

South Sudan: forecasted floods threaten to accelerate public health crisis, spur mass displacement, and further disrupt livelihoods

June 2024 | South Sudan

KEY MESSAGES

- **Another major flood event is likely to occur in South Sudan over the second half of 2024, according to government officials, UN agencies, and independent research groups**, threatening to deepen an already [severe humanitarian crisis](#). Though piecemeal hydrological data enable only a rough prediction of the floods' scale and whereabouts, humanitarian actors are planning for a scenario in which more than three million people **are affected and 2.4 million are in need of humanitarian assistance**.¹
- **Major flooding is all but certain to trigger widespread displacement and result in excess loss of life.** Consecutive years of atypically severe flooding between 2019 and 2022 have had disastrous and long-lasting [humanitarian impacts](#), and signal what an outcome could look like. **Critical rates of acute malnutrition are now present in most counties along the Nile**, where floods [appear most likely to occur](#), while countrywide tens of thousands of people - including many of the more than [700,000](#) recently displaced from Sudan - are estimated to be **facing catastrophic levels of hunger**. Of particular concern are **high density displacement sites in Greater Upper Nile**, such as those in Bentiu, where the prevalence of acute malnutrition may have already crossed the [extremely critical threshold](#).
- **Should major floods materialize, a scale-up of emergency assistance - including healthcare, food, sanitation, and emergency shelter - will be needed to avert excess loss of life.** Yet the humanitarian response plan remains less than [20% funded](#), and [recent operational obstacles](#) have disrupted the delivery of humanitarian food assistance. Airdrops, a last resort but [high-cost](#) method of delivering aid, may be [only way to reach](#) pockets of hard-to-reach populations through the remainder of 2024.
- In addition to emergency aid, longer-term support will also be needed to **rebuild livelihoods and enable greater resilience to future flooding**. All humanitarian interventions **should integrate conflict sensitivity recommendations** to mitigate the risk of aid exacerbating tensions between communities over control of land and resources.

CONTEXT

Both the recurrence and severity of major flood events have increased over the last decade in South Sudan, [fundamentally reshaping](#) entire livelihood systems, compounding the humanitarian impacts of [violent conflict, economic crisis, and acute underdevelopment](#), and precipitating widespread, and often protracted, displacement.

Between 2019 and 2022, four consecutive years of extreme flooding affected an estimated 3.2 million people, according to the [International Disaster Database](#). In 2021 alone, floods affected around [1 million people](#), [displaced more than 300,000](#), killed more than [800,000 livestock](#), destroyed an estimated [37,000 tons](#) of crops, and pushed tens of thousands of households into [catastrophic levels of hunger](#).

The World Bank has called South Sudan [the world's most vulnerable country](#) to climate change, as well as a ["characteristic example"](#) of a country that suffers [compound risks](#) of natural disasters and violent conflicts. [Roughly 75%](#) of South Sudan's population resides in areas exposed to moderate or severe flood hazard.

3.3 million

people estimated to be **impacted by major flooding** over the 2nd half of 2024

82%

of the South Sudan humanitarian response plan is **currently unfunded** ([OCHA, June 2024](#))

Data forecasts major flood event

Government officials and humanitarian agencies have warned that another major flood event is likely to occur in South Sudan over the second half of 2024.

Water levels in Lake Victoria, the principal source of the Nile River, have reached a [128-year record](#), releasing abnormally high volumes of water downstream into South Sudan. [Above average rainfall](#) is also predicted across much of East Africa over the second half of 2024, heightening the risk of flash floods and potentially compounding the impacts of riverine flooding caused by an overflow of the Nile and its tributaries. Meanwhile, waters from historic 2022 floods have not yet receded, and large tracts of land [remain inundated](#).

While [flooding has already](#) broken through dykes and triggered small-scale displacement in southern Unity and Western Bahr El Gazal states, the seasonal flood extent is [expected](#) to peak between September and October, and could surpass the [previous maximum](#) reached in 2022.

Between six hundred thousand and 3.3 million people could be affected, and an estimated 2.4 million in need of humanitarian assistance, according to a flood preparedness task force comprising aid agencies and the South Sudanese Government.² Areas at greatest risk are [settlements along major waterways](#) and in low-lying areas around the Sudd swampland, including parts of Unity, Jonglei,

Warrap, and Upper Nile states in the centre and north of the country.

