# INTEGRATED NEEDS TRACKING & SHOCKS MONITORING INDEX FACTSHEET

## South Sudan

January 2021

## Overview

**13% (#10)**

**Counties identified with very high inter-sectoral needs severity**

▲ +4% from December

**FSL**
**(Counties with a very high severity of FSL needs)**

**6% (#5)**

▲ +3% from December

**WASH**
**(Counties with a very high severity of WASH needs)**

**8% (#6)**

► 0% from December

**Health**
**(Counties with a very high severity of Health needs)**

**28% (#22)**

▲ +10% from December

## Overview & Methodology

This factsheet presents findings from the Integrated Needs Tracking (INT) system and the Shocks Monitoring Index (SMI) developed by REACH South Sudan.

### Integrated Needs Tracking (INT)

The Integrated Needs Tracking (INT) system provides a monthly overview of emerging and ongoing intersectoral needs at the county level in South Sudan, in order to facilitate evidence-based decision-making. To do so, it draws from multiple up-to-date sources of data from the four emergency sectors: Food Security & Livelihoods (FSL), Water, Sanitation and Hygiene (WASH), Health, and Nutrition, as shown in Figure 1.

This data is then fed into an analytical framework that reflects the current risk level of intersectoral or sectoral emergency needs in each county. Each of the indicators has pre-determined thresholds that classify the county needs severity as 'Low', 'Moderate', 'High', or 'Very High'. This allows humanitarian actors to compare the relative needs between counties and how these change over time to aid response prioritisation. The more indicators converge on 'High' or 'Very High' in a county, the more likely it is that emergency needs are at their greatest severity in that county. Therefore, the findings presented in this factsheet should be considered indicative of the broad overall needs in the respective county in January 2021, and are not statistically generalisable.

For more information on the different data sources, indicators, and ranking thresholds please refer to Appendix w: Indicator breakdown and the INT terms of reference (ToR). In order to view sectoral specific analysis maps please refer to our interactive dashboard. [3]

### Shocks Monitoring Index (SMI)

The Shocks Monitoring Index (SMI) is an analytical framework that provides a monthly overview of the occurrence and frequency of various shocks. The SMI is designed to be a complementary feature to the INT system, particularly as a proxy early warning component. The SMI helps to understand the level of concern/ severity associated with specific thematic shock groups: conflict, displacement, climate, disease incidence. The aim of the SMI is to monitor the frequency and typology of major exogenous shocks, the severity of specific shock themes/ pillars, and to better quantify the severity of compounding shocks over time.

### Factsheets

This document also contains two factsheets with a specific early warning focus, identifying areas of particular concern. For January 2021, this includes the Greater Tonj area and Fangak and Canal/Pigi counties, as shown below.

For full access to previous INT publications and other REACH resources, please access the REACH Resource Centre.

[1] Famine and Early Warning Systems Network (FEWSNET) Livelihoods Zone Map and Descriptions for the Republic of South Sudan. Issued August 2018.
[2] IPC Acute Food Insecurity & Acute Malnutrition Analysis October 2020 – July 2021. Issued 18 December 2020.
[3] Dashboard access credentials are available on request.

## INT Key Findings & Projections

For most of South Sudan, the period between November and June represents the dry season, with reduced rainfall and households typically consuming produce from the recent harvest between August - October depending on location.[1]

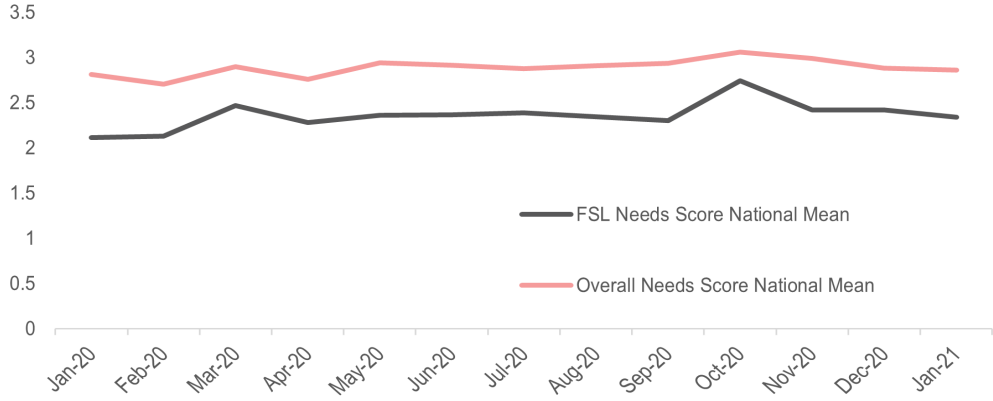
Atypically heavy flooding across much of eastern and central South Sudan between July and October 2020 reportedly led to a reduced harvest and a deterioration in food security.[2] This may lead to many households facing an earlier and more protracted lean season in 2021. In parts of central and eastern South Sudan, flood water is yet to recede and serves as a continued barrier to movement and accessing food, livelihood opportunities, and essential services.

For January 2021, ten counties were identified as having very high overall needs severity, three more than the preceding month. Although findings are only indicative, this suggests a possible deterioration in humanitarian conditions. Compared to January 2020, a very high severity of needs was reported in three additional counties.

**Figure 1: Integrated Needs Tracking (INT) Components**


## Integrated Needs Tracking (INT) Sectoral Trend Graph

**The graph below shows the national average for overall inter-sectoral and FSL needs severity scores on a monthly basis from January 2020 to January 2021.** Severity scores are calculated on a scale of 1-4, with 1 representing low severity, 2 moderate severity, 3 high severity, and 4 very high severity. Based on the convergence of evidence, the higher the total number of indicators scoring high or very high, the greater the risk of emergency needs in a given county. Due to a lack of available data for August 2020, the mid value between July and September is used as a substitute.



