MYANMAR
Impact of the southwest monsoon

OVERVIEW

Since 30 June 2024, continuous heavy rainfall in Myanmar has led to flash floods that have particularly affected the northern and northwestern regions, including Bago, Kachin, Magway, Mandalay, Sagaing, and Shan. The floods have caused widespread disruptions, such as displacement, infrastructure damage, the destruction of agricultural lands, and school closures (ECHO 18/07/2024; OCHA 09/07/2024). **By 18 July, Sagaing and Mandalay were the hardest-hit regions. Additionally over 37,000 people had been evacuated in Kachin state alone** (ECHO 18/07/2024; OCHA 09/07/2024; WB accessed 24/07/2024). In the northwest, flooding has affected around 200,000 people in at least 21 townships in Magway, Mandalay, and Sagaing regions; this includes the temporary evacuation of 38,900 IDPs in Sagaing region. In the southeast, the flooding has affected nearly 154,000 people in Kayah, Kayin, and Mon states, as well as Bago and Tanintharyi regions. While some areas remain flooded, water levels have receded in others (OCHA 16/08/2024).

By 16 August, the rains and resulting floods had affected over 393,000 people nationwide, with urgent needs for shelter, healthcare, and food (OCHA 16/08/2024; WFP 07/08/2024). **By 17 July, the flooding had affected at least 25 cities in the Ayeyarwady River Basin in the southwest** and inundated approximately 45,000 hectares of land (MPA 16/07/2024; RFA 24/07/2024). Women-headed households are particularly vulnerable because of their reliance on casual agricultural labour, with the continuing floods threatening their income and deepening poverty (IFPRI 31/10/2022).

Myanmar's monsoon season is marked by the first occurrence of three consecutive days of rainfall, each receiving at least 2.54mm of rain. The monsoon progresses through three phases: early, mid, and late season. By mid-May, the southwest monsoon reaches the southernmost tip of the peninsula near Victoria Cliff, lasting through October (Kyaw Than Oo 25/01/2023). During this season, the country receives about 75% of its annual rainfall, with most experienced during the mid monsoon phase and less expected towards the end of the season (Sigma Earth 08/02/2024; WMO 30/04/2024). During the 2024 season, however, the transition from El Niño to La Niña, expected in the last quarter of the year, is likely to result in above-normal rainfall conditions during the normal waning period of the monsoon, potentially extending flooding incidences through October (MPA 16/07/2024).

Map 1. States of Myanmar

Source: ACAPS

KEY MESSAGES

- Widespread flooding in Myanmar has led to **significant displacement** across multiple regions, affecting Ayeyarwady, Bago, Kachin, Magway, Mandalay, and Shan region. With thousands displaced, urgent shelter and humanitarian assistance are required. The combination of heavy rainfall, overflowing rivers, and landslides has aggravated the crisis, particularly in areas with active conflict.

- The humanitarian access situation in Myanmar remains challenging because of the **increasing restrictions from continuing military operations, violence targeting humanitarian personnel and assets, and bureaucratic hurdles, such as the frequent denial of travel authorisations.** These obstacles have limited the ability of humanitarian organisations to deliver vital assistance to those in need.

- The region's geology, characterised by mountainous terrain and extensive mining activities, has heightened the risk of landslides during floods. **Heavy rains increase the risk of landslides in the landslide-prone areas of Chin and Bago and the mining regions of Kachin.**

- The **widespread flooding of farmlands is likely to cause significant agricultural losses,** reducing farmers' livelihoods and decreasing food production. This will worsen food insecurity and lead to rising food prices across the country.

- Conflict between the State Administrative Council (SAC) and state forces across Myanmar and the economic crisis in the country are heightening the needs of affected communities, especially in Kachin, Sagaing, and Shan, which have seen increased violence and displacements in 2024.

INFORMATION GAPS

- Until 21 August, there had been no needs assessments conducted in areas under the control of the SAC and ethnic armed organisations (EAOs), such as Ayeyarwady, Bago, Chin, Kachin, Magway, Mandalay, Sagaing, and Shan regions, because of restricted humanitarian access.

- There is limited granular information on the number of people displaced by the flooding and landslides during the monsoon season.

- Access constraints mean that granular information is not consistent across affected areas, challenging the undertaking of comparative analysis on the extent of the impact.

- Baseline information on Myanmar is not up to date and may not be representative of the current situation. The most recent national census is from 2014.