Existing vulnerabilities

Across much of the country, an ongoing public health crisis characterised by [rising acute malnutrition](#) and [endemic acute food insecurity](#) means communities are highly vulnerable to another bout of flooding.

[Violent conflict](#) also remains a constant threat to safety, well-being, and livelihoods, and additional flooding could [worsen ongoing intergroup tensions](#) over control of natural resources.

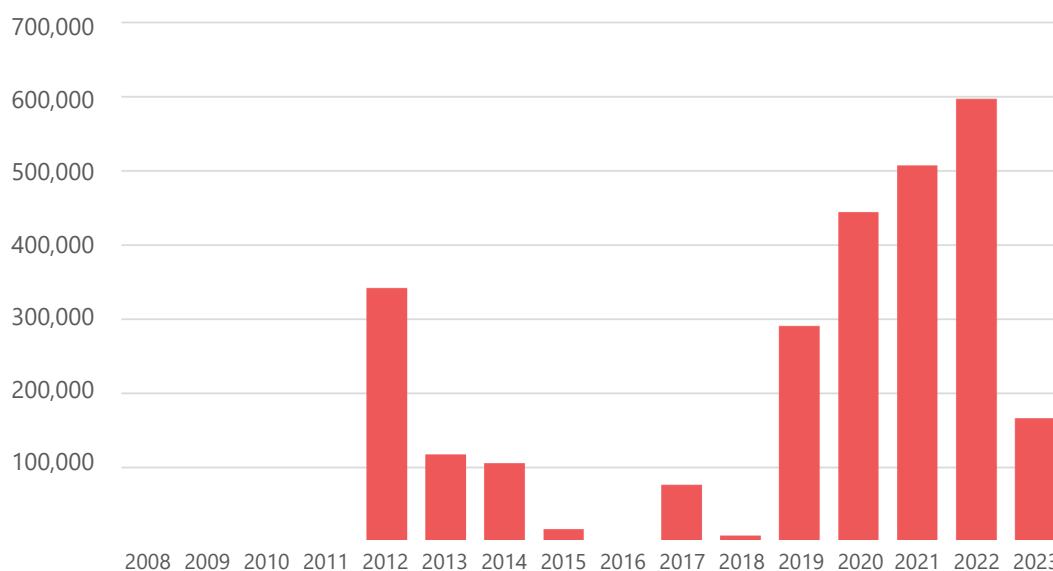
A scenario in which vulnerable communities are directly impacted - such as residents of [large, high-density displacement sites in low-lying areas near the Nile](#) - and in which humanitarian access is disrupted, could result in large-scale excess loss of life. In March, FEWS NET [projected a risk of famine](#) in parts of the Greater Upper Nile region should floods and an escalation of conflict coincide to disrupt access to food for a prolonged period of time.

Acute malnutrition

In October 2023, the Integrated Phase Classification estimated that [1.65 million children](#) between the ages of 6-59 months would face acute malnutrition through June 2024, including nearly half a million cases of severe acute malnutrition. Of South Sudan's 79 counties, the IPC found that 46 had a global acute malnutrition (GAM) rate of between 20% and 30%, far exceeding the WHO emergency threshold of 15%.

Figure 1: Number of people displaced by flooding in South Sudan, 2008 - 2023

Source: [Internal Displacement Monitoring Centre](#)



In March, the South Sudan Nutrition Cluster [reported](#) that admissions to health facilities for severe acute malnutrition were 50% higher over the first quarter of 2024 than the same period in 2023, and were higher than any first quarter of the previous 5 years. In many areas, negative health outcomes have been exacerbated by the large-scale arrival of South Sudanese returnees from Sudan, which has precipitated the spread of disease, put pressure on household food stocks, compounded congestion in displacement sites, and overwhelmed the capacity of healthcare providers.

Notably, the IPC projected that the “extremely critical” threshold for acute malnutrition (30%, indicative of IPC acute malnutrition Phase 5, the highest phase) would be surpassed in [Rubkona county, Unity state](#), between March and June 2024. Rubkona county hosts more than 175,000 internally displaced persons and has received tens of thousands of additional people from Sudan since April 2023. It is also already the [most flooded](#) county in the country, and is likely to be among the most heavily impacted by 2024 floods.