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# INT Overall Needs Severity Scores by County - January 2021

***Counties identifed as having a very high severity of overall needs:**

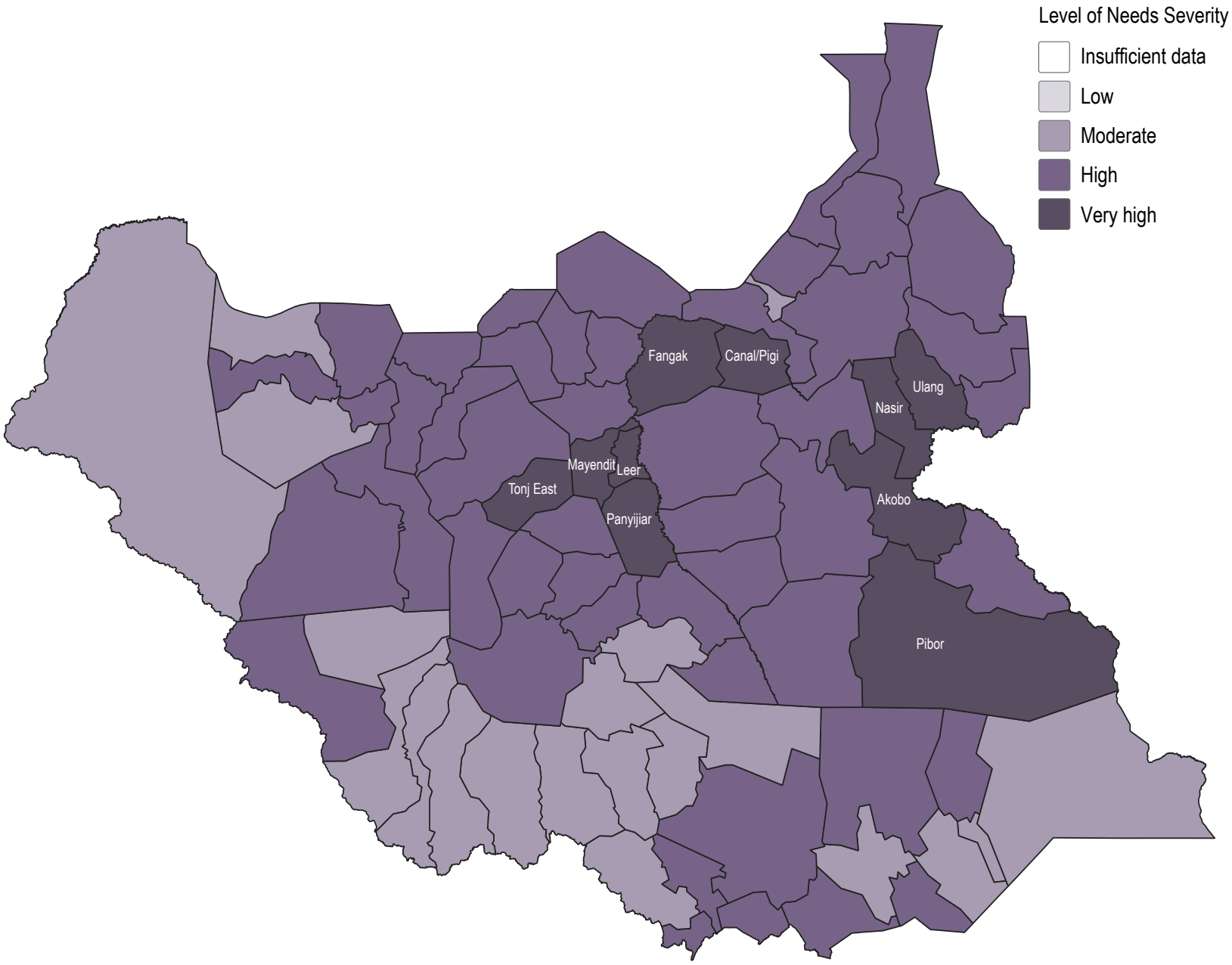
Akobo ▶
Canal / Pigi ▲
Fangak ▲
Leer ▶
Luakpiny / Nasir ▲
Mayendit ▶
Panyijiar ▶
Pibor ▶
Tonj East ▲
Ulang ▲

**Counties where needs severity has decreased from very high (December 2020) to high (January 2021):**

Aweil South
Gogrial West

**Counties where needs severity has decreased from very high (January 2020) to high (January 2021):**

Duk
Kapoeta North
Kapoeta South
Longochuk
Magwi



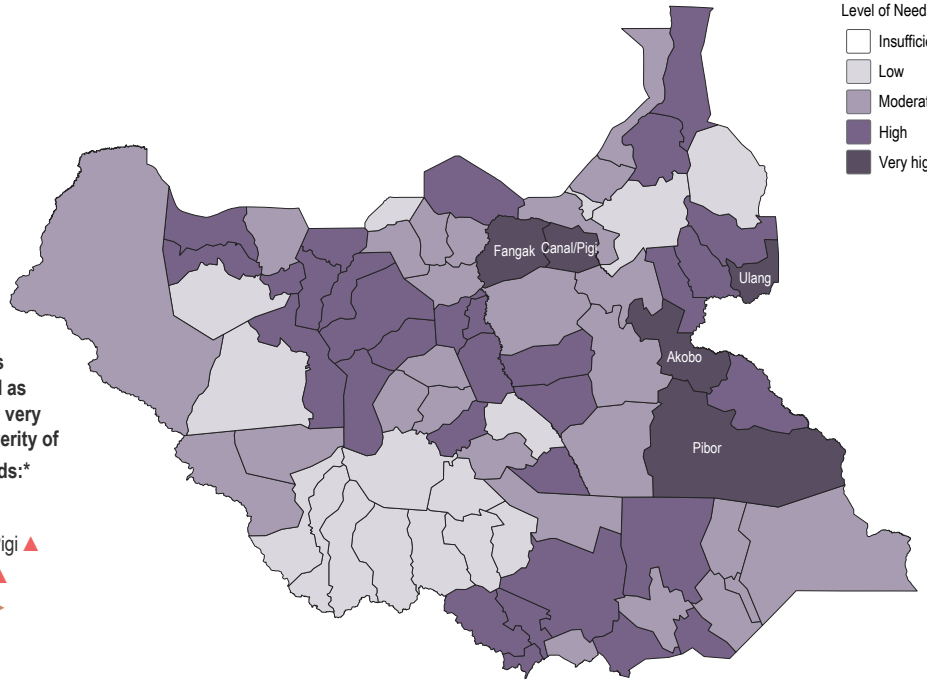

* Arrows show whether needs severity has increased, decreased, or remained consistent when compared to the previous month (December 2020).

