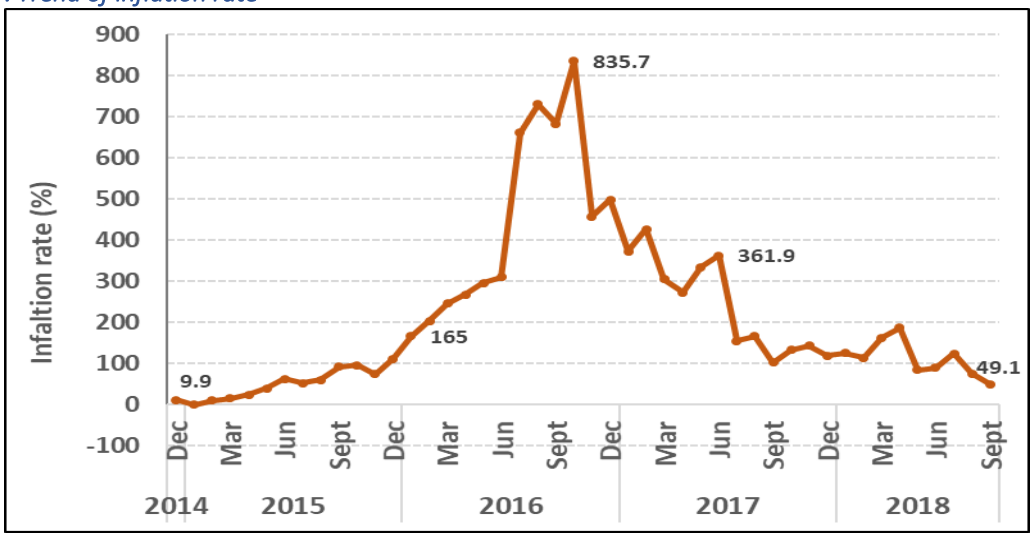


Figure 7: Trend of inflation rate

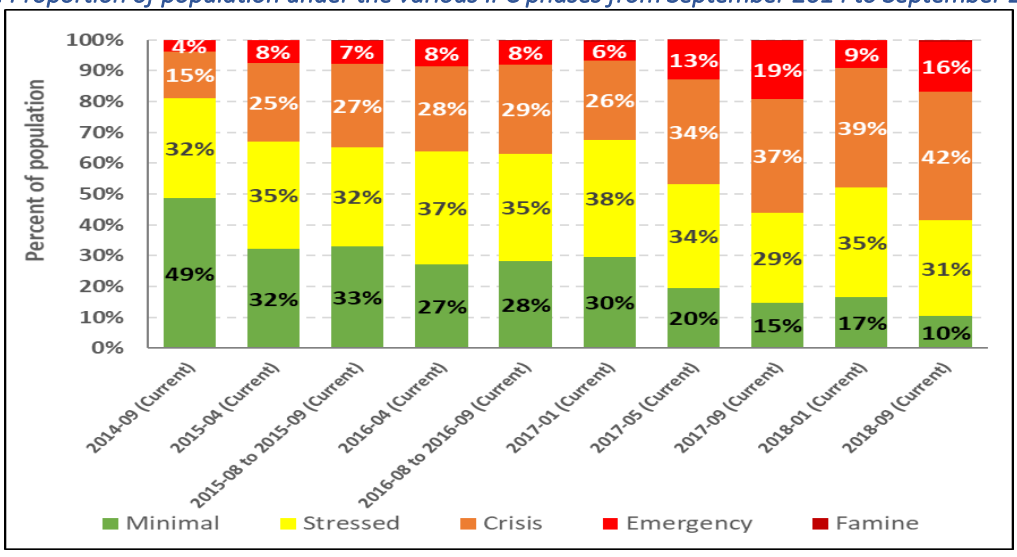


3.2 Food security

3.2.1 National Overall food security trends

Overall, the proportion of people facing severe food insecurity in South Sudan has increased from 19 percent in September 2014 to 58 percent in September 2018 (Figure 8). The absolute number of food insecure peaked in 2017 and 2018 (Figure 9). The number of food insecure people in the last 5-years ranged between 2.11 and 6.07 million with an overall average of **4.44 million,** which reflects the number of people who are either (a) consistently or recurring food insecure or (b) have experienced food insecurity at some point because of a specific shock. This figure gives an overall estimate for longer-term planning.

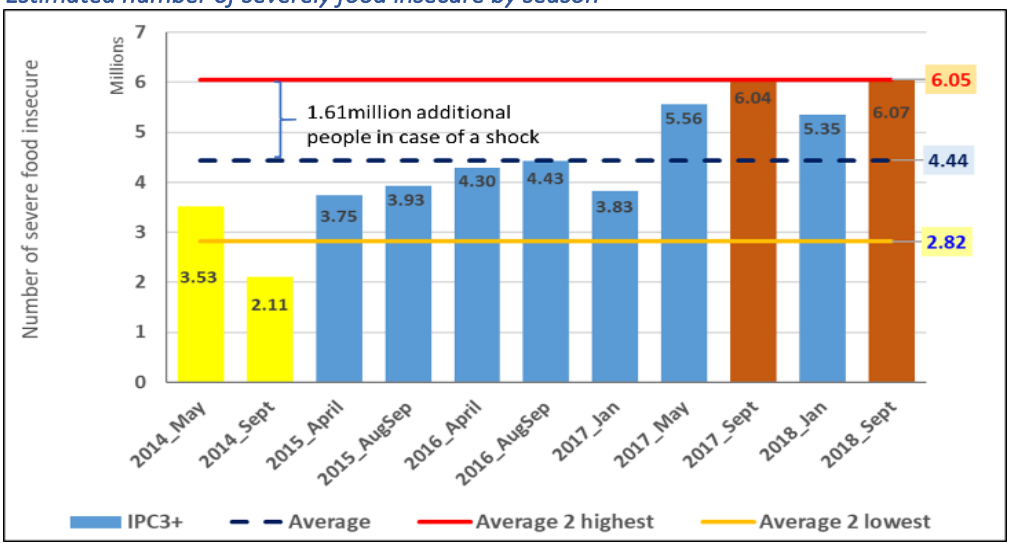
Figure 8: Proportion of population under the various IPC phases from September 2014 to September 2018



The average of the two lowest figures (**2.82 million)** gives an estimate of the population that is consistently/recurring food insecure irrespective of the seasonal performance and other factors (Figure 1). It signals the population that is most vulnerable to food insecurity that should be targeted with safety nets that provide predictable support to meet food needs and

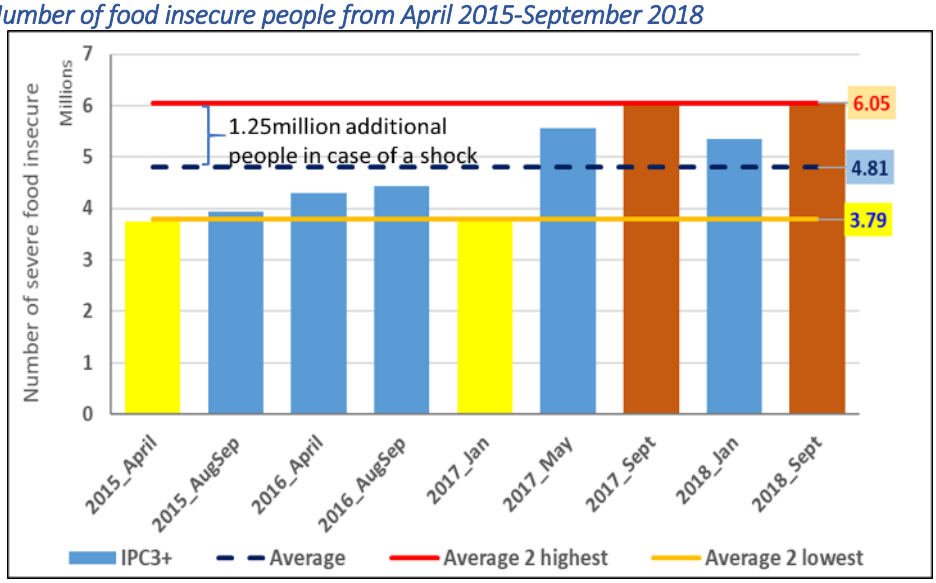
at the same time building their resilience. The difference between the average of the highest two and the overall average (**1.61million**) shows the estimated number of additional people at risk (acutely food insecure), should a shock occur. This is the population that should be targeted with resilience building livelihood interventions to ensure they are able to withstand shocks.

Figure 9: Estimated number of severely food insecure by season



Given the observed trend of increasing food insecurity, a consideration of the last 4 years (2015-2018) revealed a deteriorating situation. The overall average food insecure during this period increased to **4.81million.** Similarly, the number under chronic (recurring) food insecurity increased from **2.82million** (5-yrs average) to **3.79 million** in the last 4-years, and the additional number of people likely to fall into food insecurity in case of a shock were **1.25million** people (figure 10).

Figure 10: Number of food insecure people from April 2015-September 2018

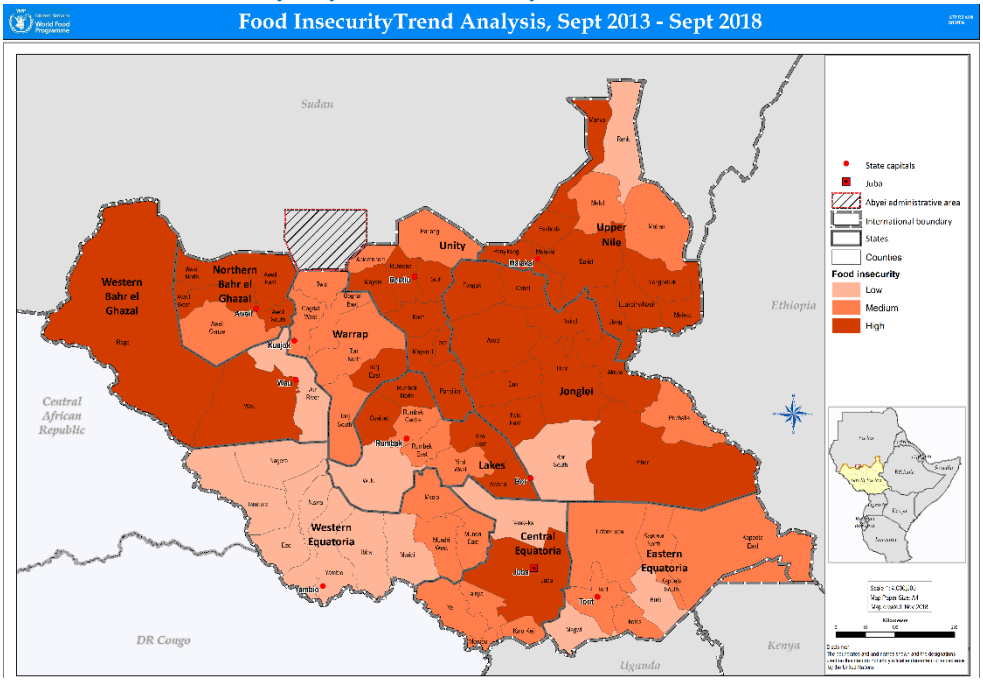


3.2.2. Food Insecurity at sub-national level

3.2.2.1. Overall food security conditions.

The continued deterioration of food insecurity has been a major issue of concern in South Sudan in the recent years. The analysis of the situation based on IPC data (frequency of phases and above 20 percent threshold) revealed that food insecurity is high in most of Jonglei, Western Bahr el Ghazal, Northern Bahr el Ghazal, Unity, Upper Nile and Lakes states as well as in Juba and Tonj East counties (map 3). Food insecurity is generally low in Western Equatoria state due to relatively high level of food production.

