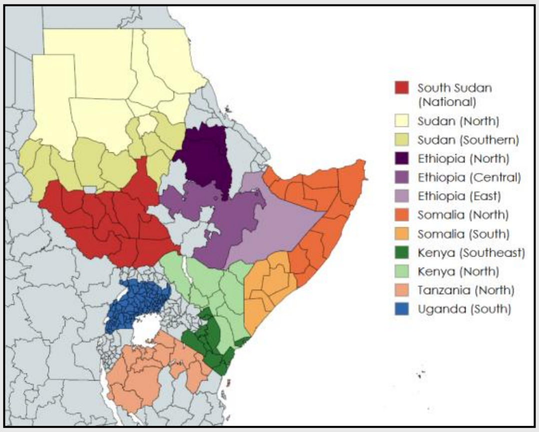
SEASONAL OVERVIEW

EASTERN AFRICA



This section presents the climatology of some of the key East African regions where MSF is present, divided into 12 different zones based on their climatology. It narratively describes the links between aspects of climate and environment and their impact on the seasonality of health and nutritional risks. This information is based on historical data and does NOT constitute a forecast for the coming season.

The regional breakdown (left) is a compromise between climatic characteristics, operational needs and state borders. The text describes seasonal trends in climate, extreme weather, nutrition and agriculture, health risks and pests where such trends are identifiable and data are available.

South Sudan

***States**: All*

Climate: The rainy season in South Sudan runs from May to October, peaking in July and August. Seasonal flooding in the Sudd region has been significant over recent years, due to high upstream water levels, especially since 2019. Flooding usually occurs from May to November; however over recent years water levels have not receded as much as they used to. The hot and dry season lasts from December to April, with high risks of extreme heat (mostly dry) and wildfires. Some extreme humid heat (heat index> 35) days can happen at the start of the rainy season (April/June). Wildfire risk is highest during the dry season from December to April. Air pollution levels are also highest during this dry and hot season, largely driven by Saharan dust and wildfires. **Health**: Mosquito-borne infections like Malaria, Rift Valley Fever and Dengue peak shortly after the rainy season – around August-December as this is when there is a lot of stagnant water for breeding. Cholera outbreak risk is quite variable by state, with the peak risk occurring in the dry season (November-February) in the Northwest and Eastern area, whilst the cholera outbreak risk is highest in the Southeast states of the country from June to August during the peak rainy season. Meningitis outbreak risk is also highest during the dry season (from December-May). **Nutrition**: The lean season in the North and East lasts from May-August until the harvest of key crops and subsistence farming. The lean season in the Pibor and Greater Kapoeta area is earlier– from January to April. During the flood season fishing is more common. **Pests**: Locust swarms can occur at any time year, and can devastate crops, but they are most common during and shortly after heavy rains and flooding.

Sudan (South)

***States**: Blue Nile, Sennar, Gedaref, West Darfur, South Kordofan, White Nile, East Darfur, Central Darfur, South Darfur*

Climate: The dry season in the southern states of Sudan is long and hot, running from November to April. There is a high risk of extreme heat during this period especially from February to June (>25 days per month above 35°C), and air pollution levels are high too, from February to April. The rainy season in the southern states of Sudan is short with light rains in May, two months of heavy rain in July and August, and ending in September/October. Air pollution is highest from February to May in southern Sudan. **Health**: The highest risk of Malaria occurs in the southern states of Sudan, and follows the rainy season, with peak transmission around September-November. The highest risk of cholera outbreaks are also during and shortly after the rainy season – with peak cholera outbreak risk occurring from August-October. The meningitis outbreak risk is highest from December-May during the dry season, when harmattan winds and Saharan dust storms increase the risk. **Nutrition**: The lean season lasts from mid-May to mid-September, ending when the harvest occurs and when livestock births and milk production peaks from August to October. Main season crops along with millet, wheat and sorghum is usually harvested from October-April. **Pests**: Locust swarms can occur at any time of year, and can devastate crops, but they are most common during and shortly after heavy rains and flooding.