# INTEGRATED NEEDS TRACKING (INT) FACTSHEET - FSL

## South Sudan

January 2021

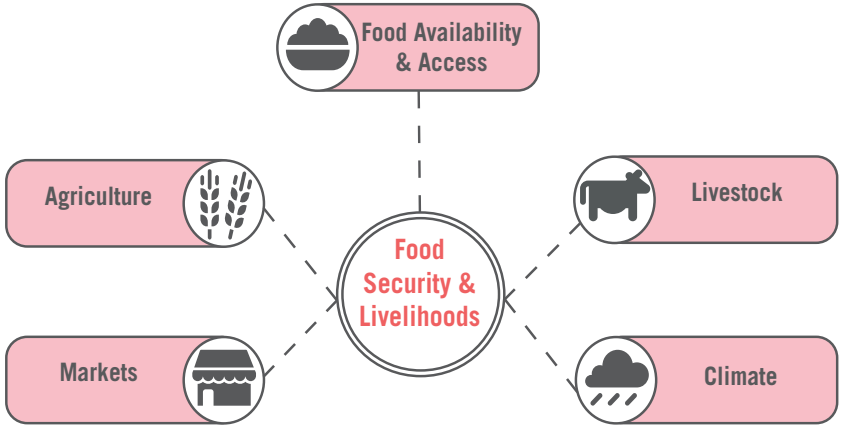
## Food Security & Livelihoods (FSL) Severity Scores by County




**Counties identifed as having a very high severity of FSL needs:***

Akobo ▲
Canal / Pigi ▲
Fangak ▲
Maiwut ▶
Pibor ▶

### Figure 2: FSL Sub-Components




**Food Security & Livelihoods severity scores** are calculated by analysing various indicators from different sources. Please see the next page for severity maps for food availabilty and access, and agriculture. Due to the constraints of data collection in South Sudan, REACH Area of Knowledge (AoK) data is not available for Lainya, Longochuk, Maiwut, Pibor, and Pochalla counties. As this is a key data source for calculating FSL need severity, Integrated Phase Classification (IPC) analysis scores are used to determine FSL needs severity for these counties.

## Markets

Market severity scores are calculated using REACH AoK data and Joint Market Monitoring Initiative (JMMI)[3]/ Crop and Livestock Information Monitoring system (CLIMIS)[4] monthly market monitoring data. Indicators include:

- **Market access:** AoK - Proportion of settlements where Key Informants (KIs) reported no access to markets.
- **Cereal prices:** JMMI/CLIMIS - Increase in average sorghum prices compared to previous three month average.
- **Bean prices:** JMMI/CLIMIS - Increase in average fall bean prices compared to previous three month average.

**No counties were identified as having a very high severity of market needs, the below list shows counties of high severity:**

Aweil North ▶
Awerial ▲
Ikotos ▶
Kapoeta East ▲
Kapoea South ▶
Lafon ▶
Magwi ▲
Pariang ▲
Renk ▶
Rubkona ▲
Twic ▲

## Climate

Historically, January is a time of limited climatic concern as it falls before the beginning of the peak of the dry season (April to June) and after the end of the rainy season (August to October).

Although drought is historically an issue later in the year, it is possible to forecast potential affected areas. Currently, vegetation levels are higher than long-term averages across the country suggesting there are no areas of early drought concern.

The above may be attributed to extensive flooding in 2020, which occurred across much of South Sudan. Due to this flooding, many areas reportedly still have high surface water levels despite the onset of the dry season.

Climate severity scores are calculated through remote sensing analysis of county-level rainfall and vegetation, conducted by Climate Hazards Infared Precipitation with Station data (CHIRPS).[5] The normalized difference vegetation index (NDVI) is used to provide a proxy for vegetation. Indicators include:

- **Rainfall:** CHIRPS - Increase or decrease from long time average.
- **Vegetation (NDVI):** CHIRPS - Decrease in NDVI compared to long time average.

**No counties were identified as having very high severity of climatic needs, with the below list showing counties of high severity only:**

| | |
|---|---|
| Ikotos ▲ | Rainfall >20% below long-term average |
| Kapoea South ▲ | Rainfall >20% below long-term average |

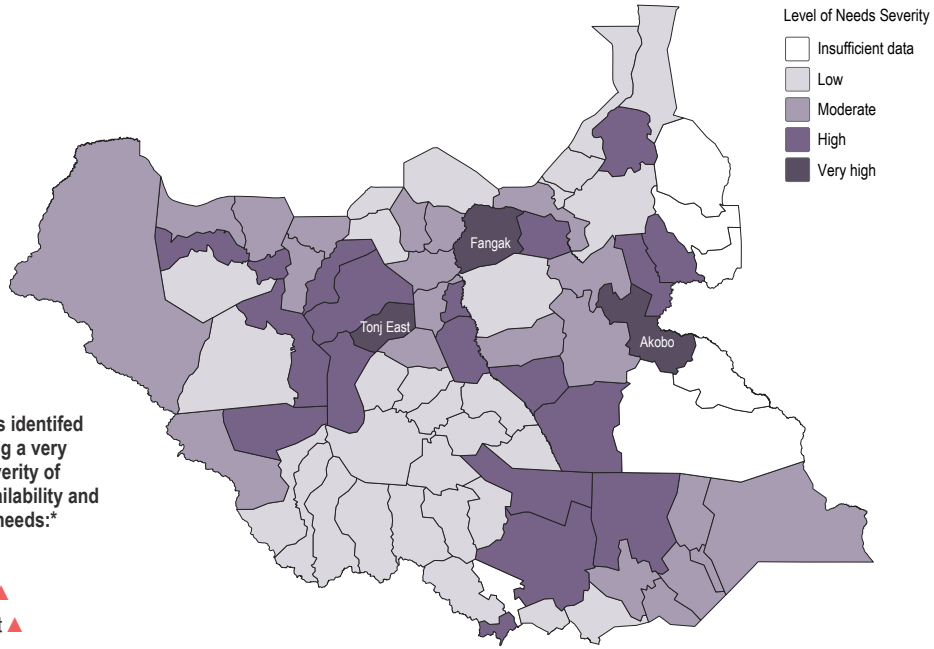
[3] REACH - Cash Working Group Joint Market Monitoring Initiative (JMMI).
[4] Crop and Livestock Information Monitoring System (CLIMIS).
[5] Climate Hazards Infared Precipitation with Station data (CHIRPS).
* Arrows show whether needs severity has increased, decreased, or remained consistent when compared to the previous month (December 2020).