Map 3: Levels of food insecurity, September 2013-September 2018

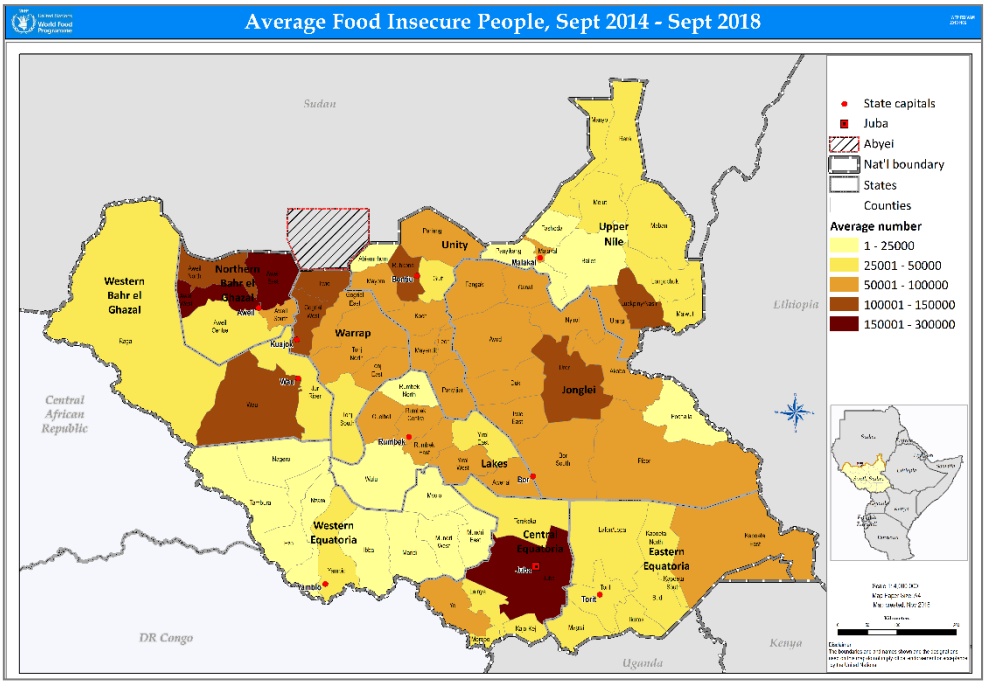


3.2.2.2. Estimates of average, chronic and acute food insecure

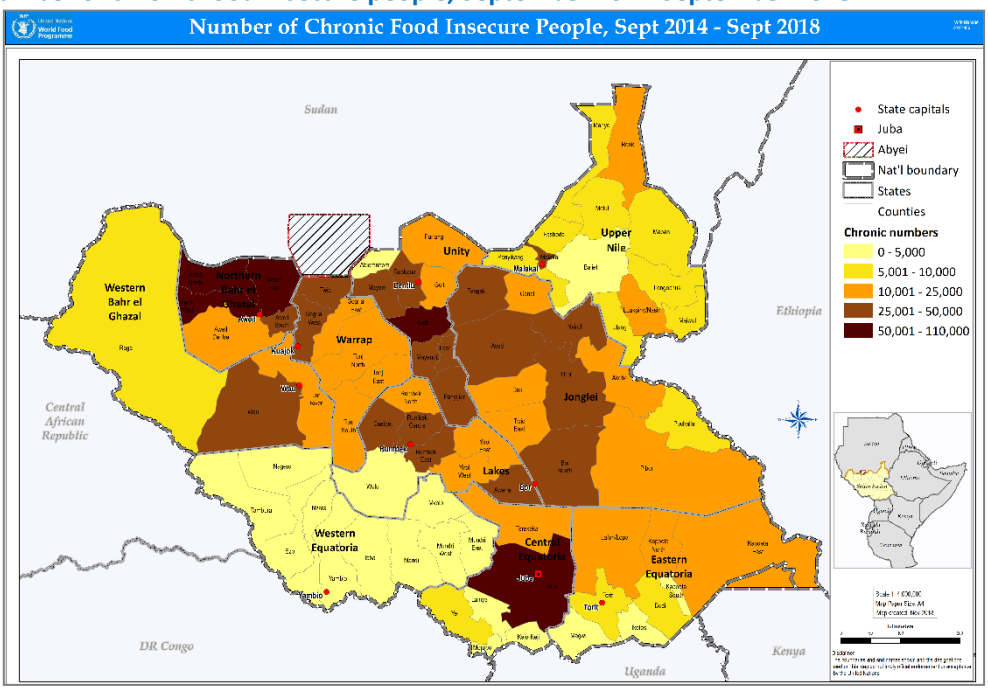
At county level, the average number of food insecure people over the 2013-2018 period ranged between 2,400 and 263,500. Counties with the highest average number include Juba, Aweil west and Aweil East followed by Wau, Twic, Gogrial West, Uror, Luakpiny/Nasir, Rubkhona and Aweil North (map 4). The average numbers can inform planning purposes.

On the chronic situation, the numbers were up to 105,500 in Juba County (map 5). The additional number at risk in case of a shock (above the average) is highest in Twic, Juba and Aweil East with over 100,000 people in addition to Wau, Bor South, Rubkhona, Gogrial West and Luakpiny/Nasir (Map 6).

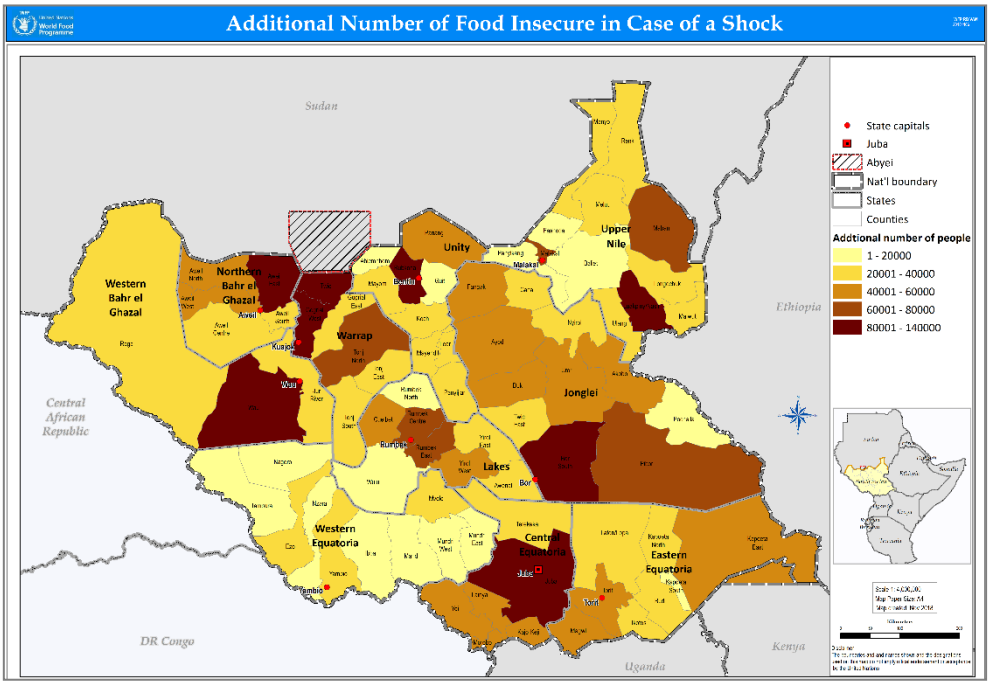
Map 4: Average number of food insecure people, September 2014-September 2018



Map 5: Number of chronic food insecure people, September 2014-September 2018



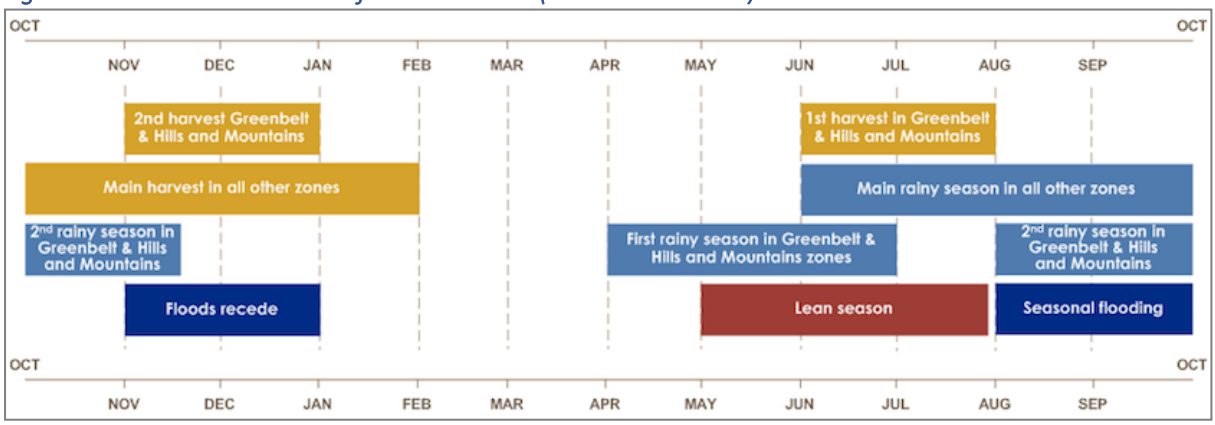
Map 6: Additional number of people at risk of food insecurity in case of shocks, September 2014-September 2018



3.2.3. Seasonal food insecurity

Based on the seasons normally experienced in the country (figure 11), two main seasons that influence food insecurity in a normal year were identified as: May-September when most households undergo through the lean season and have minimal food stocks to consume; and October – April that marks the harvest and post-harvest period when households have available food stocks to consume from own production.