ANTICIPATED SCOPE AND SCALE

- **Myanmar is projected to experience above-average rainfall, with a heightened likelihood of tropical cyclones through the monsoon season.** These conditions are expected to worsen existing vulnerabilities and pose significant challenges to disaster preparedness and response efforts.

- On 30 July, the Department of Meteorology and Hydrology anticipated the formation of two low-pressure areas over the Bay of Bengal through the end of August, with one expected to intensify into a depression. This increases the **risk of tropical storms that may result in above-average rainfall in upper Sagaing and Kachin region in August** (DMH 28/07/2024). Tropical systems, including tropical depressions, pose an additional threat during the southwest monsoon period as they intensify the rainfall and aggravate disruptions already caused by the monsoon (Crisis 24 13/05/2024).

- **There is an 85% chance that La Niña will develop during the late monsoon period between September–November, which could result in above-average rainfall for the remainder of the year in the northern and northwestern regions of Bago, Kachin, Magway, Mandalay, Sagaing, and Shan** (MPA 16/07/2024; DMH accessed 30/07/2024).

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CRISIS IMPACTS (CURRENT AND ANTICIPATED)

Shelter and displacement

In Ayeyarwady region, the rains and floods have affected an unspecified number of people, with evacuations underway. As the Ayeyarwady River continues to rise, further evacuations are anticipated. Mandalay has seen receding water levels, but landslides remain a concern. Shelter needs are critical across these regions, with many displaced people requiring urgent assistance (MIMU/UNDP 29/07/2024; RFA 29/07/2024; The Irrawaddy 27/05/2024; Xinhua 22/07/2024; Myanmar Now 13/08/2021; MPA 31/07/2024). Until 20 August, information on the number of houses destroyed and the needs of the displaced was limited.

- In **Ayeyarwady,** 21 households in Pinlon ward, 16 households in Innyekyun village tract, and 28 households in Sarphyu village in Kyonpyaw township had been evacuated by 29 July as the floods continued. With more rains expected and the levels of the Ayeyarwady River continually rising, more evacuations to temporary relief camps and host communities are expected (MDN 29/07/2024).

- **Bago:** continuous rainfall from 24–30 July caused the Mobye Dam on Bago's border with Kayah and Shan regions to overflow, resulting in flooding in Mobye township. By 31 July, the flooding had displaced at least 20,000 people, who sought shelter across seven flood relief camps at monasteries and schools in Kyunthaya, Myothit, Oktha Ward 7, South Zaganaing, and Ywathit wards. Residents report that if the rains continue, there is a high likelihood of more displacements happening (RFA 29/07/2024; MPA 30/07/2024).

- **Kachin:** since late June, heavy rainfall in northern Myanmar has caused the Ayeyarwady River in Myitkyina to rise rapidly, surpassing critical levels by 4 July. This has led to the river overflowing into low-lying communities (AHA Centre 04/07/2024). Kachin faces heightened landslide risks given its mountainous terrain and extensive mining activities.

- M**agway:** since the start of the monsoon season, the Ayeyarwady River, which flows through Pakokku township, has seen ebbing water levels. By 26 July, the floods had affected more than 53,000 people in the region, with more than 200 households evacuated to temporary shelters in Thayet township until 22 July (Social News XYZ 26/07/2024; GNLM 29/07/2024; Xinhua 22/07/2024).

- **Sagaing:** on 16 July, the overflow of Chindwin and Ayeyarwady Rivers hit riverine communities across 11 townships, such as Salingyi, with the floods displacing an unknown number of people (Myanmar Now 16/07/2024; MIMU/UNDP 15/07/2024; OCHA 16/07/2024; MPA 16/07/2024).

- **Shan:** by 31 July, overflow from the Mobye Dam and heavy rainfall had displaced at least 3,000 IDP households (10,000 people) already previously displaced by the war between EAOs and the Myanmar Armed Forces (MAF) (MPA 31/07/2024; The Diplomat 04/07/2024).

Health and WASH

Disease outbreaks are frequent during the monsoon season. The floods have the potential to compromise clean water access in the affected areas, where boreholes are the main source of water, increasing the need for WASH items. By 9 June, more than 5.6 million people needed WASH services across the country (OCHA 09/06/2024).