# INTEGRATED NEEDS TRACKING (INT) FACTSHEET - FSL

## South Sudan

January 2021

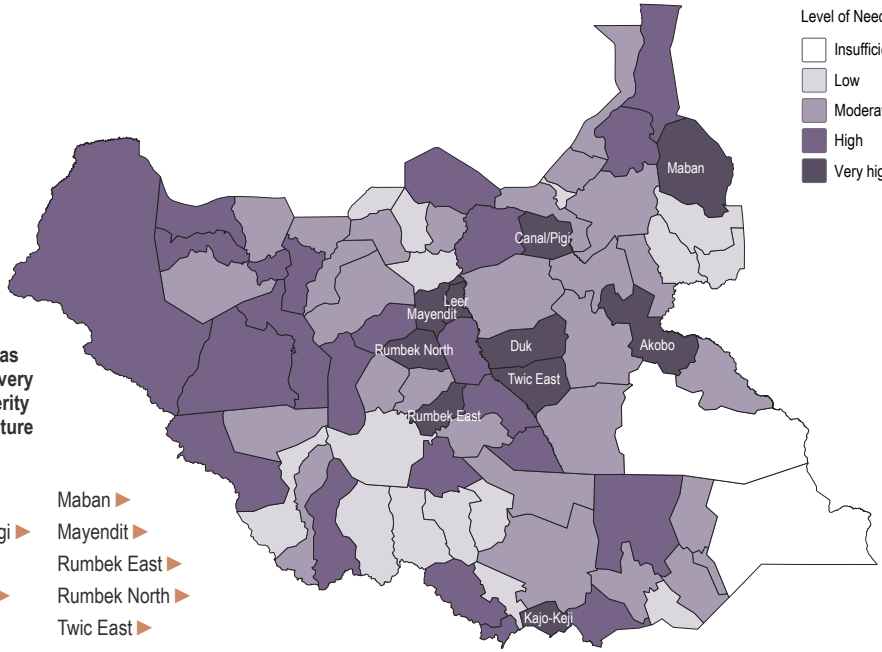
## Food Availability & Access Severity Scores by County




**Counties identifed as having a very high severity of food availability and access needs:***

Akobo ▶
Fangak ▲
Tonj East ▲

## Agriculture Severity Scores by County




**Counties identifed as having a very high severity of agriculture needs:***

Akobo ▲
Canal / Pigi ▶
Duk ▶
Kajo Keji ▶
Leer ▶
Maban ▶
Mayendit ▶
Rumbek East ▶
Rumbek North ▶
Twic East ▶

## Food Availability & Access

Food availability & access severity scores are calculated using REACH AoK data. Indicators include:

- **Hunger severity:** AoK - Proportion of settlements where KIs reported insufficient availabilty of food and a high severity of hunger.
- **Wild foods causing illness:** AoK - Proportion of settlements where KIs reported illness through the consumption of wild foods.
- **Only children eating:** AoK - Proportion of settlements where KIs reported adults skipping meals so that children can eat as a coping strategy.
- **Going all day without eating:** AoK Proportion of settlements where KIs reported consuming no meals all day as a coping strategy.
- **Unsustainable food source:** AoK - Proportion of settlements where KIs reported reliance on gifts and aid as food sources.

## Agriculture

Agriculture severity scores are calculated using REACH AoK, Food Security and Nutrition Monitoring Survey (FSNMS)[6], and Crop and Food Security Assessment Mission (CFSAM)[7] data. Indicators include:

- **Access to land and inputs:** AoK - Proportion of settlements where KIs reported no access to agricultural land and inputs.
- **Crop production:** CFSAM - Deviation in 2019 crop production compared to five-year mean.
- **Fall army worm (FAW):** FSNMS - FAW infestation being reported by households in assessed communities.

## Livestock

Livestock severity scores are calculated using REACH AoK data. Indicators include:

- **Access to livestock:** AoK - Proportion of settlements where KIs reported no access or possession of livestock. Only analysed in counties where 50% or more of settlements reportedly own livestock.[2]
- **Selling Livestock:** AoK - Proportion of settlements where KIs reported selling livestock as a livelihood-based coping strategy.
- **Livestock disease:** AoK - Proportion of settlements where KIs reported presence of livestock disease.

**No counties were identified as having a very high severity of livestock needs, the below list shows counties of high severity:***

Canal / Pigi ▲
Fangak ▶
Fashoda ▲
Luakpiny / Nasir ▶
Magwi ▶
Tonj Melut ▲
Tonj North ▲
Tonj South ▲
Twic ▲
Ulang ▲

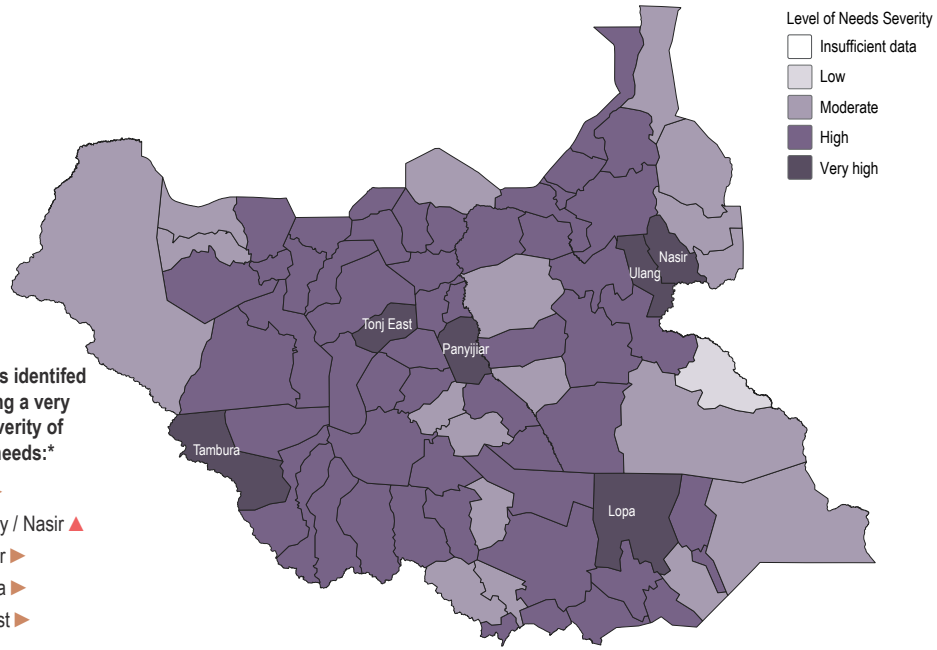
[6] Food Security & Nutrition Monitoring Survey (FSNMS).
[7] Crop & Food Security Assessment Mission (CFSAM)
* Arrows show whether needs severity has increased, decreased, or remained consistent when compared to the previous month (December 2020).

