

Impacts of climate change in South Sudan

Since 2019, South Sudan has faced its worst flooding in over 40 years—displacing communities, reducing arable land, fuelling violence, and driving spikes in infectious disease outbreaks. In 2022, MSF engaged with elders and community members in Bentiu Internally Displaced Persons (IDP) camp and Leer, who reported that the severity of flooding that year surpassed even the worst floods experienced during 1962–64. They explained that the high grounds their ancestors once fled to—such as Rubkona, Bentiu, and parts of Koch and Rotriak—are now submerged, rendering traditional coping methods ineffective.

In areas like Bentiu, floodwaters have persisted for five years without receding, creating ideal conditions for waterborne diseases and perennial malaria transmission. These climate shocks, compounded by ongoing conflict and fragile health infrastructure, directly affect health outcomes in the areas of South Sudan where MSF works.

Malaria

Malaria cases have historically followed seasonal spikes—with temperature, rainfall, and humidity during the rainy season creating an ideal environment for transmission—but case numbers in South Sudan are rising year after year. These seasonal surges follow historical trends: in 2024, malaria cases in Twic increased nearly 18-fold from June to the October peak.

National data show the scale of the crisis. According to DHIS2, South Sudan recorded 3.6 million malaria cases in 2022, 3.8 million in 2023, and 3.8 million in 2024 (including observed and projected cases). In 2025, the burden is predicted to reach 8.3 million cases, according to estimates from WHO and the Ministry of Health, with only 29% (around 2.45 million) expected to be seen at health facilities. The rest will likely go untreated and/or unrecorded.

This pattern is driven by temperature, rainfall, and humidity, which influence malaria transmission dynamics. Increasing cases in the last quarter of each year across all ages suggest that transmission is intensifying beyond seasonal fluctuations, highlighting an urgent need for

targeted interventions. Moreover, seasonal floods often damage roads and infrastructure, further delaying or even preventing access to care—especially in regions where services are already limited—thereby worsening outcomes for vulnerable groups such as children under five.

Climate shocks are also fuelling a dangerous interplay between malnutrition and malaria. In 2024, MSF recorded 4,737 admissions for severe acute malnutrition across seven projects. Aweil and Malakal, home to MSF's two largest inpatient therapeutic feeding centres, often scale up to 40 beds during the peak rainy season. This vicious



cycle worsens outcomes: malnutrition severely compromises the immune system, increasing vulnerability to malaria infection and the risk of severe disease. It also reduces the effectiveness of antimalarial drugs through malabsorption and contributes to higher rates of anaemia, which malaria itself exacerbates.

In Aweil, September 2024 saw a critical overlap: 400 children per week were admitted with severe malaria—double the 2023 figures—while 150 to 200 children per month were treated for malnutrition. Rains not only worsen disease spread but also destroy crops, reduce access to markets, and disrupt food assistance. In 2025, MSF is scaling up its response alongside ALIMA in anticipation of another intense season.

Flooding and displacement

Rains not only worsen the spread of diseases like malaria but also destroy crops, reduce access to markets, and disrupt food assistance. The flooding in Old Fangak in 2024 pushed the town into a state of emergency. Already vulnerable after four consecutive years of rising waters, the community saw its situation deteriorate rapidly as floodwaters destroyed homes, submerged farmland, and displaced thousands. MSF's geographic information systems (GIS) analysis showed extensive crop loss and population displacement occurring after the October 2024 Food Security and Nutrition Monitoring System (FSNMS) data collection, suggesting that the true scale of the crisis remains underreported.

Stagnant floodwaters fuelled a surge in waterborne and vector-borne diseases. Malaria cases spiked alarmingly—by October 2024, MSF had already treated 23,524 patients, surpassing the total for all of 2023. MSF treated over 500 hepatitis E cases in Old Fangak Hospital. The impact was especially deadly for pregnant women, who made up nearly 40% of those who died despite treatment. In response, MSF launched a targeted vaccination campaign, reaching more than 12,000 women and girls of childbearing age.



Despite an intensely hot dry season in Old Fangak, floodwaters from 2024 still had not receded by March 2025. Stagnant water levels remained 100 cm above ground—twice the level of the previous year—after peaking at 145 cm in 2024. The critical flooding threshold in Old Fangak is 147 cm; if the mud dykes are breached, the only hospital serving over 100,000 people is at risk of inundation. What's more, a May 2025 ariel attack that impacted the MSF Hospital in Old Fangak forced a suspension of operations, with teams no longer present to pump out water or reinforce the compound and the MSF base in Old Fangak flooded, illustrating how conflict can scupper adaptation efforts and compound vulnerability.

Flooding is also impeding access to care in many affected areas. In locations such as Ulang, parts of Leer, Fangak, and Abyei, mothers with malnourished children are forced to paddle canoes for hours through flooded terrain—or abandon care altogether. According to the Nutrition Cluster, by the end of November 2024, floods had impacted 2.8 million people across 46 counties, including 532,000 children under five and at least 250,000 acutely malnourished children, pregnant, and breastfeeding mothers. Flooding has also severely disrupted access to 53 nutrition service sites across these counties.

Many MSF project areas are only reachable by plane, and the rainy season makes landings extremely difficult if the airstrips are flooded. In anticipation, MSF teams pre-position tons of

supplies before the rains begin. However, patient referrals and staff movements remain severely constrained, weakening our capacity to respond during the most critical periods.

Flooding in South Sudan is not only a short-term emergency. It disrupts care for non-communicable diseases like diabetes and hypertension and increases risks for vector-borne and parasitic diseases. Past outbreaks of hepatitis E (1988, 2004, 2012–13) were all linked to flooding and mass displacement. As floodwaters stagnate, populations are also exposed to schistosomiasis and other waterborne illnesses. Additionally, pollution from oil drilling contaminates floodwaters, increasing the risk of miscarriage, cancers, neural tube defects, and other birth abnormalities.

Extreme heat is also compounding the crisis by worsening food insecurity, weakening immune systems, and increasing dehydration and illness. In February 2025, the government announced nationwide school closures for the second year in a row after dozens of children collapsed from heatstroke in Juba, where an average of 12 students fell ill daily. Malnutrition is exacerbated by extreme heat, further threatening vulnerable populations.

Additionally, competition over shrinking grazing and farming lands—exacerbated by prolonged flooding—has historically increased tensions between local groups including the Dinka, Nuer, Shilluk, and Anuak. Damage to infrastructure also isolates communities, delaying medical referrals and emergency care.

The climate crisis is no longer a distant threat—it is already severely impacting the health of vulnerable communities in South Sudan. Malaria, malnutrition, displacement, and disease outbreaks are increasingly interconnected and exacerbated by the changing environment. The health and humanitarian response needs to adapt to these changing realities, by strengthening emergency preparedness, putting in place preventive strategies and protecting health infrastructures.