Sudan (North)

***States:** Northern, Khartoum, Kassala, Aj Jazirah, North Kordofan, River Nile, Red Sea, North Darfur*

Climate: In the northern states of Sudan, the dry season is even longer and hotter, running from October to June. There is just a very short and relatively minimal rainy season, from July-September, associated with an increased risk of flooding. The hot and dry period brings a very high risk of extreme heat which peaks between February and June. At the start and end of the rainy season, days with extreme humid heat (heat index >35°C) are more common (>10days per month). Air pollution risk is also highest during the dry season, peaking from February to May. **Health**: Malaria transmission is much higher in the South than it is in the northern states, however malaria transmission does occur and this peaks following the rainy season. Dengue seasonality data from Port Sudan shows that peak transmission historically has occurred slightly earlier than Malaria - just as the rains begin in June/July, and there is often another peak after the rains in around December. Meningitis outbreak risk is highest from January to May, during the dry and windy season, when Harmattan winds blow Saharan dust. Cholera outbreak risk is highest towards the end of the dry season and just when the rains begin to start, when water scarcity is highest, from April to July. **Nutrition**: The lean season runs from May to September, ending when the harvest occurs and when livestock births and milk production peaks from August to October. Main season crops along with millet, wheat and sorghum is usually harvested from October-April. **Pests**: Locust swarms can occur at any time of year, and can devastate crops, but they are most common during and shortly after heavy rains and flooding.

Somalia (North)

States: *Sanaag, Awdal, Bari, Woqooyi Galbeed, Mudug, Nugaal, Sool, Togdheer*

Climate: Northern Somalia experiences two rainy seasons: the 'Gu' rains (April-May) and the 'Deyr' rains (late Sep-Nov). Flooding is highest risk during these rainy seasons, especially during the Deyr rains. The two dry periods are the 'Jiilaal' (Jan-Mar) and the 'Hagaa' (Jun-Sep), and both are hot and dry, with a high risk of extreme heat especially from May to September. Wildfire risk is highest during the dry seasons. Air pollution is relatively consistent throughout the year, but peaks slightly in the 'Hagaa' dry season in around June. Air pollution levels are usually higher in the northern states that the south of Somalia. **Health**: Malaria transmission occurs year-round, but peaks shortly following the 'Gu' and 'Deyr' Rainy periods, with increased malaria transmission recorded historically from May to June and from November to December. Malaria transmission is lower in the north than it is in the south. Cholera outbreak risk is also highest during and shortly following the 'Gu' rains, from April to June. **Nutrition**: The 'Gu' rains are the main rainfall period for sowing and planting, also allowing livestock to graze. The 'Gu' harvest typically becomes available around July/August. After that, further sowing and planting occur during the 'Deyr' rains, leading to a smaller harvest in December/January. The pastoral lean season runs from February to March, followed by the agricultural lean season from April to June. When rains fail—especially the 'Gu'—malnutrition and food insecurity can rise sharply, particularly if poor rains persist over multiple years, as seen recently. **Pests**: Locust swarms can occur anytime but are most common during or after heavy rains and flooding. Fall armyworms mainly appear after the rainy season and can devastate crops.

Somalia (South)

States: *Bay, Bakool, Shabelle Dhexe, Juba Dhexe, Shabelle Hoose, Juba Hoose, Hiraan, Gedo, Glagaduud, Banadir*