# INTEGRATED NEEDS TRACKING (INT) FACTSHEET - WASH & HEALTH

## South Sudan

January 2021

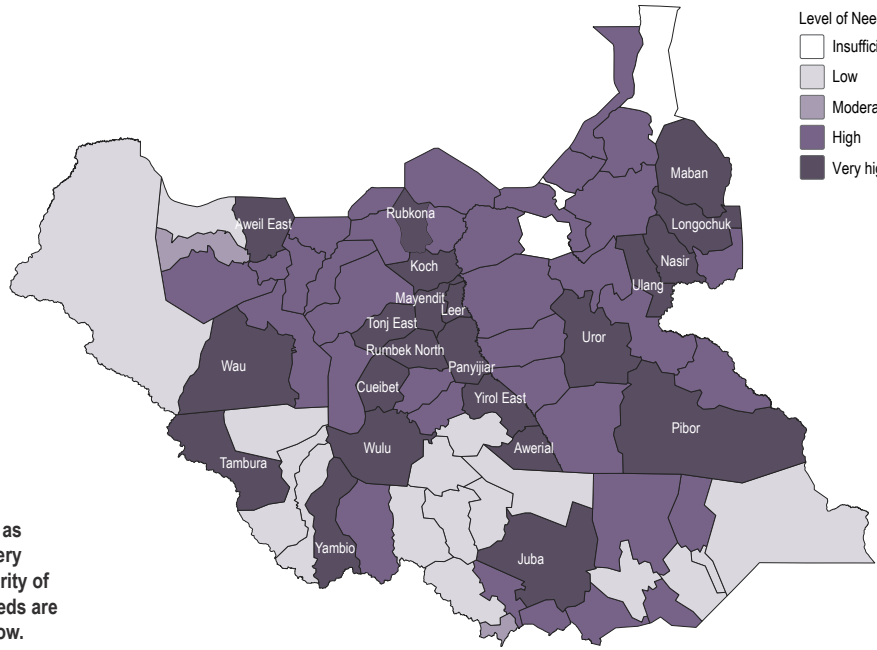
## WASH Severity Scores by County




**Counties identifed as having a very high severity of WASH needs:***

- Lafon ▶
- Luakpiny / Nasir ▲
- Panyijiar ▶
- Tambura ▶
- Tonj East ▶
- Ulang ▲

## Health Severity Scores by County




**Counties identified as having very high severity of health needs are listed below.**

## WASH

WASH severity scores were calculated using REACH AoK, CHIRPS, and WHO Integrated Disease Surveilance Response (IDSR) data. Indicators include:

- **Clean, timely & safe water:** REACH AoK - Proportion of settlements where KIs reported no timely and safe access to clean water.
- **Open defecation:** REACH AoK- Proportion of settlements where KIs reported the practice of open defecation.
- **Acute Watery Diarrhoea:** WHO IDSR - Morbidity above historic rates.
- **Malaria:** WHO IDSR - Morbidity above historic rates.
- **Cholera:** WHO IDSR - Any confirmed cases equals high severity.
- **Rainfall:** CHIRPS - Increase or decrease from long time average.

## Health

Health severity scores are calculated using WHO IDSR data. Indicators include:

- **Acute Watery Diarrhoea:** WHO IDSR - Morbidity above historic rates.
- **Malaria:** WHO IDSR - Morbidity above historic rates.
- **Acute Respiratory Infection (ARI):** WHO IDSR - Morbidity above historic rates.
- **Measles:** WHO IDSR - Morbidity above historic rates.
- **Ebola:** WHO IDSR - Any confirmed cases equals high severity.

**Counties identifed as having a very high severity of health needs:***

- Aweil East+ ▶
- Awerial ▶
- Cueibet ▲
- Juba+ ▶
- Koch ▲
- Leer ▶
- Longochuk ▲
- Luakpiny / Nasir ▲
- Maban ▲
- Mayendit ▶
- Panyijiar ▶
- Pibor+ ▶
- Rubkona+ ▲
- Tambura ▶
- Tonj East ▶
- Ulang ▲
- Uror ▶
- Wau+ ▲
- Wulu ▲
- Yambio+ ▲
- Yirol East+ ▲