During past monsoon seasons, the overflowing of sewer systems and septic tanks led to the spread of waterborne diseases. By 17 July, there were already more than 77 confirmed cholera cases in Chin, Bago (East), and Rakhine regions (ECHO 17/07/2024). More than 1,141 cases of acute watery diarrhoea had also been identified across the country by 22 July (WHO 24/07/2024). At the same time, stagnant floodwaters often become breeding grounds for mosquitoes and bacteria, heightening the risk of vector-borne diseases (Tofiloski 07/2018; Crisis 24 13/05/2024). By 31 July, there were reports of illnesses among redisplaced IDPs in Shan region. Information on the illness type and number of IDPs affected was not available until 26 August, but the needs of the affected included food, medicine, and drinking water (MPA 31/07/2024).

The situation is dire in IDP camps, such as in Kachin, where overcrowding in camps and shelters, combined with limited access to WASH and health facilities, often leads to an increased spread of seasonal illnesses, such as diarrhoea, that peak during the monsoon season (UNFPA 25/07/2024). The close quarters and inadequate hygiene resources make it easier for such diseases to spread, aggravating health challenges among already vulnerable populations such as women and the elderly (WHO 15/11/2022). Groups with specific needs, such as older people and pregnant women, face severe challenges in accessing necessary healthcare (WHO 24/07/2024; GNLM 30/07/2024; MDN 29/07/2024).

Infrastructural damage from floods, such as the submersion of roads and collapse of bridges, can disrupt healthcare access by constraining the movement of affected people to healthcare providers (GNLM 30/07/2024; MDN 29/07/2024).

Agriculture, food security, and livelihoods

Diminished crop yields because of the inundation of over 45,000 acres of farmlands in Ayeyarwady, Bago, Magway, and Shan can be expected to drive up food prices, aggravating existing food insecurity concerns because of movement restrictions because of conflict in some regions, inflation, the disruption of markets, climate shocks, and conflict (IRC 01/03/2024; OCHA 13/03/2024; RFA 24/07/2024). As the monsoon season progresses, the destruction of critical agricultural land, including rice paddies, cornfields, and other essential crops, is likely to significantly reduce harvests. This, combined with rising food prices, particularly affects low-income households, increasing their exposure to poverty. The economic

impact on farmers, who rely heavily on these crops for their livelihood, is expected to be severe, potentially pushing them into financial hardship (MDN 29/07/2024; MPA 26/07/2024; RFA 24/07/2024).

The decline in employment opportunities, particularly for casual labour, will worsen the economic hardships of at-risk populations. Casual labour is a critical income source for many rural households in Myanmar, particularly during the monsoon season when agricultural activities peak. These temporary jobs, essential for tasks such as planting, transplanting, weeding, and harvesting, provide a crucial lifeline for impoverished communities (IFPRI 31/10/2022; FAO et al. 2015). The devastating impacts of flooding on agricultural production, including anticipated yield reductions, will significantly curtail labour demand in the upcoming harvest season (October–December).

In 2021, women in agricultural households performed 39% of household farm labour days, and 43% of agricultural wage workers were women (Knowledge for Policy 10/12/2021). Reduced seasonal labour opportunities will have a major impact on their livelihoods. Women's wages are already almost 20% less than men's because of societal norms. To cope with income loss, women borrow food and seeds from local markets or take out loans from money lenders at high interest rates (IFPRI 31/10/2022; FAO et al. 2015). In rural Myanmar, for example, people cope with lean seasons by taking loans to mitigate financial losses. It is common practice to advance salaries and rely on brokers, although many people fall at risk of exploitation as a result; women are particularly vulnerable to being trapped in bonded labour because of unpaid debts. While attention is more often paid to the immediate effects of climate change (i.e. sudden extreme weather events), the phenomenon also affects wider socioeconomic vulnerabilities and creates new or deepens existing patterns of exploitation (NUPI 15/05/2024; IOM 2019).

According to the country's 2024 food security outlook, approximately 13.3 million people in the northern townships of Chin, Kayin, Mandalay, Rakhine, northern Shan, and Tanintharyi regions are projected to face high acute food insecurity (i.e. Crisis or IPC Phase 3 or worse levels, with 2.7 million people in Emergency or IPC Phase 4 and 10.6 million in IPC 3 levels) (OCHA 09/06/2024). The flooding of farmlands is likely to increase food insecurity in Myanmar as the inundation disrupts agricultural production, leading to potential shortages and increased exposure to food insecurity for affected communities.