Climate: Southern Somalia sees more rainfall than the north, with two rainfall seasons: the 'Gu' rains (April-May) and the 'Deyr' Rains (late September-November). Flooding is most common during these periods, especially the 'Deyr' rains. The 'Jiilaal' dry period (January-March) has a higher risk of extreme heat in the southern states than the north, with risk peaking in February and March for the dry heat, and March and April for humid heat, with the start of the 'Gu' rains. The 'Hagaa' dry period has a lower risk of extreme heat in the southern states than the north. Wildfire risk is highest during the dry seasons. Air pollution is highest from November to April but is relatively lower than in the northern states of Somalia. **Health**: Malaria transmission is lower in the southern states of Somalia than in the north, but peak malaria transmission occurs from May-June and from November-December, just after the rainy seasons. Cholera outbreak risk peaks from April to June with the 'Gu' rains. **Nutrition**: The pastoral lean season runs from Feb-March whilst the Agricultural lean season from April-June. Malnutrition rates are the highest during this time, whilst labour demand is high for agricultural activities (planting and sowing) and pastoral activities including migration for grazing sites and kidding and lambing. As there is more rain in the South there is more agricultural capacity for various crops. The 'Gu' harvest becomes available from July-September, and the 'Deyr' harvest from November to January. Failed rains have led drought and failed harvests and worsening food insecurity. **Pests**: Locust swarms can occur at any time of year, and can devastate crops, but they are most common during and shortly after heavy rains and flooding. Fall armyworms occur mainly after the rainy season, devastating crops.

Tanzania (North)

States: *Geita, Kagera, Katavi, Mwanza, Shinyanga, Kigoma, Kilimanjaro, Manyara, Mara, Tabora, Arusha, Simiyu*

Climate: The northern states of Tanzania experience two rainfall seasons: the 'Vuli' rains, starting in September and intensifying in November-January, and the 'Masika' rains which are heavy and last from March to May. Flooding is common during the rainy season and is highest risk of occurring in April and May. The dry season lasts from June to August and is associated with higher risk of wildfires (especially in September). There is relatively low risk of extreme heat in comparison with other countries in East Africa, with almost no days with extreme temperatures. Air pollution levels historically are quite consistent throughout the year, with a slight reduction during the heavy 'Masika' rains in April and May. **Health**: Malaria transmission risk is highest during the rainy seasons, and peaks from March to May, and from October to December. Leptospirosis risk is also highest during the months of heavy rains – from January to April. Cholera risk in northern Tanzania is highest from April to May – towards the end of the 'Masika' rains, and from December to January – towards the end of the 'Vuli' rains. **Nutrition**: The lean season typically lasts from October to December during the 'Vuli' rains, ending when the 'Vuli' harvest becomes available in around January. The 'Masika' harvest is usually ready during the dry season from July to August. **Pests**: Fall armyworms are an occurrence mainly after the rainy season, devastating crops grown.

Kenya (North)

States: *Garissa, Mandera, Marsabit, Samburu, Turkana, Wajir, Tana River, Isiolo*

Climate: Northern regions in Kenya experience two main seasons: a long rainy season (March to May) and a short rainy season (October to December), with a dry season in between (June to October). The peak month for both seasons being April and November, respectively. Between June and September, is usually hot and drier, with temperatures peaking up to 27/28°C. Air pollution levels are generally low, with occurrences of dust being a common phenomenon for the region and peaking in the dry season Jun-Sep. **Health**: malaria cases are very few to none, mostly reported by people who visit the region from a different place. Malaria prevalence in the country is very low, with some exceptions like Turkana, the southwestern most part of the country and some urban cases reported (*an. Sptehensis*). Malaria case tend to surge during the rainy season, yet prophylaxis efforts have kept them under control. However, cases of rare diseases such as Kalazar was reported in early 2025 around the regions. **Nutrition**: Farming is not the main economic activity in most of the areas in the region, pastoralism is quite common among natives. With this, malnutrition cases are quite high especially among children below 5 and older people. **Pests**: Locust swarms can occur at any time of year, and can devastate crops, but they are most common during and shortly after heavy rains and flooding. Fall armyworms are an occurrence mainly after the rainy season, devastating crops grown.