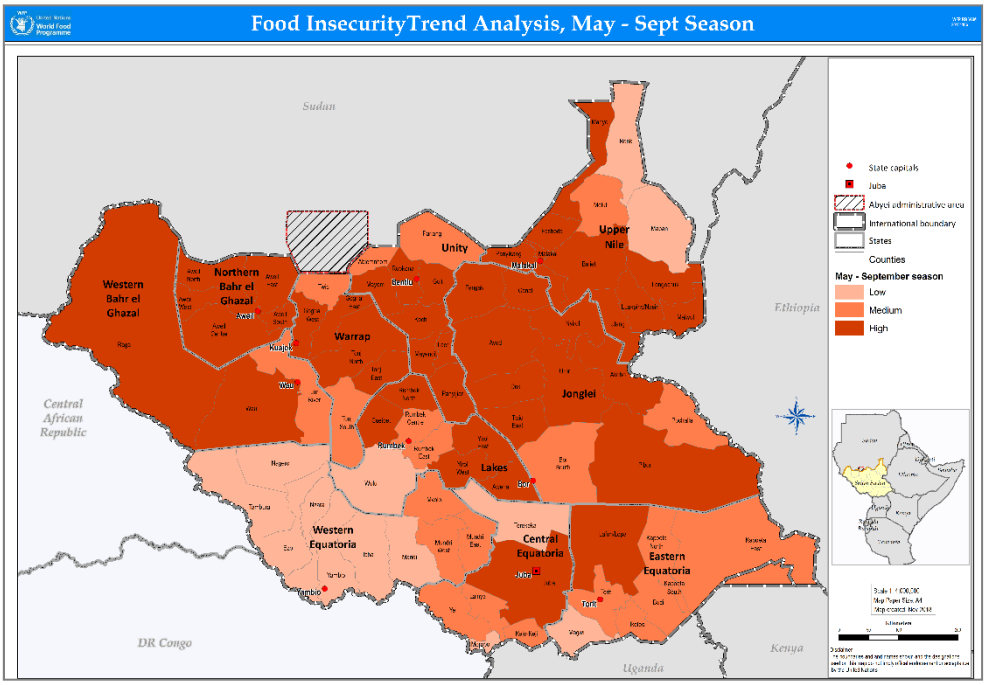
Figure 1: Seasonal and calendar for South Sudan (Source: FEWS NET)



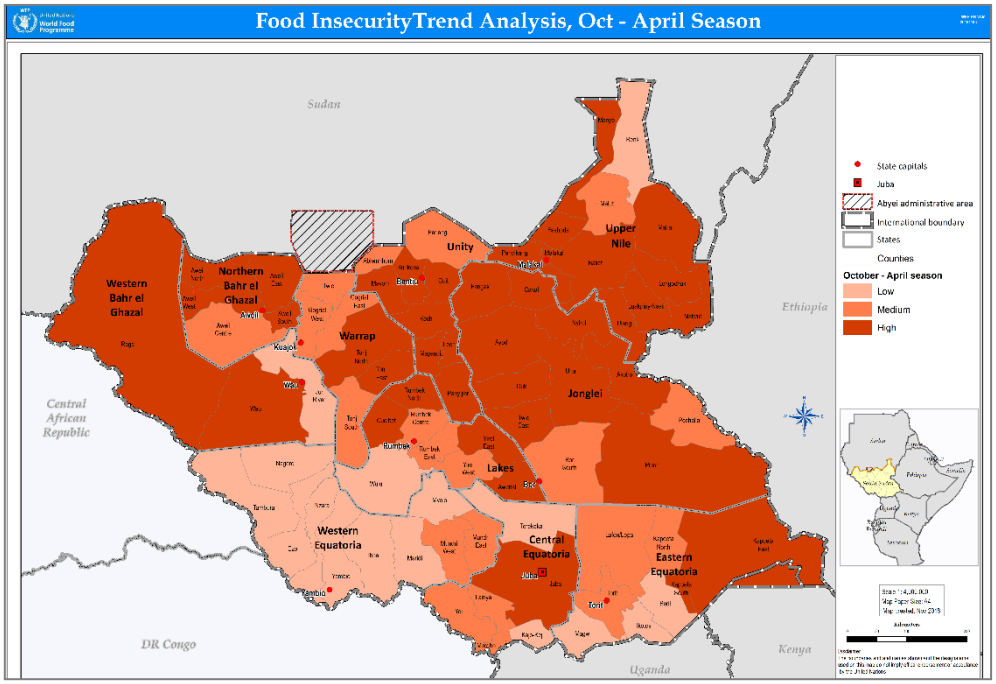
The food insecurity situation did not vary significantly between these two seasons in the last 5-years (map 7 and 8). Since the conflicts started in December 2013, households have not managed to produce enough even during the main cultivating seasons. Instead the minimal harvest realized does not take households long enough before they fall into food insecurity. There are also issues to do with sharing and loss of food. Most households have been

supported through humanitarian assistance that may not be adequate to meet all the household's needs.

Map 3: Food insecurity status during the May-September season



Map 4: Food insecurity status during the October-April season



3.3. Malnutrition

Malnutrition among children aged 6-59 months is a major challenge in most states of South Sudan as revealed by trend analysis of GAM data spanning the period August 2014 to

December 2017. In Jonglei, Northern Bahr El Ghazal, Unity, Upper Nile, Warrap and Western Bahr el Ghazal states, the prevalence rates exceeded the WHO threshold for critical level (15%) in severally (Figure 12). Both SAM and MAM admissions have increased since 2014 despite fluctuations (figure 13) and while this can reflect a deteriorating nutrition situation, the effect of enhanced intervention coverage than in previous years could not be overruled.

Figure 12: GAM Prevalence levels by state, August 2014 – December 2017

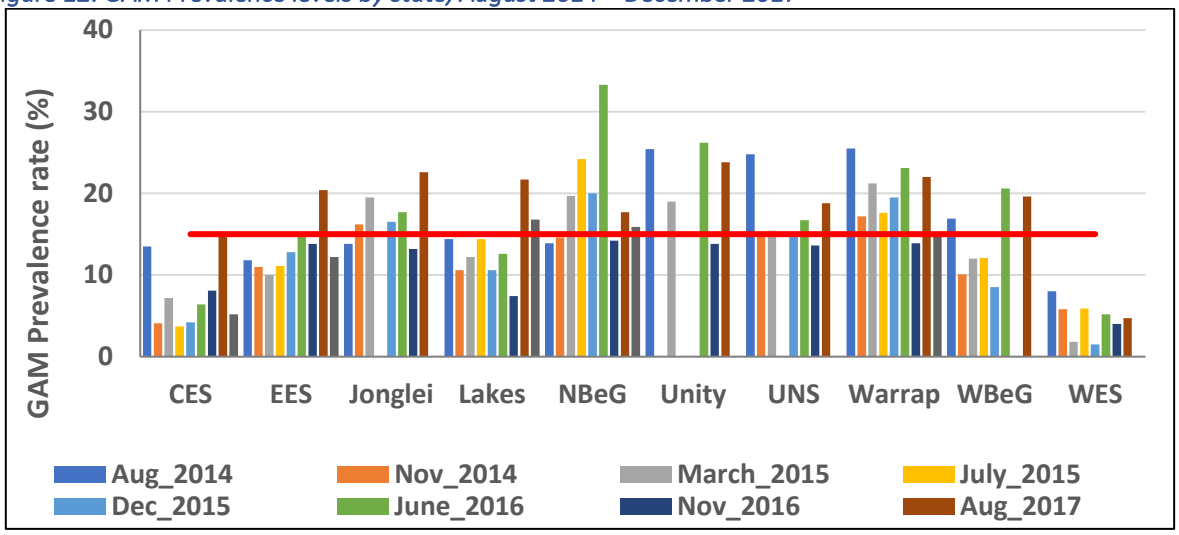
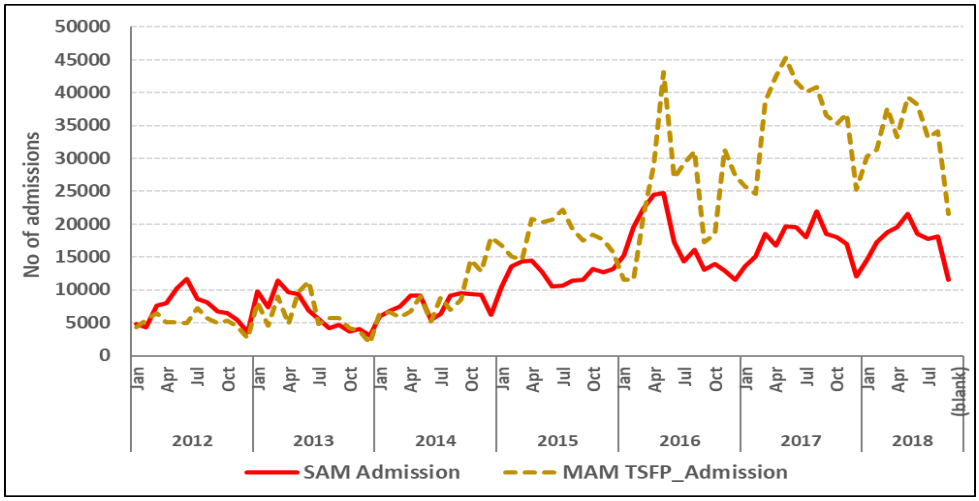
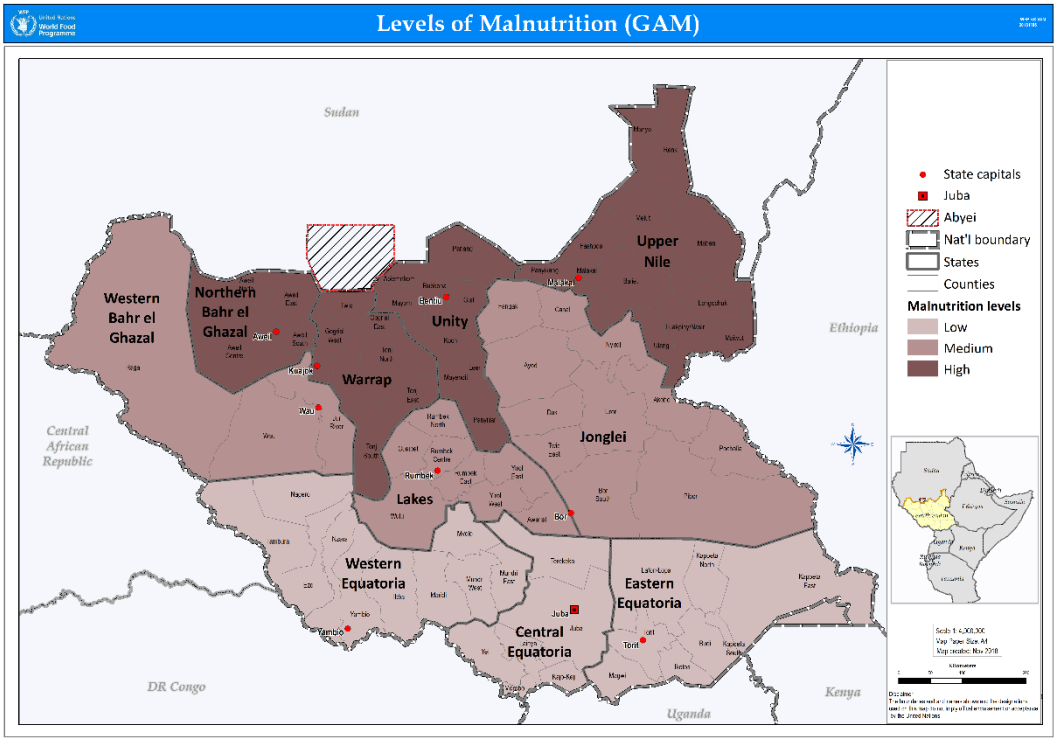


Figure 13: MAM and SAM admissions, 2012 – 2018



Based on the frequency of GAM levels in the several rounds of assessment, Unity, Upper Nile, Warrap and Northern Bahr el Ghazal states were rated under high level of malnutrition; Western Bahr el Ghazal, Jonglei and Lakes states under medium level and the greater Equatoria region (except Juba county) under low level (map 9).

Map 5: Levels of malnutrition by state in South Sudan



The challenge of malnutrition has been reported in several studies (ACF[15], GOAL[16]) and is multi-dimensioned, linked with inappropriate care practices, substandard levels or access to health services, diseases, inappropriate water supply, hygiene and sanitation, inadequate health education and a poor understanding of the importance of food quality, quantity and diversity. Moreover, heavy workloads among women, cultural beliefs and traditions also play a big role in malnutrition. The situation has been made worse by the effects of conflicts and insecurity[17].