By June 2024, poor economic conditions had resulted in a 30–50% rise in food prices compared to the same period in 2023 (MIMU 22/07/2024 and 25/07/2024). Soaring food prices disproportionately affect low-income households, particularly those already facing reduced income because of limited agricultural job opportunities (MDN 29/07/2024; MPA 26/07/2024; RFA 24/07/2024).

- **Ayeyarwady region** is Myanmar's primary rice-producing area often referred to as its 'rice bowl'. Despite its agricultural wealth, a significant portion of the region's population lives in poverty (31%) (Mercy Corps 27/05/2021). The destruction of crops results in a significant reduction or complete loss of income since agriculture is the main source of livelihood in Ayeyarwady (WWF 29/08/2018; FAO et al. 2015).

- **Bago:** floodwaters have submerged at least 20,000 acres of farmland across various townships in the region. In Moe Nyo township alone, the rising waters have inundated corn, sesame, and paddy fields covering over 10,000 acres. An unknown amount of damage to crops had also occurred in Latpandan township in Tharyawaddy district by 26 July. On 30 July, residents of Okpho township reported a slight recession of the Ayeyarwady River's water level within the district. That said, the concurrent rise of the Myitmakha River poses a continued threat of flooding to agricultural lands in the region, potentially resulting in further damage (MPA 26/07/2024).

- **Magway:** the economy of Magway also relies heavily on agriculture (MSME Development Department 11/2017). According to state authorities, at least 20,000 acres of green beans, peanuts, and sesame had been submerged in Minhla township, and over 800 cattle had died by 22 July (Xinhua 22/07/2024; RFA 24/07/2024; MPA 26/07/2024). An unknown number of fish farms had also been flooded in Minhla township by 26 July (MPA 26/07/2024).

- **Shan:** the flooding has submerged over 5,000 acres of farmland in the primarily agricultural region and caused significant losses to fish ponds, including over 500 acres of farmland in Pekon township (MPA 31/07/2024).

Education

Approximately one-third (4.5 million) of school-age children were not enrolled in any form of learning until December 2023. Since the military coup in 2021, half of all children have had their learning severely disrupted, with life-long impacts on the children (OCHA 18/12/2023). The floods have resulted in the temporary closure of schools in affected townships of Ayeyarwady and Magway regions because of damage by floods and the use of some schools as temporary shelter facilities (RFA 24/07/2024: MDN 29/07/2024). The number of damaged structures is unclear. The disruption of learning by the floods will place children at heightened risk of child labour, trafficking, and early marriage, as some of the displaced may not return to their homes.

- **Ayeyarwady:** access challenges and facility damage because of floodwaters from Darka Creek in Kyonpyaw township closed 15 basic education schools, including two high schools, one sub-high school, three middle schools, two post-primary schools, and seven primary schools on 29 July (MDN 29/07/2024; MOI 31/07/2024). Until 20 August, it was not clear if the schools had reopened.

- **Magway:** school closures are common during the monsoon period because of floods (MITV 16/09/2023; OCHA 16/08/2019). By 24 July, flooding had closed at least 30 schools in the region. On 29 July, five schools in Pwintbyu township, which had been temporarily closed because of floodwaters from the Irrawaddy River, were reopened. State authorities have announced that the remaining schools in the township will be reopened once the floodwaters recede (RFA 24/07/2024: MDN 29/07/2024).

DRIVERS

Climate change

Myanmar is considered one of the most vulnerable countries in the world to climate change. The country has an INFORM Climate Change Risk Score of 6.2/10 (high) and a score of 6.4/10 for lack of coping capacity, indicating constraints in the country's response to climate hazards (EC accessed 11/08/2024). In the Global Climate Risk Index, Myanmar ranked second in terms of the degree of vulnerability to severe weather between 2000–2019. Myanmar is particularly vulnerable to extreme weather events, which have increased in frequency and intensity over the past 60 years (Aung Tun Oo et al. 06/06/2023).

Climate change is intensifying the monsoon season in Myanmar. The monsoon has become more unpredictable, producing more intense rainfall and longer dry periods. As global temperatures rise, models indicate that monsoons will likely strengthen, resulting in increased overall rainfall (NYT 04/10/2022; The Economist 18/07/2024). In May 2024, with 40% of Myanmar's population living in low-lying flood plains and coastal regions, the country was highly exposed to a range of natural disasters, including river, urban, and coastal floods; landslides; cyclones; extreme heat; and wildfires (ThinkHazard! accessed 11/08/2024; NUPI/SIPRI 15/05/2024).