An [estimated 72%](#) of the anticipated acute malnutrition burden is expected to be concentrated in Jonglei, Upper Nile, Unity, Warrap, and Northern Bahr el Ghazal until July 2024, areas that also encompass those anticipated to be most impacted by flooding.

Acute food insecurity

The [most recent](#) Integrated Phase Classification Acute Food Insecurity analysis

projected nearly 7.1 million people in South Sudan - or 56% of the population - would face acute food insecurity between April and July 2024. This includes 79,000 people in catastrophic food insecurity - the most severe level of acute food insecurity, consistent with famine levels of hunger. Of particular concern is the food security status of more than [700,000](#) people recently displaced to South Sudan from Sudan, [tens of thousands of whom](#) are estimated to be facing catastrophic hunger.

More recently, [FEWS NET assessed](#) in May that pockets of catastrophic hunger have likely developed in Pibor Administrative Area, spurred by disruption to humanitarian food assistance, and that emergency-levels of hunger are likely present in 28 counties.

Flooding is expected to take place at the height of the lean season, when food consumption gaps, acute malnutrition, and the prevalence of water-borne diseases, such as typhoid, hit their seasonal peak.

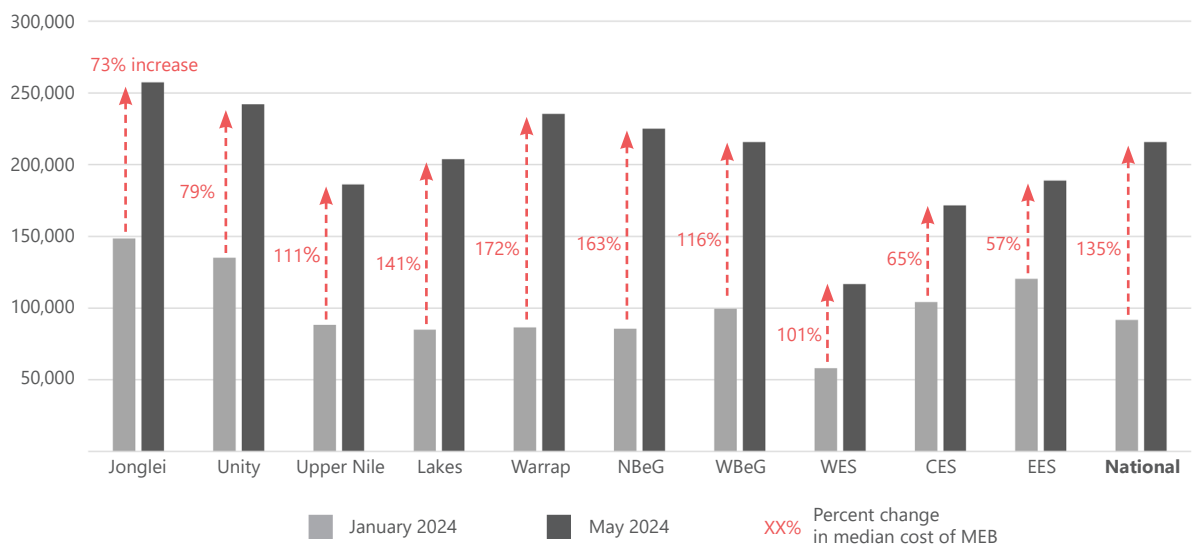
Economic crisis

The conflict in Sudan has fuelled a [spiralling economic crisis](#), resulting in a [historic devaluation](#) of the South Sudanese Pound, in dramatic price increases across the country, and - some [assessments](#) suggest - in a significant escalation of humanitarian needs.

The median price of the food minimum expenditure basket - the amount it costs to feed an average sized household for one month - [more than doubled](#) over the first five months of 2024, nationally, and increased by as much as 172% at some

Figure 2: Change in the cost of the median Food Minimum Expenditure Basket (SSP), by state, between January and May 2024

Source: [Joint Market Monitoring Initiative](#)



markets in Greater Bahr el Ghazal. Recent Humanitarian Situation Monitoring (HSM) data collected by REACH found that economic shocks, such as inflation and layoffs, were the leading reported drivers of livelihood loss across the country between March and April.³

Displacement, social tensions, and livelihood loss

Large-scale flooding, and the resultant displacement, may also [escalate tensions](#) between communities corralled into small areas of high land and forced into competition over resources, such as pasture and fishing areas. Humanitarian actors should heed [lessons learned](#) from previous years to ensure that aid does not exacerbate inter-group tensions, for instance, by enabling opportunistic land grabbing.