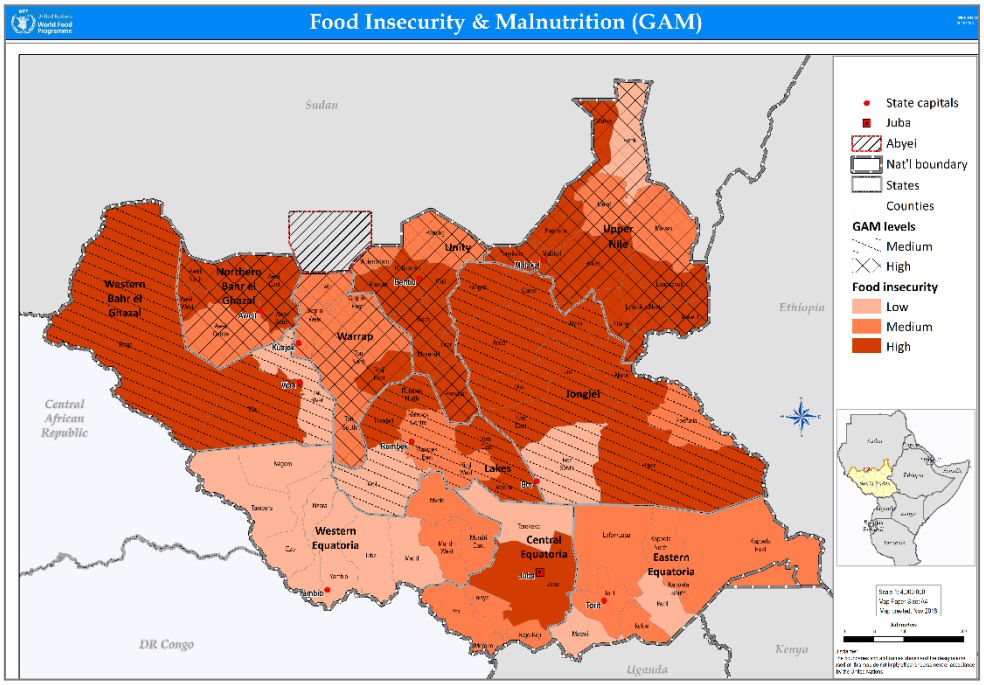
3.4. Spatial distribution of food insecurity and malnutrition

Food insecurity and malnutrition among children under 5-years are common problems in many areas especially in Unity, Upper Nile, Western Bahr el Ghazal and Northern Bahr el Ghazal states (Map 10). There is need to continue focusing on measures to alleviate food

[15] https://www.actionagainsthunger.org/blog/underlying-causes-malnutrition-south-sudan
[16] http://www.southsudanmedicaljournal.com/archive/2008-08/summary-of-a-report-on-the-underlying-causes-of-malnutrition-in-twic-county-warap-state-south-sudan.-august-2007.html
[17] https://www.unicef.org/nutrition/southsudan_92046.html

insecurity and malnutrition in most northern states while promoting preventative measures in the Equatoria region.

Map 6: Spatial distribution of food insecurity and malnutrition

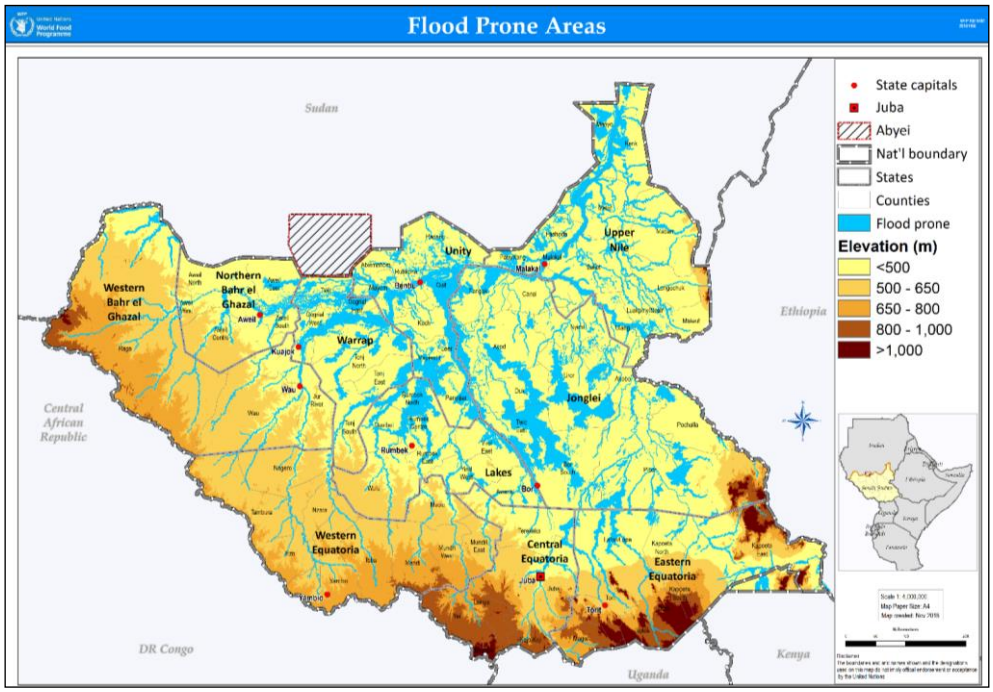


3.5. Vulnerability to Natural shocks

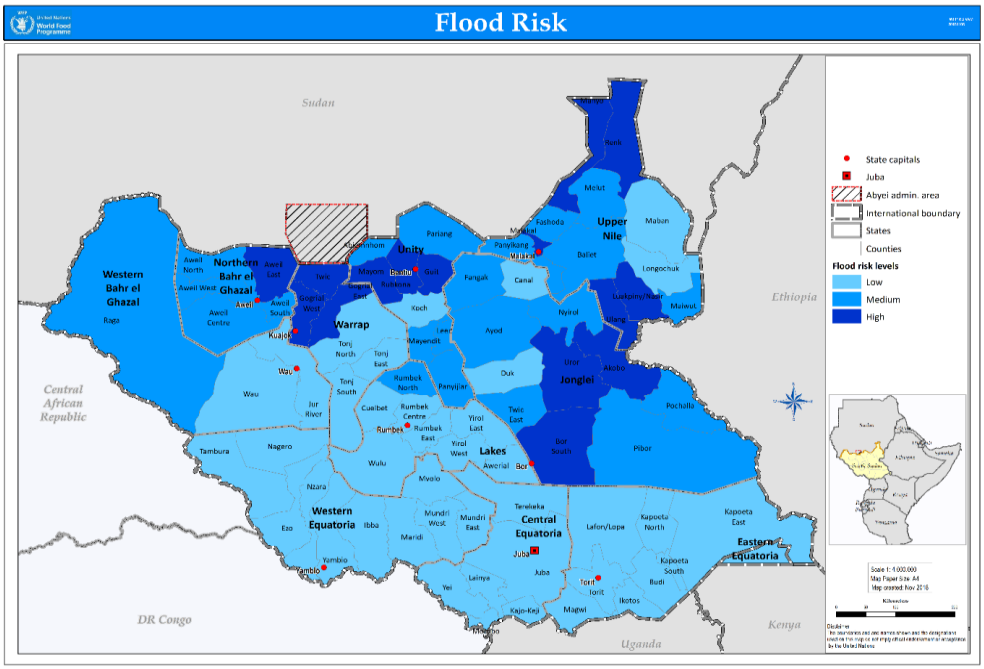
3.5.2. Flood risk

The low-lying areas of South Sudan in proximity to the main rivers are prone to flooding (Map 11). The results of the flood risk analysis based on proportion of county surface area affected and frequency of occurrence show that counties under high risk of flooding (combined area and frequency of occurrence) are Renk, Manyo, Ulang and Luakpiny/Nasir counties in former Upper Nile state; Bor south, Uror and Akobo (former Jonglei); Aweil east county (former Northern Bahr el Ghazal); Twic, Tonj East and Tonj West (former Warrap); and Guit, Rubkhona and Mayom (former Unity state) as shown in map 12.

Map 7: Flood prone areas in South Sudan



Map 8: Spatial distribution of flood risk in South Sudan

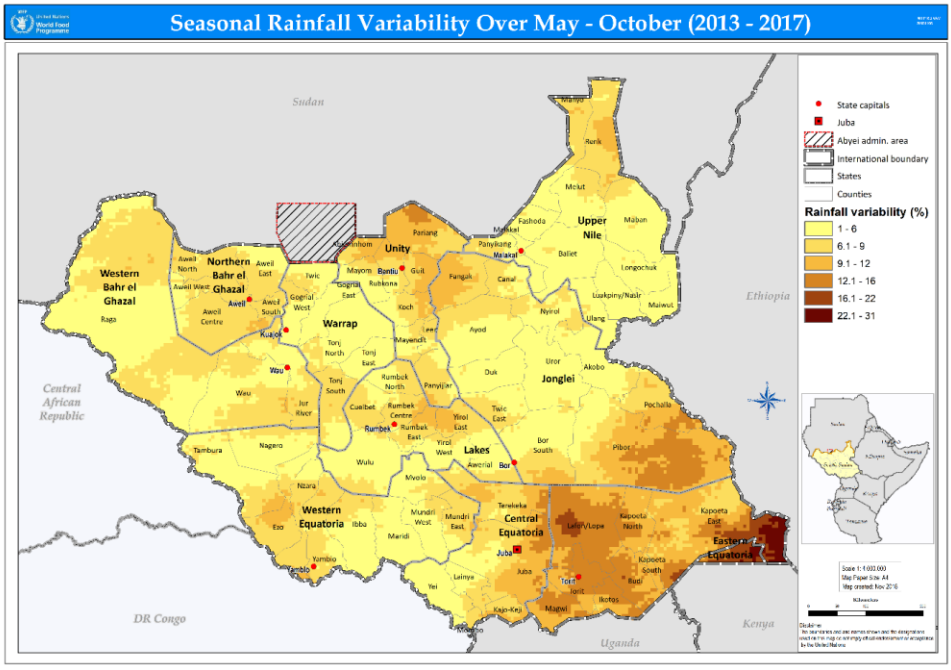


3.5.3. Droughts (meteorological and agricultural)

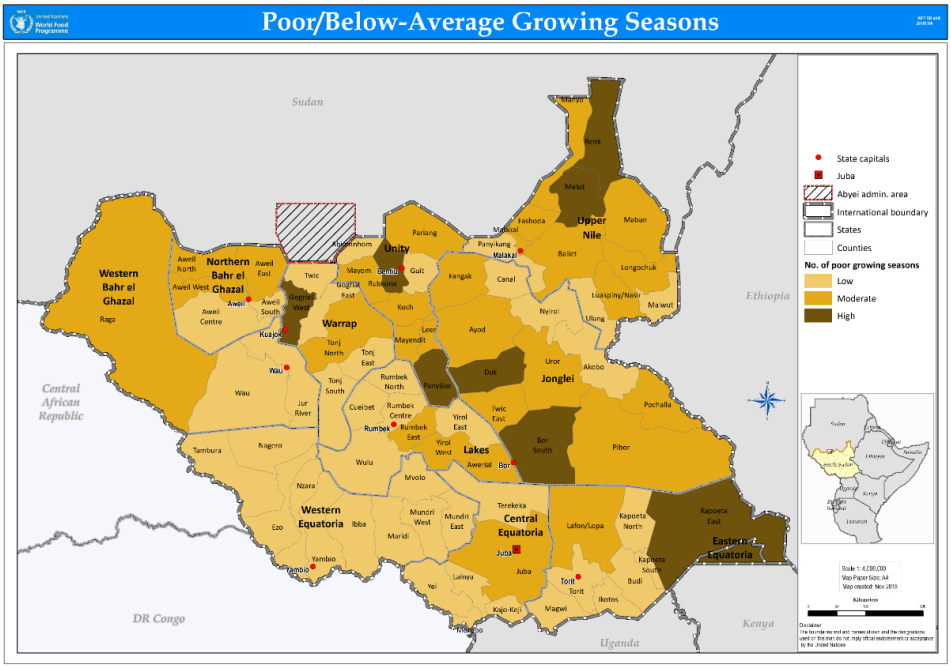
South Sudan does not experience major drought conditions as other countries in the region. In the last 5-years, only the May-October season of 2016 showed drought conditions using SPI analysis. Hence, the meteorological drought analysis was excluded. However, the May-October growing season do experience dry spells due to uneven distribution of rainfall across the season that negatively impact on growing conditions. Some areas also experience varying seasonal rainfall totals from year to year. The inter-annual variability analysis showed that the

south-eastern areas comprising of Eastern Equatoria state and Pibor county in Jonglei state are of concern given that they receive less amount of rainfall, which is characterised by high variability from year to year (map 13). Some of the areas are agricultural and others pastoral based and high variability could impact negatively on production and livelihoods of the people. There is need therefore to strengthen the adaptive capacity of households to cope with inter-and-intra annual climate variations. Vulnerability to agricultural droughts on the other hand is moderate to high in parts of Jonglei, Unity, Upper Nile, Northern and Western Bahr el Ghazal states (map 14) probably due to effects of dry spells that affect vegetation condition. Areas noted to experience high rainfall variability such as Kapoeta East and Renk counties face high levels of agricultural drought risk.