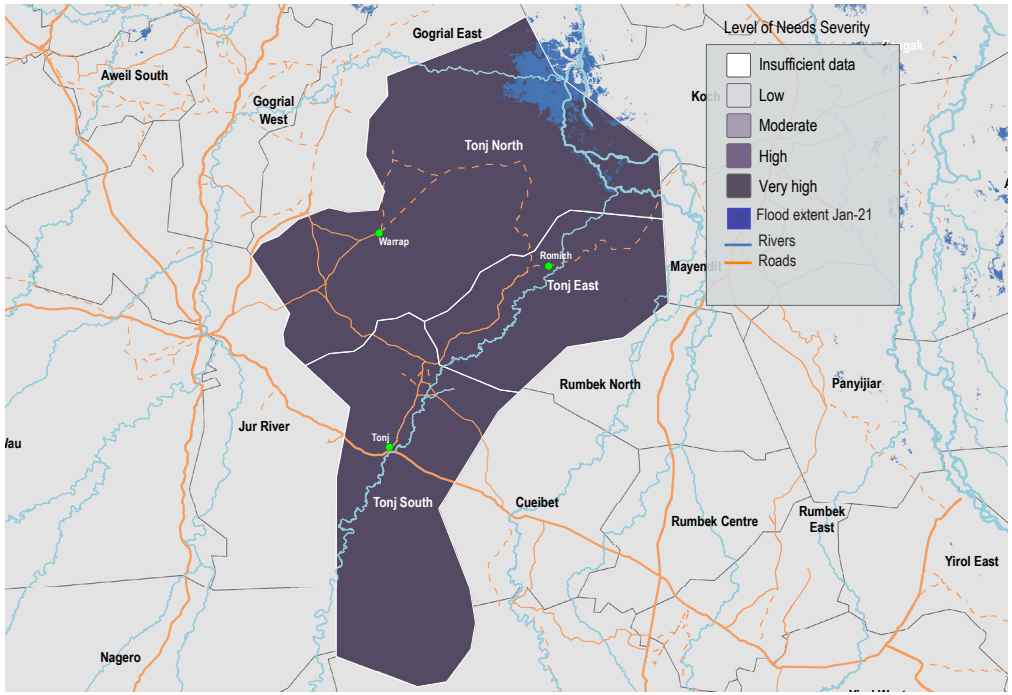
* Arrows show whether needs severity has increased, decreased, or remained consistent when compared to the previous month (December 2020).
+ These counties were all found to have a measles morbidity 77% above the national historic rate, and were thus automatically flagged as having very high health needs severity.

# INTEGRATED NEEDS TRACKING & SHOCKS MONITORING INDEX FACTSHEET

## Greater Tonj Early Warning

January 2021

## Greater Tonj Overall Needs Severity:




**Needs Severity**
(Overall Needs )

Tonj East - Very High

Tonj North - High

Tonj West - High

**FSL Needs Severity**
(FSL severity of needs for all Tonj counties)

High

▲ From December

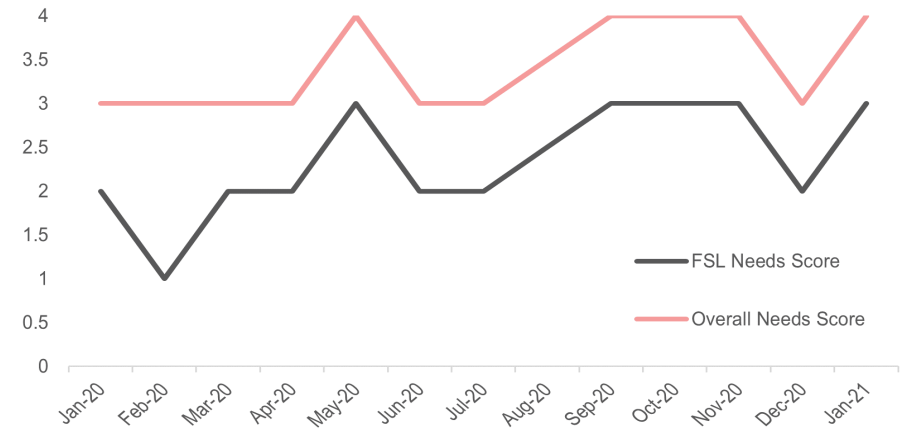
**Projected IPC AFI**
(Acute Food Insecurity (AFI) scores for all Tonj counties from December 2020 to July 2021)

Phase 4 (Emergency)

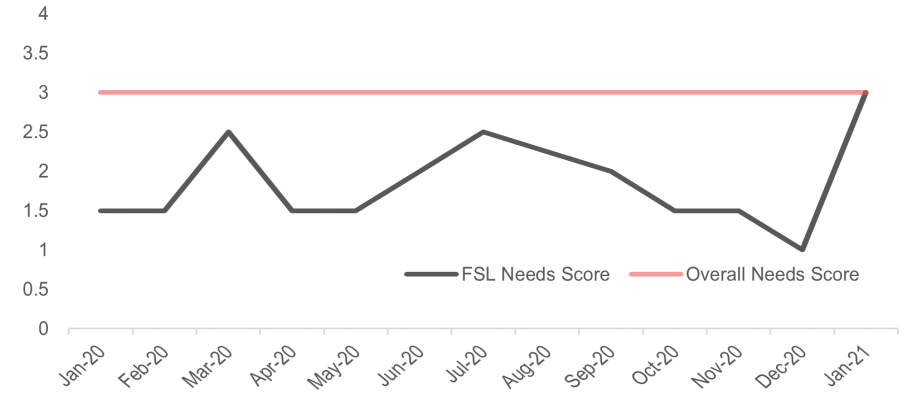
**Projected IPC AMN**
(Acute Malnutrition (AMN) scores for all Tonj counties from December 2020 to July 2021)

Phase 3

### Inter-sectoral Trend Graph Tonj East




### Inter-sectoral Trend Graph Tonj North & South




### Context

As identified in the October to November 2020 IPC analysis, all three Tonj counties are projected to be experiencing Emergency (Phase 4) acute food insecurity between December 2020 and July 2021.[2] This could be in part attributed to severe flooding which impeded food production and the provision of humanitarian assistance between July and October 2020 due to inundation of cropland and access constraints. Further, sporadic inter-communal violence over much of the same time period has also presented a barrier to food production and access for humanitarian actors.[8]

Although in December much of the standing water lifted, reducing access constraints, instability continues to present barriers to humanitarian assistance and household access to livelihood opportunities.[8, 9] Typically the lean season in the Tonj counties is between May to July, but ongoing conflict dynamics and low food production from the 2020 harvest may contribute to an earlier and longer lean period, with potentially severe humanitarian consequences.[1]

### Needs Analysis

For the month of January, all three counties were identifed as having a very high severity of FSL needs, and a food availability and access severity score of at least high. This is concerning, given the projected possibility of reduced access to food during the impending lean season.[1] Findings are particularly concerning in Tonj East, which has faced comparatively greater levels of food insecurity over recent months according to the INT system. The county has a Food Availability and Access severity score of very high in four of the past five months.