Kenya (Southeast/Coast)

States: *Mombasa, Kilifi, Kitui, Kwale, Lamu, Makueni, Kajiado, Taita Taveta, Machakos, Nairobi, Meru*

Climate: Southeast and coastal Kenya have two rainy seasons: a long one (Mar–May) and a short one (Oct–Dec), with a dry season in between (Jun–Sep). Rainfall is higher than in the north (10–30mm in the dry season; 30–50mm in the wet season). Average temperatures range from 20–25°C, but extreme heat (>35°C) occurs often from Jan–Apr, peaking in March alongside high humid heat days (heat index >35°C) in March and April (9 days per month). Air pollution is generally low, though dust is common, especially in the dry season (Jun–Sep). Wildfire risk is high during the dry seasons (Jan-March and Jun-Sep). **Health**: Malaria is generally low, with some hotspots in Kilifi, Kwale, and urban areas (An. stephensi). Cases rise during the rainy seasons but remain controlled due to prevention efforts. Cholera cases are stable year-round. **Nutrition**: Agriculture is the main economic activity. Harvests occur in Feb/Mar (short rains) and Jul/Aug (long rains), with a lean season in Sep/Oct.. **Pests**: Locust risk is low to moderate, mostly during or after heavy rains. Fall armyworms appear post-rains, damaging crops.

Ethiopia (Central Oromia)

States: Oromia and Addis Ababa

Climate: Central Ethiopia experiences two rain seasons, with February to May being the short rainy season, *Belg,* and June to September being the main rainy season, *Kiremt.* The main season is characterized by very heavy rainfall, flooding and landslide cases, peaking in August. At the same time, wildfires pose a high risk of occurrence due to agricultural preparedness and practices as well as rangeland management. **Health**: With June-September being the main rainfall season for central Ethiopia, infectious diseases are expected to increase in the region. In both Oromia and Addis Ababa, malaria and cholera cases are expected to increase as the season peaks towards the end of the year. Apart from those, cases of meningitis are also expected to be present, being a region in the meningitis belt. **Nutrition**: In Central Ethiopia, a significant portion of the population faces nutritional challenges, particularly undernutrition in children and women, alongside the rising prevalence of overnutrition. Undernutrition is evidenced by high rates of stunting and wasting in children, as well as anaemia and malnutrition among women. Despite progress in reducing malnutrition, a substantial segment of the population remains chronically undernourished and suffers from micronutrient deficiencies. **Pests**: In Central Ethiopia, significant crop pests include various insects, rodents, and even termites. Insects like whiteflies, fruit flies, and the diamondback moth are known to damage citrus, coffee, and cabbage, respectively. Rodents, including those from the Arvicanthis, Lemniscomys, and Mus genera, are major agricultural pests. Termites are also a significant threat, impacting crops and livelihoods in the region. Additionally, stored product pests like flour beetles and moths can cause substantial losses of grains and other stored commodities.

Ethiopia (Northwest)

***States:** Tigray and Amhara*

Climate: Northwest Ethiopia experiences two rain seasons, with March to May being the short rainy season, *Belg,* and June to September being the main rainy season, *Kiremt.* The main season is characterized by very heavy rainfall and flooding, peaking in August, damaging infrastructure and affecting agriculture. At the same time, wildfires pose a high risk of occurrence due to agricultural preparedness and practices as well as rangeland management. **Health**: Like rest of the country, northwest Ethiopia's health is significantly impacted by a triple burden of disease, including communicable infectious diseases, i.e., malaria, cholera, leishmaniasis, nutritional deficiencies, and non-communicable diseases (NCDs). Access to modern healthcare, especially in rural areas, is limited, and issues like lower respiratory infections, diarrheal diseases, and HIV/AIDS are prevalent. In addition, meningitis is also prevalent with the region being part of the meningitis belt. **Nutrition**: Malnutrition, particularly among children, is a serious issue, with an overall prevalence of 49%. This is reflected in high rates of stunting, wasting, and underweight. The Amhara region, where Northwest Ethiopia is located, has particularly high rates of malnutrition. **Pests**: In Northwest Ethiopia, common agricultural pests include insects like stalk borers, African bollworms, locusts, and armyworms, along with rodents and other vermin. Additionally, diseases like maize lethal necrosis and sweet potato virus can affect crops. Specific pest species identified include rice weevil, maize weevil, and Angoumois grain moth in stored grains.