Map 9: Inter-annual rainfall variability over the May-October season



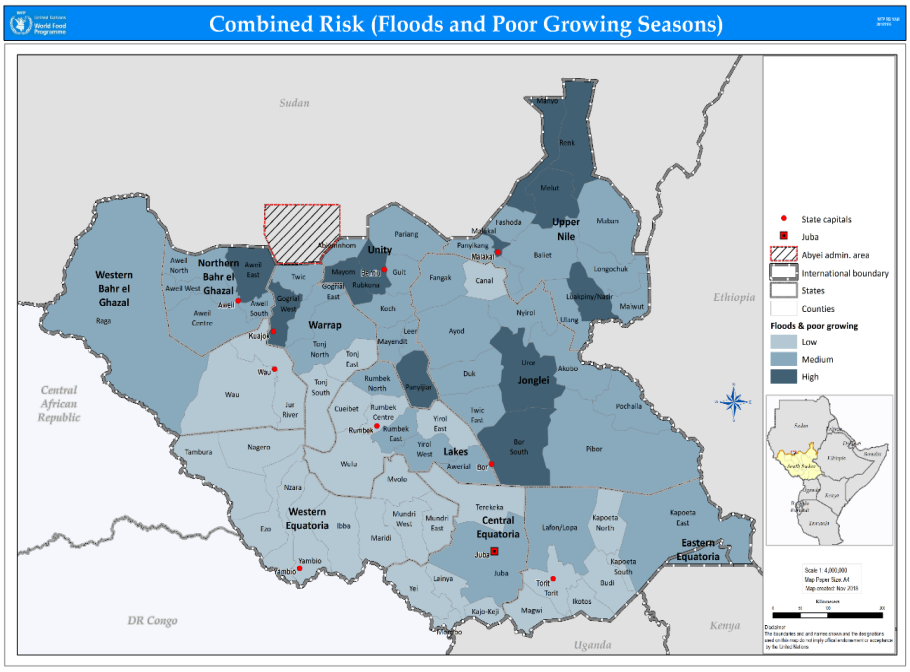
Map 10: Vulnerability to agricultural drought risk



3.5.4. Combined Floods and droughts shocks risk

Counties with highest risk to floods and droughts/poor growing conditions include Renk, Manyo, Luakpiny/Nasir and Malakal (Upper Nile state), Bor South and Uror (Jonglei), Gogrial West (Warrap), Aweil East (Northern Bahr el Ghazal); Pangjiar, Rubkhona and Mayom (Unity) (map 15). These are areas that require disaster risk reduction (DRR) and early warning interventions to minimise impacts of shocks. Counties facing low to moderate levels of risk would require building household adaptive capacity/resilience to withstand the shocks.

Map 11: Levels of vulnerability to combined floods and droughts risk in South Sudan

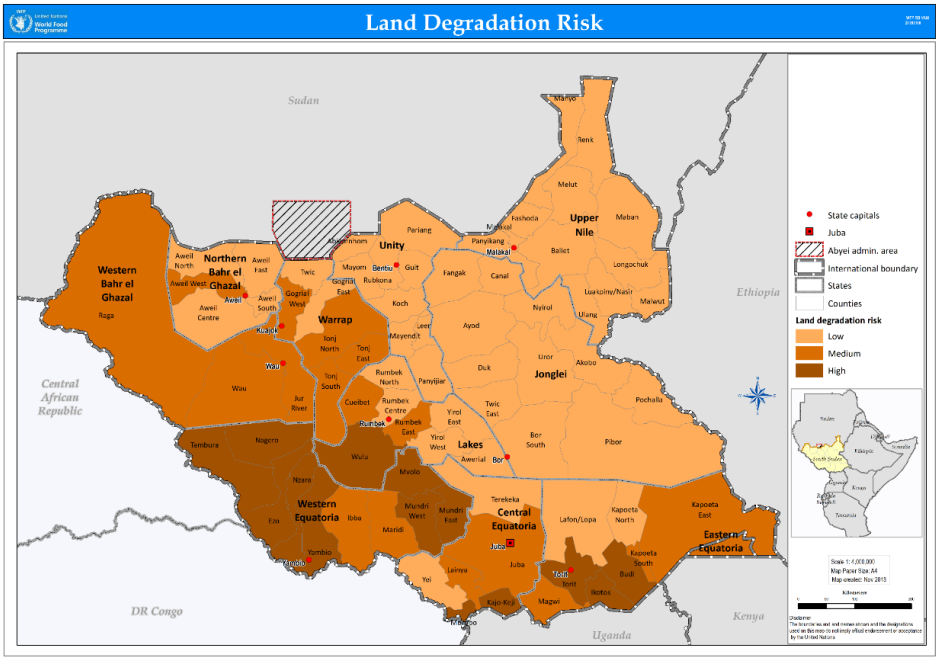


3.6. Land degradation

The status of the natural environment can magnify the impact of shocks. When land is heavily degraded and no longer protected because of loss of vegetation cover, soils are laid bare, lowering their ability to withstand the effects of natural elements (rain, winds and temperatures). Given that people draw on natural environments for their livelihoods and to cope during times of crisis, poor land practices and unsustainable use of environmental resources further aggravates land degradation and risk of shocks.

Results of the combined severity and proportion of county's surface area affected by land degradation showed that most areas in South Sudan are under low levels of land degradation except the greater Equatoria region, Western Bahr el Ghazal, parts of Lakes and Warrap (map 16). The occurrence of high degradation was only noted in some counties in Western Equatoria (Mundri East, Mundri West and Mvolo); Lakes (Wullu); and Eastern Equatoria (Ikotos, Torit and Budi). The occurrence of high degradation coincides with some of the high agricultural areas probably due to opening of environment for production. Degradation affects the productivity of land resources, which in turn compromises production thereby increasing vulnerability among populations depending on natural resources for livelihoods. Communities should be sensitised on sustainable natural resources management especially in farming systems while implementing interventions to rehabilitate degraded lands.

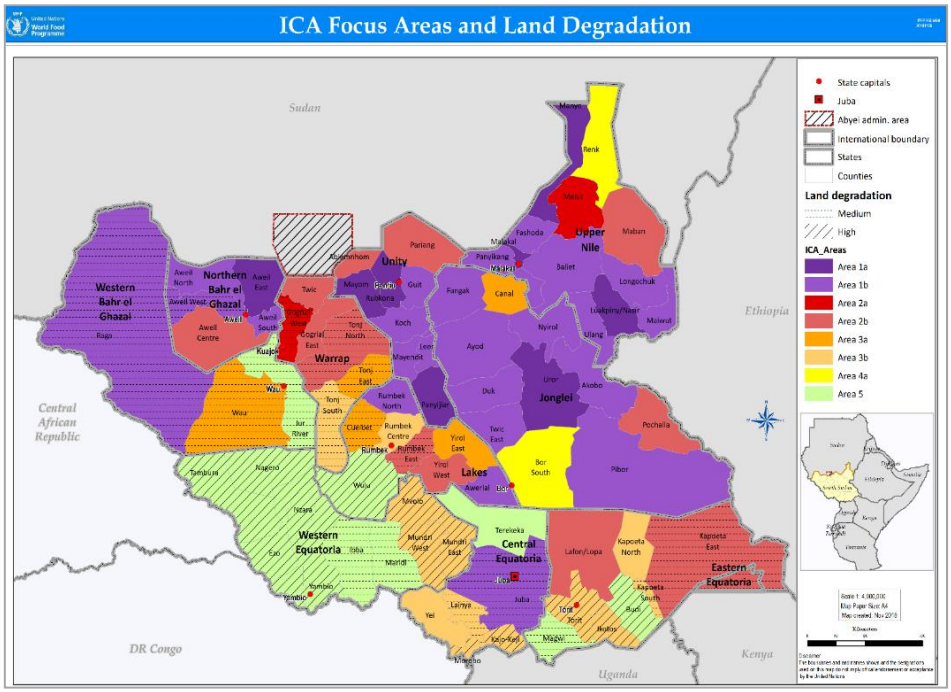
Map 12: Combined extent and severity of land degradation in South Sudan



3.7. ICA Areas and ICA Categories

The combined results of the food insecurity (overall) and natural shocks (floods and droughts) show that most areas in former states of Jonglei, Unity, northern Bahr el Ghazal and Western Bahr el Ghazal, Upper Nile as well as Juba (Central Equatoria) and Rumbek North and Awerial (Lakes) are under ICA Areas 1a and 1b (map 17). They are areas characterised by protracted food insecurity and frequent natural shocks. Interventions in these counties should focus on strengthening food security alongside DRR and early warning.

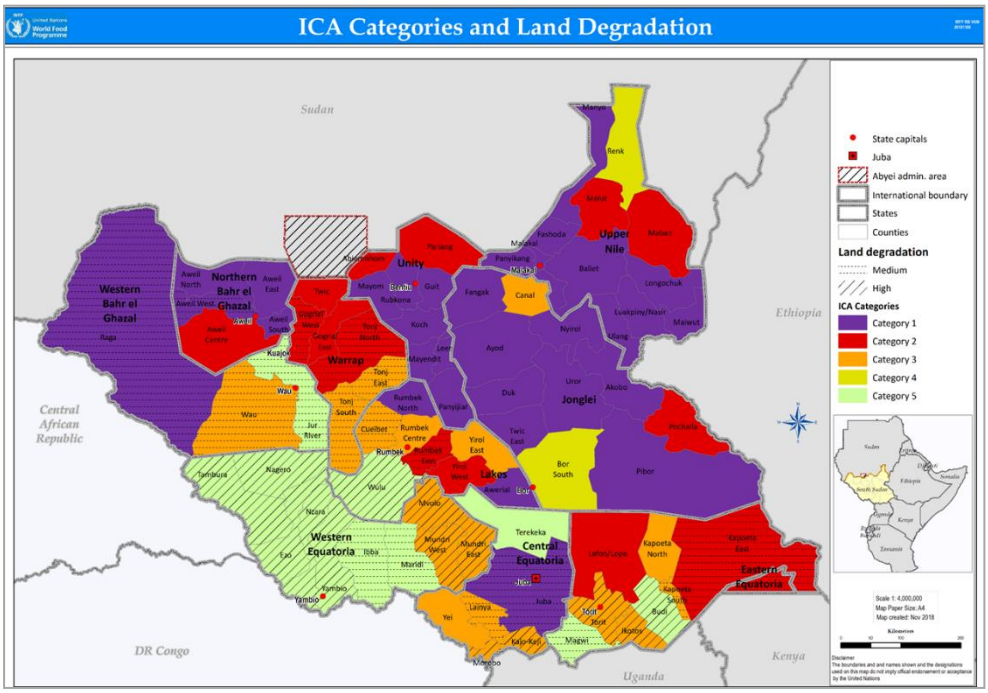
Map 13: ICA Areas in South Sudan



Areas of least vulnerability (ICA areas 5) include most counties in Western Equatoria state, Wullu (Lakes), Terekeka (Central Equatoria), Jur River (Western Bahr el Ghazal), and Magwi

and Budi counties (Eastern Equatoria) and development activities combined with DRR and early warning should be implemented. This is in addition to measures for curbing land degradation that could hamper production in some of the main food producing counties (map 18).