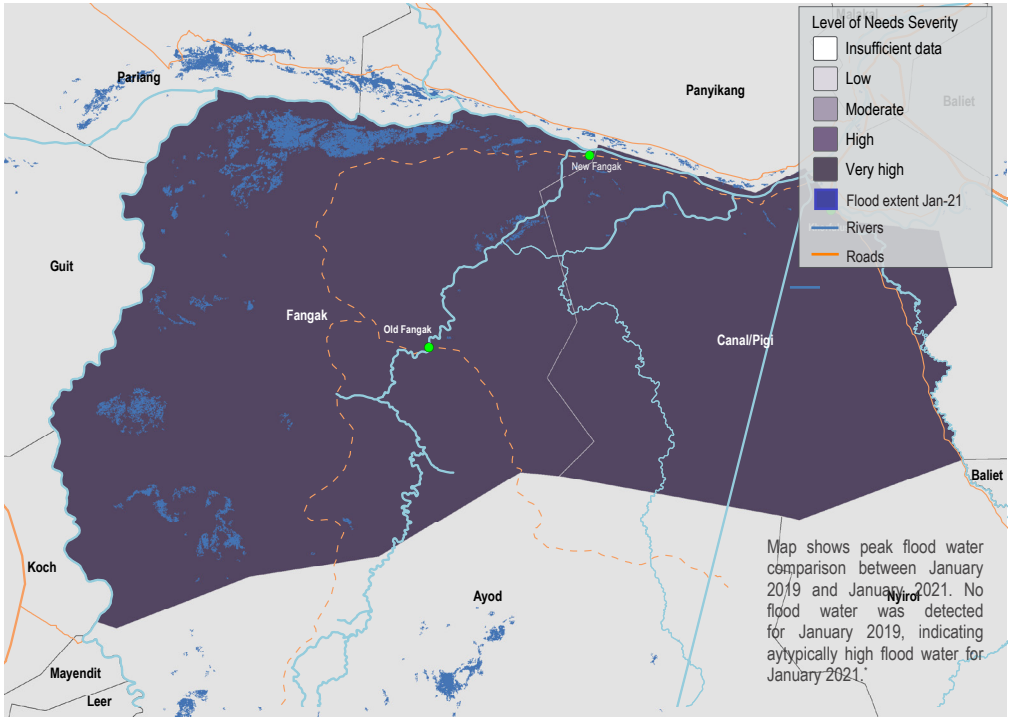
[8] The Armed Conflict & Location Event Project (ACLED).
[9] As shown by remote sensing imagery analysis courtesy of Sentinel-1.

# INTEGRATED NEEDS TRACKING & SHOCKS MONITORING INDEX FACTSHEET

## Fangak and Canal/Pigi Early Warning

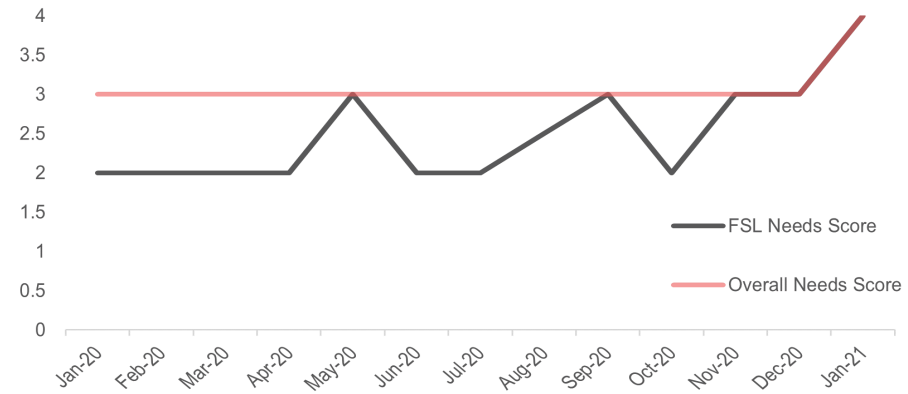
January 2021

## Fangak & Canal / Pigi Overall Needs Severity & Flood Mapping*

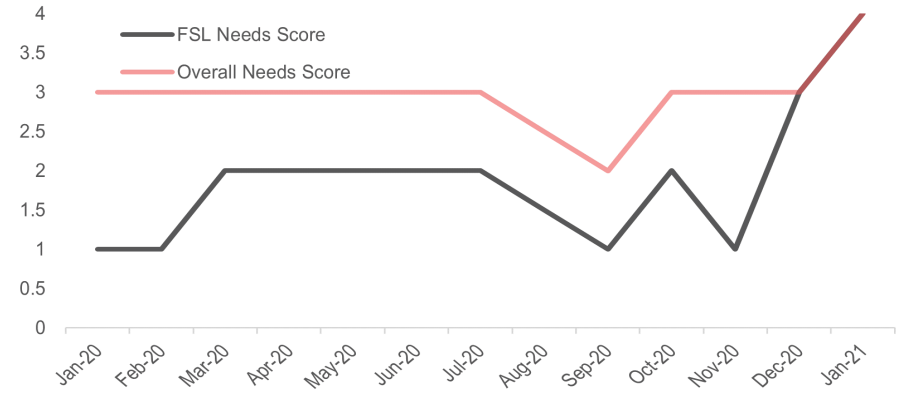



| Needs Severity | FSL Severity | Projected IPC AFI | Projected IPC AMN |
|---|---|---|---|
| (Overall needs severity for both counties) | (FSL severity of needs for both counties) | (Acute Food Insecurity (AFI) scores for both counties from December 2020 to July 2021) | (Acute Malnutrition (AMN) scores for both counties from December 2020 to July 2021) |
| Very High | Very High | Phase 4 | Phase 4 |
| ▲ From December | ▲ From December | (Emergency) | (Emergency) |

### Inter-sectoral Trend Graph Fangak




### Inter-sectoral Trend Graph Canal / Pigi




## Context

Both Fangak and Canal / Pigi counties were heavily affected by flooding in 2020. Although standing water has declined since the end of the rainy season in September, water levels in many areas remain atypically high, as shown in the above map.[1,9] This continues to serve as a barrier to movement, access to markets, and access to other key services such as healthcare. Flooding also prevents residents from returning to their areas of origin, where shelters are reportedly heavily damaged due to flooding.[10]

Of particular concerns are barriers to agricultural production, as March to May represents the period of land preparation and seed planting for most households, high water levels may impede agricultural production.[1] With rains forecasted to start atypically early in eastern South Sudan in 2021, flooding may also occur atypically early, further exacerbating conditions and impeding agricultural production for the 2021 harvest.[3]

## Needs Analysis

For both counties, January 2021 was the first time in 11 months that very high needs severity was identified, suggesting a recent deterioration in humanitarian conditions. This is supported by a further analysis of the FSL sub-components. Food Availability and Access severity was classified as very high for the first time since INT analysis began (January 2020), with both counties typically displaying low or moderate severity for this sub-component. Similarly, agriculture and livelihoods needs severity have both peaked to high or very high severity after being consistently at low or moderate severity over the preceding three months.