Ethiopia (East)

***States:** Somali*

Climate: East Ethiopia experiences a diverse climate, ranging from hot and arid conditions in the lowlands to cooler, more temperate conditions at higher altitudes. The eastern part of the country is characterized by low rainfall and high temperatures, with a hot, semi-arid to desert climate. It experiences two main rainy seasons, March-May, *Gu,* and October to December, *Deyr.* Despite the region being semi-arid and hot, flash floods are an expected occurrence especially on peak months of April and October. In addition, human-induced wildfires are quite common posing a huge risk to communities living in the area. Air pollution is a very significant issue, particularly in urban areas due to industrial activities, transportation, and biomass burning for household energy. While data on air quality in rural areas is limited, biomass burning and dust from land use changes also contribute to poor air quality. **Health**: Eastern Ethiopia is highly prevalent to communicable and non-communicable diseases, including infectious diseases like malaria, cholera and dengue, coupled with other non-climatic effects. Meningitis is also prevalent, with the region being part of the meningitis belt. Furthermore, poor environmental conditions, including unsafe drinking water, poor sanitation, and air pollution, can also contribute to health problems. **Nutrition**: In Eastern Ethiopia, significant nutritional challenges exist, particularly among children and women, with high rates of stunting, wasting, and anaemia. Food insecurity rates were 80.2 % for shifting households and 63.4 % for non-shifting households. **Pests**: Significant crop pests such as citrus woolly whitefly, fruit flies, and diamondback moths can damage crops, while rodents like *Arvicanthis* and Lemniscomys pose a threat to agriculture. Additionally, birds, particularly Quelea, can cause significant pre-harvest losses.

Uganda (South)

***States:** Alebtong, Amolatar, Amudat, Amuria, Apac, Budaka, Bududa, Bugiri, Buhweju, Buikwe, Bukedea, Bukomansimbi, Bukwo, Bulambuli, Buliisa, Bundibugyo, Bushenyi, Busia, Butaleja, Butambala, Buvuma, Buyende, Dokolo, Gomba, Hoima, Ibanda, Iganga, Isingiro, Jinja, Kabale, Kabarole, Kaberamaido, Kalangala, Kaliro, Kalungu, Kampala, Kamuli, Kamwenge, Kanungu, Kapchorwa, Katakwi, Kayunga, Kibaale, Kibuku, Kiruhura, Kiryandongo, Kisoro, Kole, Kumi, Kyankwanzi, Kyegegwa, Kyenjojo, Lira, Luuka, Luwero, Lwengo, Lyantonde, Manafwa, Masaka, Masindi, Mayuge, Mbale, Mbarara, Mitooma, Mityana, Mpigi, Mubende, Mukono, Nakapiripirit, Nakaseke, Nakasongola, Namayingo, Namutumba, Nebbi, Ngora, Ntoroko, Ntungamo, Nwoya, Otuke, Oyam, Pallisa, Rakai, Rubirizi, Rukungiri, Serere, Sheema, Sironko, Soroti, Ssembabule, Tororo, Wakiso, Zombo.*

Climate: Southern Uganda experiences a warm and humid equatorial climate with two main rainy seasons: March to May, and August to December. Excessive flooding and landslides are a recurrent phenomenon during both rainy seasons. Wildfire occurrences are very low, influenced mainly by the long rainy seasons. There is relatively low risk of extreme heat in comparison with other countries in East Africa, with some very hot days registered often around Jan-March **Health**: Infectious diseases especially malaria and cholera are highly prevalent in Southern Uganda affecting large populations and leading in deaths. Aside from them, the region is highly susceptible to external zoonotic threats such as Ebola, Marbug and Lassa viruses. **Nutrition**: In southern Uganda, malnutrition, particularly in children, is a significant issue, with high rates of stunting and wasting. The diet is often low in micronutrients and dietary diversity, leading to deficiencies in vitamin A, iron, zinc, and other essential nutrients. Food insecurity, coupled with poverty, low agricultural productivity, and inadequate access to healthcare, contributes to these nutritional challenges. **Pests**: In southern Uganda, there is a significant agricultural pest issue, especially affecting bananas, coffee, cassava, and potato crops.