Map 14: ICA categories overlaid with areas with moderate to high land degradation



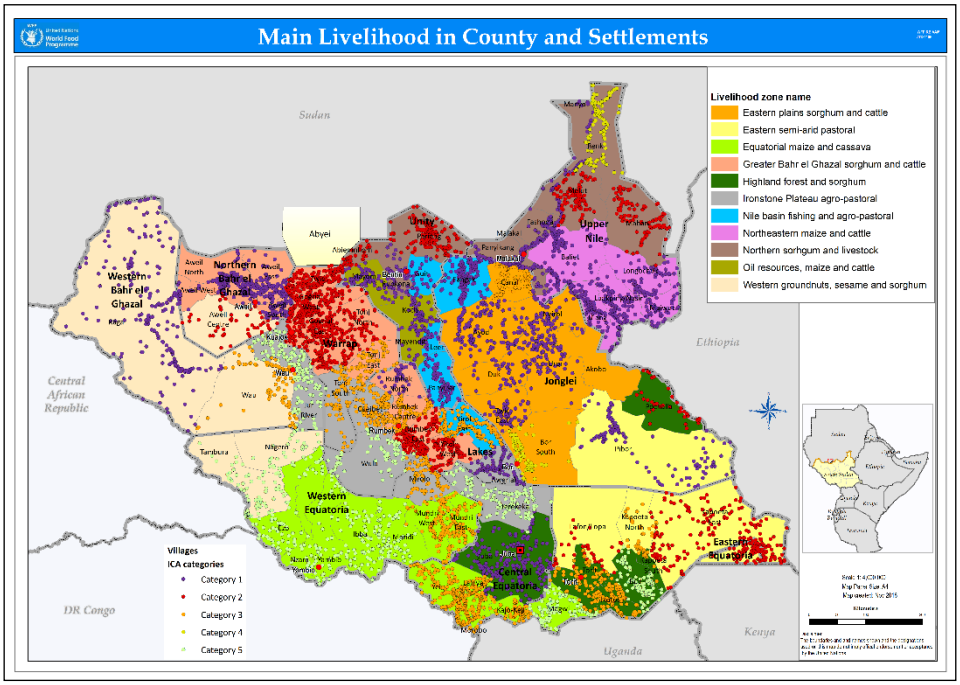
3.8. Core ICA Lenses

3.8.2. Livelihoods, settlements and vulnerability

Map 24 shows the livelihood zones overlaid with settlements (assigned with the respective ICA areas classification falling in their area of location), which illustrates where population is concentrated and the level of exposure to food insecurity and natural shocks. Areas of concern given the concentration of settlements and high risk of food insecurity and natural shocks (ICA Category 1) include the eastern plains sorghum and cattle, Nile basin fishing and agro-pastoral, northeastern maize and cattle; oil resources, maize and cattle; and the greater Bahr el Ghazal (in northern Bahr el Ghazal state) sorghum and cattle, and the highland forest and sorghum (Juba) livelihood zones (map 19).

Equally, consideration should be accorded to enhance livelihoods of people in the greater Bahr el Ghazal sorghum and cattle zone (Gogrial West, Gogrial East, Twic and Tonj North, Rumbek East and Yirol West) and northern sorghum and livestock zone in Pariang, Maban and Melut given the concentration of settlements falling under ICA category 2.

Map 15: Main livelihood zone by county overlaid with settlements and their corresponding ICA categories ranking

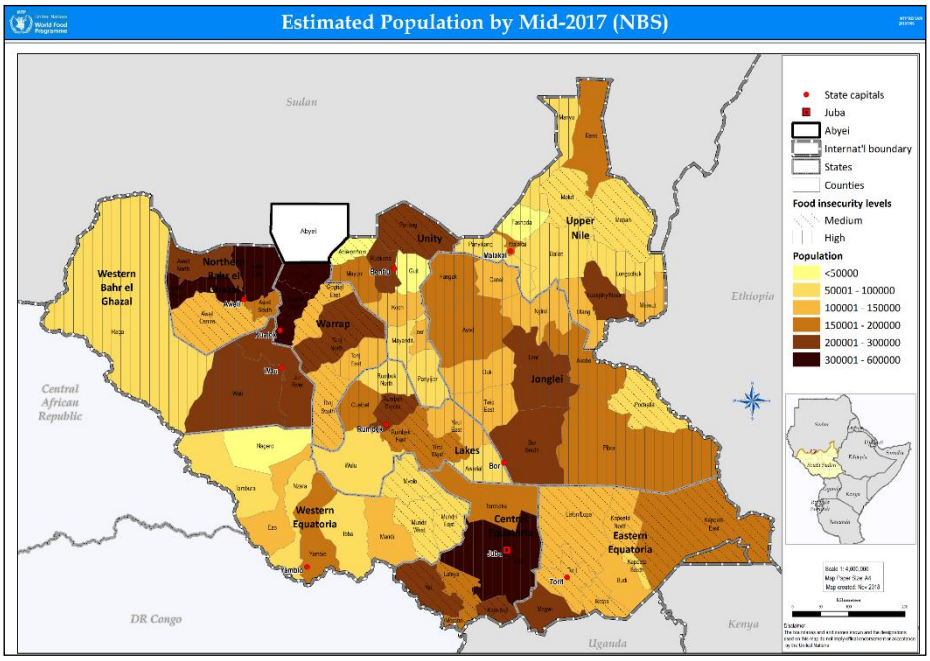


3.8.3. Population density and vulnerability

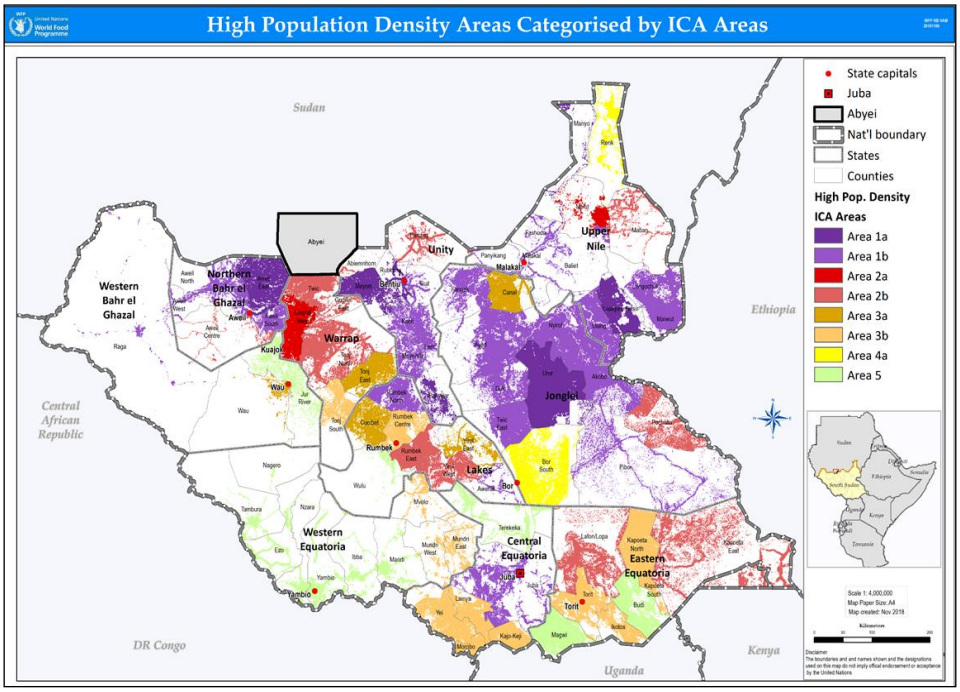
According to the National Bureau of Statistics used for IPC analysis, the country had an estimated 11 – 12 million people by mid-2017 most of who are rural based. The distribution of population varies from one county to the other. This is attributed to the dynamic situation experienced in recent years due to effects of conflicts and displacements. Of concern are counties with high population and facing high food insecurity such as Aweil West, Aweil East, Wau, Juba, Luakpiny /Nasir and Uror counties (map 20) or areas with high population density (Landscan 2015[18]) and facing protracted/ seasonal food insecurity and exposure to shocks (ICA areas 1a to 2b) as shown in map 21.

[18] The population has changed due to the insecurity from July 2016, the Landscan 20165, however is the most recent data available to depict population density in South Sudan and was used to demonstrate the relationship between food insecurity, shocks and population distribution.

Map 16: Estimated population distribution by mid-2017



Map 17: Areas of high population density (>6.3persons/sqkm) and ICA areas



3.9. Other factors that drive vulnerability

In addition to factors associated with macroeconomic environment and natural shocks, vulnerability is also driven by production systems, the performance of markets, access to services and insecurity among others that require attention to strengthen the livelihoods of populations. The following sections elaborate on these factors and their influence on vulnerability and food insecurity.

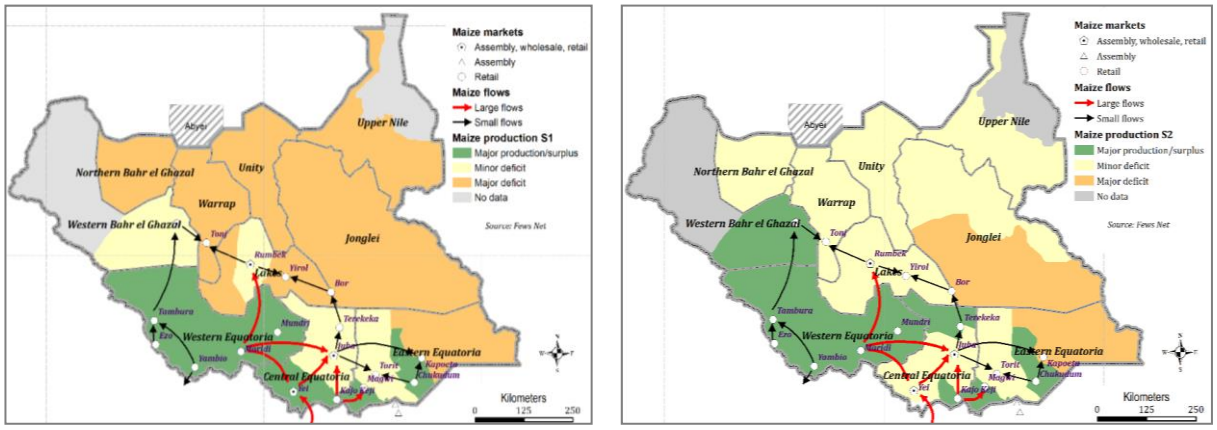
3.9.2. Flow of market food commodities

Markets play a critical role in movement of food from areas of surplus production or ports of entry for imported commodities to areas with no/deficit production. Similarly, markets allow households to sell livestock to raise income for buying food. Using available market information by FEWS NET, the trade flows of locally produced food commodities were mapped to identify areas where access to food could be challenged by limited production or physical access from markets.