[10] Findings from joint ACTED Shelter and Non-Food Items (SNFI) report conducted in January 2021. Report can be shared upon request.

* Flood extent methodology: Flood extent was calculated using Sentinel-1 Synthetic Aperture Radar (SAR) imagery. A change detection methodology was used to compare composite images of peak flood extent for January 2020 and January 2021. Analysis was conducted using Google Earth Engine.

# SHOCKS MONITORING (SMI) FACTSHEET

## South Sudan

January 2021

## Overview

**4% (#3)**

Counties identified with high shocks severity scores

**Conflict**
(Counties with a very high conflict severity score)
4% (#3)

**Displacement**
(Counties with very high displacement severity score)
3% (#2)

**Flood**
(Counties with very high flood severity scores)
46% (#36)

**Drought**
(Counties with very high flood severity scores)
3% (#2)

**Disease**
(Counties with a very high disease severity score)
1% (#1)

## Overview & Methodology

The SMI includes four types of shocks: conflict, displacement, climatic, and disease-related. For each shock pillar, indicators are drawn from a range of secondary data sources and analysed to produce county-level statistic scores. These indicator scores are then aggregated based on pre-established thresholds as 'Minimal Severity', 'Moderate Severity', 'High Severity', 'Very High Severity' and then weighted based on significance in triggering a shock, in order to build an overall severity score for each pillar. An additional "accumulating shock" severity score is calculated by weighting severity scores for the past six months per county to build a shock accumulation (reoccurrence) severity score for each county. The scores allow for real-time tracking of the implication of shocks, serve as a proxy early warning system, and to guide the decision making of humanitarian actors.

For more information on the different data sources, indicators, and ranking thresholds please refer to Appendix 2: Indicator breakdown and the SMI terms of reference (ToR).

## Key Findings

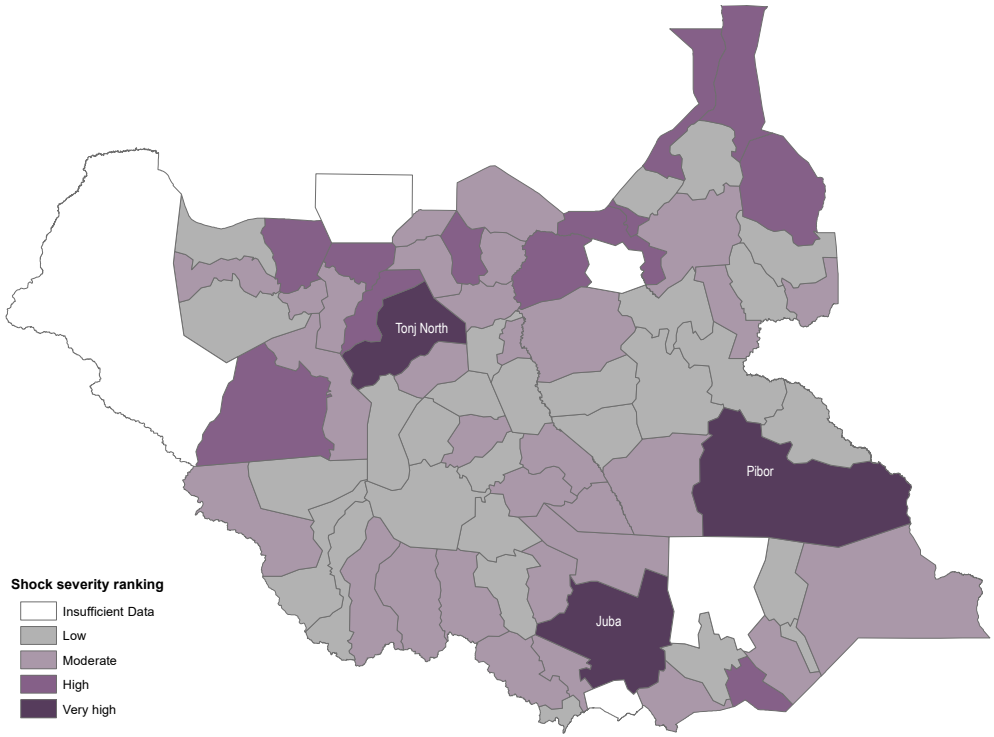
For most of South Sudan, the period between November and January represents the dry season, with reduced rainfall and households typically able to consume produce harvested between August and October, depending on the location.

Atypically heavy flooding across much of eastern and central South Sudan between July and October 2020 reportedly led to a reduced harvest and a deterioration in food security. This may lead to many households facing an earlier and more protracted lean season in 2021. In parts of central and eastern South Sudan, flood water is yet to recede and serves as a continued barrier to movement, as well as access to food, livelihood opportunities, and essential services.

In January 2021, three counties were identified as being likely to experience high overall level of shocks: Juba (Central Equatoria), Pibor (Jonglei state), and Tonj North (Warrap state). Although findings are only indicative, this suggests a possible deterioration in humanitarian conditions.

High overall severity scores for the conflict pillar were found in three counties: Cueibet (Lakes state), Rubkona (Unity state), and Terekeka (Central Equatoria), particularly due to reported incidents over food access and cattle raiding. In Panyikang (Unity state) and Tonj North (Warrap state) counties, very high displacement severity scores were reported.

Flood severity scores were very high in 36 counties, which is relatively unexpected in the dry season. This may be related to a high presence of flood water remaining from the previous rainy season as well as high river levels. Drought severity scores were very high in two counties: Abiemnhom (Unity state) and Gogrial West (Warrap state).



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## Appendix 1: INT Indicator Diagram