Major flooding will also compound negative impacts to primarily agripastoralist livelihood systems, which have already been fundamentally reshaped by flooding between 2019 and 2022. The disruption to livelihoods will likely increase dependence on humanitarian aid, and could drive a significant increase in levels of acute food insecurity and acute malnutrition.

Funding gaps and access constraints

Should major floods materialize, widespread multi-sectoral humanitarian assistance - chiefly emergency health services, food assistance, clean water, sanitation, and shelter support - will be critical to preventing loss of life.

That said, six months into 2024, the South Sudan humanitarian response plan remains only [18% funded](#), according to UN-OCHA, while additional [operational impediments](#) have resulted in major humanitarian [access constraints](#) and widening service gaps. The number of people reached with humanitarian food assistance decreased [from 1.2 million in March to 1 million in April](#) - less than half the planned beneficiaries for that month. This is a period during which food assistance typically increases to meet widening food consumption gaps associated with the lean season. Also in April, fuel shortages forced the United Nations Humanitarian Air Service to reduce flights and [pause airdrops](#), which FEWS NET [assessed](#) has likely resulted in pockets of catastrophic acute food insecurity forming in Pibor Administrative Area.

Operational constraints, including insecurity along supply routes, have also prevented aid actors from pre-positioning supplies in remote areas ahead of the rainy season. Much of Jonglei state is [now inaccessible](#) by road, and is likely to remain cut-off throughout the remainder of the year. In most of the state, airdrops - which cost roughly [seven-times](#) more than road transport - will be the only way to deliver assistance.

Methodology

This brief was written using both open-source information and internal documents drafted by humanitarian agencies or the government of South Sudan.

A lack of long-term gauged hydrological data hinders analysis of flood patterns in South Sudan. Only 8 hydrometric stations are currently operational in just one of the country's 4 river basins, while more than 1,500 meteorological and 500 hydrological stations are needed to produce reliable real-time data.⁴ For this reason, satellite observations, and hydrological and climate simulation models underpin the analysis cited in this brief.