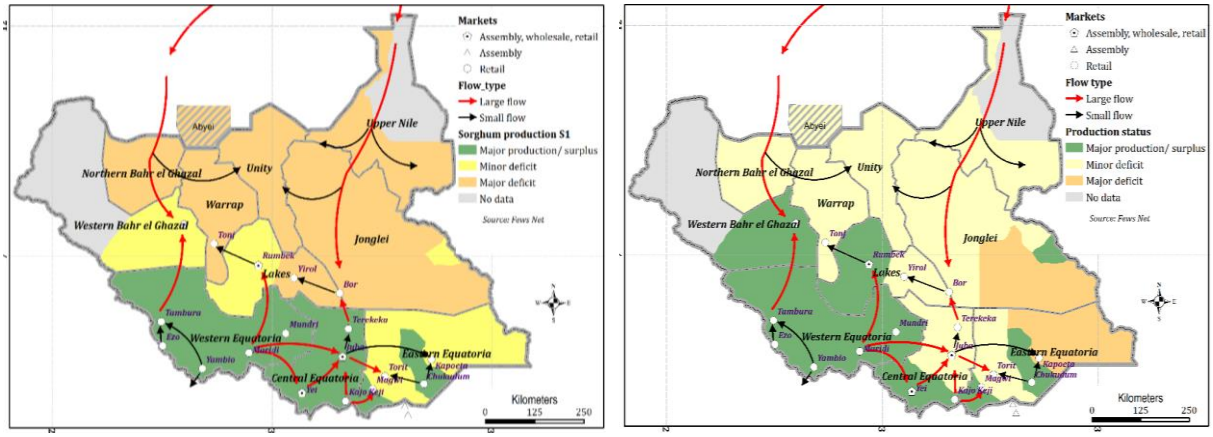
The results show that the greater Equatoria region are the main producing and supply areas of cereals (maize and sorghum), which supplements foods imported from outside the country (Map 22 and 23). Most other areas especially those facing high food insecurity are deficit producing areas that benefit from supplies from the main agricultural areas or imports to meet their cereal requirement gap. However, in recent years commodity trade flows to these locations were interrupted by insecurity/conflicts.

Cereal production and requirement based on CFSAM data[19] from 2010 to 2017 show that the overall deficit has increased in the recent four years (figure 14). This shows that South Sudan is not able to produce enough food to meet the consumption requirements of its people. This is a major contributor to increasing food insecurity unless households have incomes to access food from markets.

Map 18: Maize production and trade flows during season 1 and 2, respectively

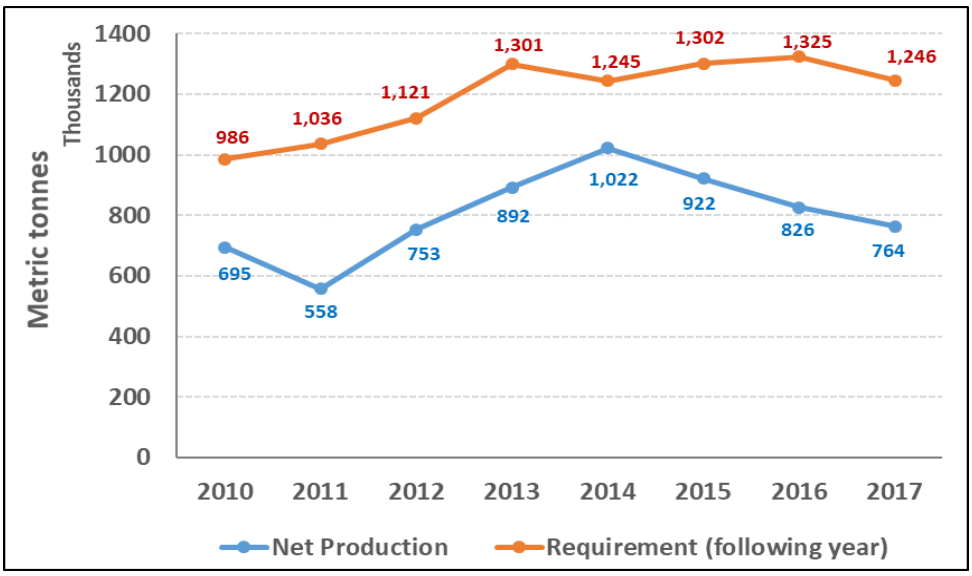


Map 19: Sorghum production and trade flows during season 1 and 2, respectively



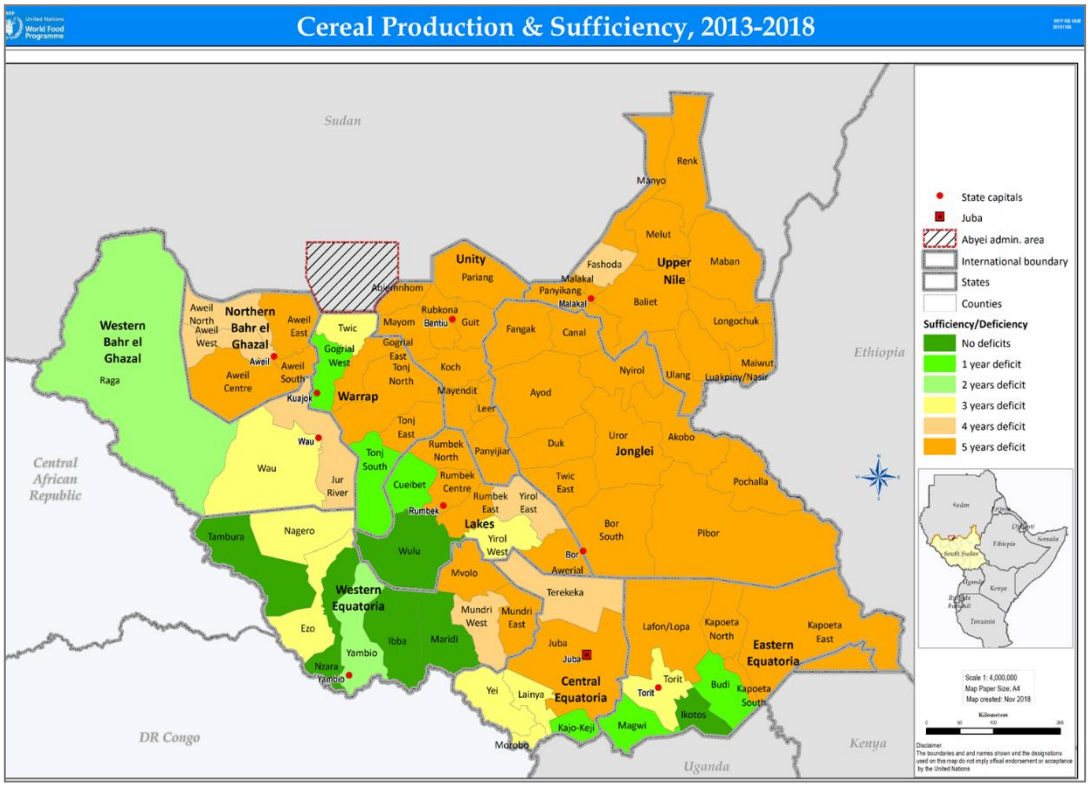
[19] CFSAM is a joint assessment between WFP, FAO and government to assess food supply from own production

Figure 2: Cereal production and consumption requirements



Consideration of the production and consumption requirements in the 8 (2010-2017) and most recent 5-years (2013-2017) at county level show most counties previously categorised as facing high food insecurity had several years of production deficit (map 24). Even in the main producing areas in greater Equatoria some counties had deficits for several years. In the last 5 years deficits are mainly attributed to effects of insecurity/conflicts. Over time despite the refugees' influx to neighbouring countries, in the last 8 years there has been an increased local consumption with population growth not matched with growth in the production systems that has not had enough surplus for markets. Hence, to reverse the growing consumption deficit, there is need to promote agricultural intensification through enhancing access to inputs and services so that households' increase production for own consumption and for the market; support farmers minimise harvest losses through improved infrastructure, technology and knowledge; and strengthen collective marketing to make farming profitable.

Map 20: Cereal production and sufficiency in last 5 years (2013-2018)



3.9.3. Rising food prices

Since the devaluation of the South Sudanese Pound in December 2015, the cost of most market commodities (white maize grain, white sorghum, cooking oil, petrol) has increased over the years in most major towns (Figure 15 and 16). Price monitoring reports show that commodity prices have generally been above 5-year averages, a situation attributed to continued depreciation of the South Sudanese Pound (SSP) against the US dollar, interrupted supply by conflicts/insecurity, the inability of traders to import adequate amount of food given the shortages in US dollars in the market and increasing transportation cost as fuel prices went up. As a result, urban poor households experience price shocks that limit their ability to access adequate quantities of food while supplies to rural areas dependent on state capital markets do not receive reliable amounts.

The cost of a medium sized grade 2 goat increased in most major markets since end of 2015 following the devaluation of the Pound. However, due to rising food prices, the terms of trade between a goat and white maize or white sorghum remained unfavourable up to the beginning of 2017 for the livestock keepers when it started improving in most markets. The improving goat prices and term of trade implies that for livestock dependent households accessed increased quantities of food items.