Footnotes

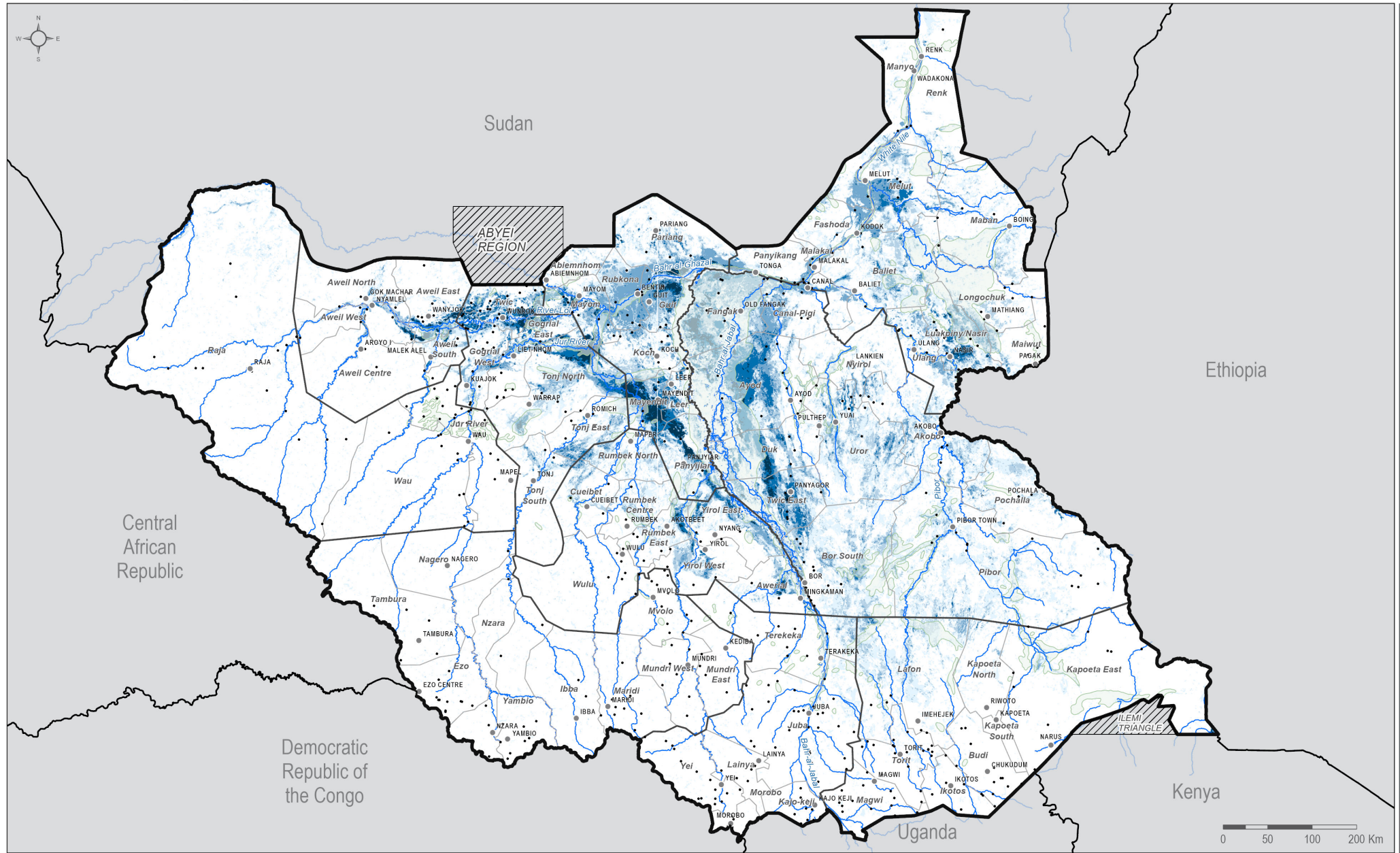
1. Unpublished document by the Government of South Sudan and humanitarian agencies. "South Sudan Flood preparedness and response plan projections." June 2024. On file with REACH.
2. Ibid.
3. REACH. Unpublished dataset. "Area-of-Knowledge" Humanitarian Situation Monitoring. April 2024. On file with REACH.
4. UNMISS Climate Peace and Security Unit. Unpublished briefing. May 2024. On file with REACH.

ABOUT REACH

REACH Initiative facilitates the development of information tools and products that enhance the capacity of aid actors to make evidence-based decisions in emergency, recovery and development contexts. The methodologies used by REACH include primary data collection and in-depth analysis, and all activities are conducted through inter-agency aid coordination mechanisms. REACH is a joint initiative of IMPACT Initiatives, ACTED and the United Nations Institute for Training and Research - Operational Satellite Applications Programme (UNITAR-UNOSAT).

Map 1: Flood extent frequency, 2019 - 2023

Source: [REACH, UNOSAT](#)



- Major Settlement
- County Capital
- River
- Lakes
- Wetland
- County boundary
- State boundary
- National boundary
- ▨ Contested
- Flood Frequency
- One year
- Two years
- Three years
- Four years
- Five years

Administrative boundaries: OCHA COD; HDX
 County Capital: OCHA COD; Open Street Map Contributors; HDX; GRID3
 Settlement Flood Events: Satellite Data, NOAA/VIIRS; analysis UNOSAT
 combined with OCHA COD, HDX.
 Coordinate System: GCS WGS 1984
 Contact: reach.mapping@impact-initiatives.org

Note: Settlement Flood Event dataset indicates number of years flooded in a particular settlement between 2019 and 2023 across South Sudan based on maximum flood extent detected in each year. Each annual dataset is an aggregation of all flood analyses undertaken by UNOSAT in that year in the settlement areas. These are developed based on satellite-detected water using NOAA/VIIRS in cloud-free areas. The lowest value of 1 indicates 1 flooding event in a settlement between 2019-2023, whilst a maximum value of 5 indicates 5 flooding events in a settlement during this period. 0 (None) indicate settlements with no flooding events.