Figure 15: Price of main food commodities and medium sized goat in major markets

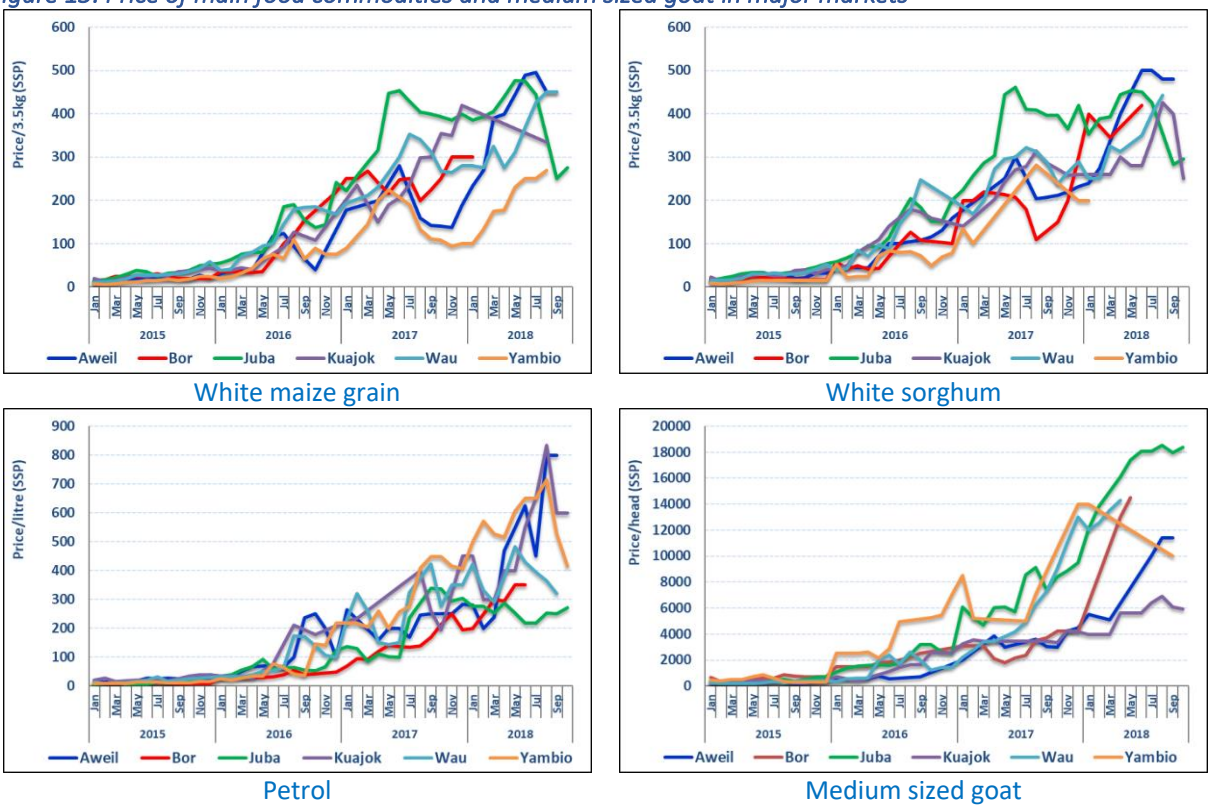
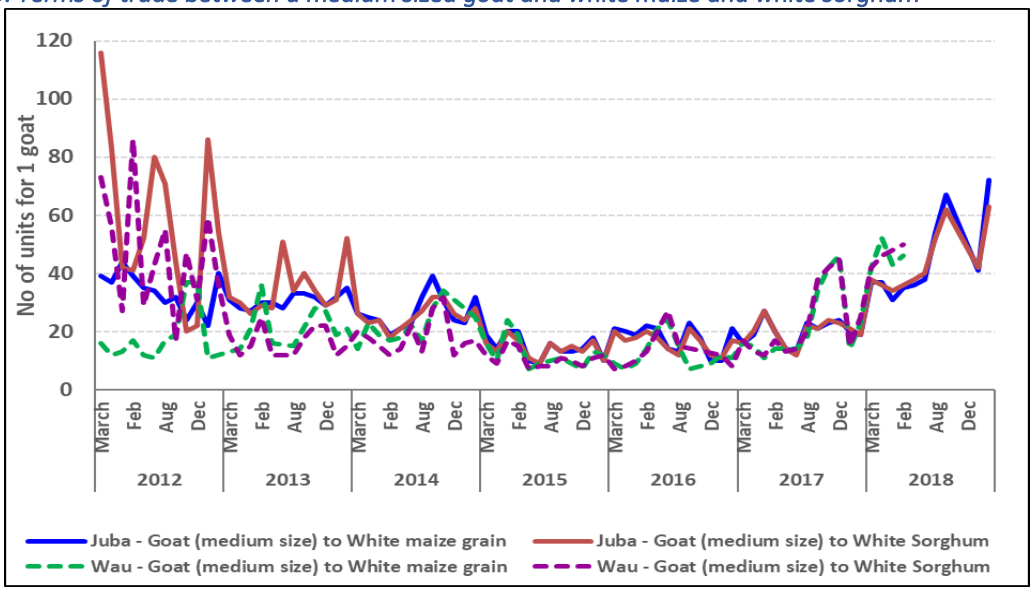


Figure 3: Terms of trade between a medium sized goat and white maize and white sorghum

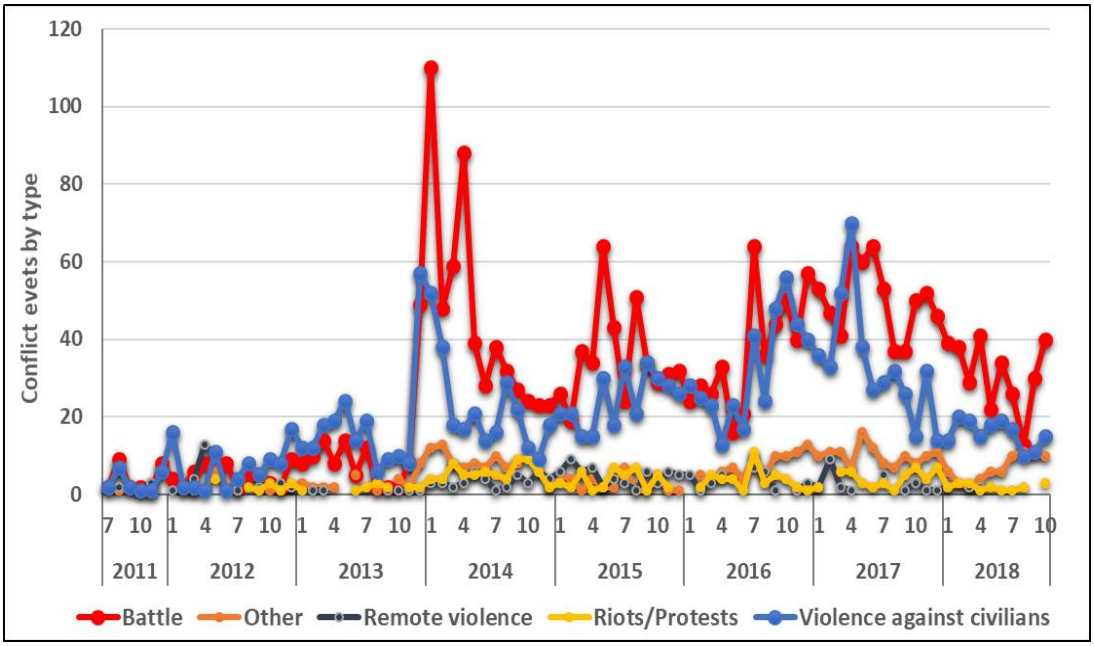


3.9.4. Conflicts and insecurity

Generally, the country experienced a period of relative calm from 2011-2013 after gaining independence. However, in December 2013 the civil war broke out that increased the conflicts events in early 2014, mostly in the greater Upper Nile region (Upper Nile, Unity and Jonglei states). The resurgence of war between government forces and the opposition in 2016 led to rapid spread of conflicts and violence to other previously non-affected areas. Frequent incidences of conflicts have been reported in several areas since then mainly battles between

actors and violence against civilians (Figure 17). The conflicts have displaced millions of people from their homesteads into protection of Civilian (POCs) and others have fled the country as refugees into neighbouring countries. With the signing of the peace agreement in November 2018, it is anticipated that conflicts will decline.

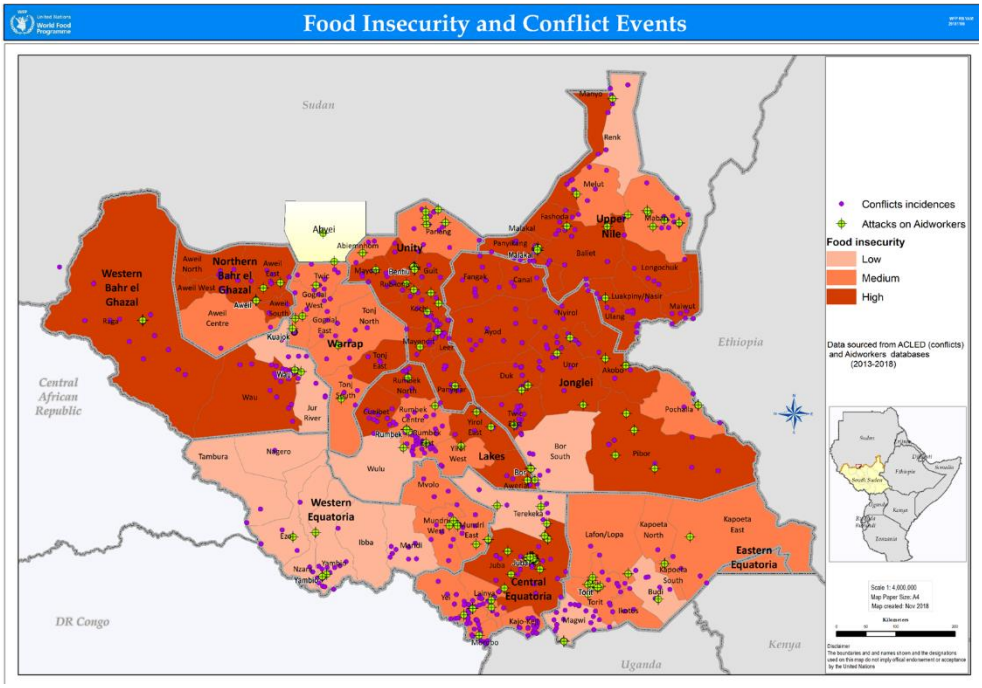
Figure 4: Number of reported conflict events by type, 2011-2018



While conflicts incidences are nearly everywhere, there is notable concentration in some regions some of which are characterized by high food insecurity (Map 25). Conflicts drives food insecurity and vulnerability through restricted access to markets, disruption of livelihoods, limit access to agricultural/grazing fields for production, constrain supply of goods and services, and restrict people in need from accessing areas where they can get assistance. Similarly, conflicts and attacks on Aid workers pose challenge to humanitarian access for provision of humanitarian assistance. All these bear negatively on food security and nutrition by increasing vulnerability among the affected population.

The areas with the high incidence of insecurity in Jonglei, Upper Nile, Unit, NBeG and WBeG also had the highest level of food insecurity (map 25).

Map 21: Spatial distribution of conflict events between 2011 and 2018



Chapter 4: Programmatic implications

The trend analysis and integrated context approach employed in this analysis has helped identify various issues that are driving vulnerability and food insecurity in South Sudan. They relate to macro-economic environment, exposure to natural shocks, production systems, insecurity and markets performance. With the signing of peace agreement, it is expected that the government will reconsider implementing the right policies and regulations that will revamp the macroeconomic situation and spur development in the various sectors. Agencies will require to identify critical issues and advocate with the government for the implementation of appropriate policies and regulations.

The ICA process provides generalised areas of interventions to respond to vulnerabilities posed by food insecurity and natural shocks for the various ICA areas and categories identified through this analysis (map 17 and 18). They are provided in the table below but will require further discussions between implementing agencies, government and the affected population to consider the most appropriate ones for strengthening resilience and adaptive capacity of local populations.

Table 2: Generalised programmatic response for the various ICA focus area and categories

CATEGORY 1	**Problem: Persistent food insecurity and high risks to natural shocks** **Interventions:** safety nets providing predictable support to vulnerable populations, DRR including early warning and preparedness**.**
CATEGORY 2	**Problem: Seasonal food insecurity and shock risks** **Interventions:** Seasonal food insecurity and/or support post-shock recovery i.e. seasonal safety nets, DRR including early warning and preparedness.
CATEGORY 3	**Problem: Conditions of chronic food insecurity, likely due to non-climatic causes** **Intervention:** building resilience to shocks
CATEGORY 4	**Problem: Pockets of food insecurity and some exposure to shocks** **Intervention:** DRR including early warning / preparedness, attention to land degradation
CATEGORY 5	**Problem: Minimal food insecurity and low exposure to shocks** **Intervention:** development programmes combined with DRR, early warning/preparedness, mitigating land degradation and other risk reduction measures.