COMPOUNDING AND AGGRAVATING FACTORS

Political crisis, armed conflict, and displacement

On 1 February 2021, Myanmar's military seized power from the democratically elected National League for Democracy (NLD) Government. In the three years following the coup, the military junta, known as the SAC, has violently suppressed anti-coup protests and repeatedly extended a declaration of emergency that was still active by 20 August (OCHA 15/01/2023; CFR accessed 16/08/2024; Crisis24 01/02/2024). In response to the coup, NLD politicians and activists formed the parallel National Unity Government (NUG). In September 2021, the NUG declared a people's defensive war and facilitated the creation of people's defence forces across Myanmar, many of which have formed anti-SAC coalitions with longstanding EAOs. For the past three years, these armed resistance groups have carried out armed operations in most states and regions (OCHA 15/01/2023; ISDP 10/2015; TNH 05/02/2024).

Recent floods have worsened the humanitarian crisis resulting from the conflict in regions such as Ayeyarwady, Kachin, and Shan. These regions, already grappling with conflict and displacement, face additional challenges from extreme weather events (GJIA 09/06/2024; NUPI/SIPRI 15/05/2024). On 27 October 2023, a coalition of EAOs known as the Three Brotherhood Alliance launched a military offensive (Operation 1027) in northern Shan state (OCHA 09/11/2023). Other armed resistance groups have since mounted attacks on the MAF in all of Myanmar's states and regions (OCHA 15/12/2023; The Guardian 30/01/2024; The Irrawaddy 16/01/2024; BNI 03/02/2024). Until 29 July, the total number of IDPs in Myanmar was around 3.3 million (UNHCR accessed 23/08/2024; OCHA 21/11/2023; UNHCR 23/01/2024).

- **Kachin:** fighting has intensified between the MAF and Kachin Independence Army since March 2024, causing displacement and casualties in townships including Bhamo, Hpakant, Mansi, Momauk, Myitkyina, Putao, Sumprabum, Tanai, and Waingmaw (OCHA 09/06/2024; UNHCR 03/07/2024; Myanmar Now 18/07/2024). Since the end of July, there has been intense fighting in Bhamo, Momauk, and Myitkina in particular, complicating access to these townships (BNI 02/08/2024). A communications blackout began across Kachin state on 20 July and was still in effect by 16 August (RFA 30/07/2024). The blackout may be hampering the coordination of assistance and contact with affected communities.

- **Magway:** throughout July, fighting between the MAF and armed resistance groups escalated in northeastern Magway near the Mandalay border, particularly around Chauk and Pakokku townships (Myanmar Now 19/07/2024; Mizzima 25/07/2024). Security-related access constraints in these areas have likely increased.

- **Sagaing**: until 26 July, MAF aerial attacks and shelling continued to affect Sagaing region.

At the end of the month, the MAF raided villages across Kanbulu township, burning homes and displacing around 10,000 people (RFA 26/07/2024). Some of the worst internet restrictions in Myanmar also affect Sagaing (RFA 30/07/2024).

- **Shan:** fighting between the MAF and several armed resistance groups has escalated in northern Shan since the end of June. By 1 August, there were intense clashes in Lashio, northern Shan's capital, and towns including Kyaukme, Mongmit, and Nawnghkio (AJ 01/08/2024; The Irrawaddy 31/07/2024). Insecurity, the presence of landmines and explosive remnants of war (ERW), and destroyed roads inhibit access to these parts of northern Shan and to Hsihseng, Moebye, Phekon, and some areas of Pinlaung township in southern Shan (UNICEF 10/07/2024; AJ 01/08/2024).

Landmine and ERW contamination

In the first half of 2024, landmines and ERW resulted in 692 civilian casualties, equal to 66% of the 1,052 reported in the entirety of 2023. Every state and region in the country experienced these hazards, with children making up 32% of the casualties. Shan region had the highest number of casualties at 24%, followed by Sagaing region with 17% and Rakhine state with 12%. The remaining regions collectively accounted for 47% of the casualties (UNICEF 15/08/2024).

Concerns about landmines, the actions of military troops, and armed conflicts in the central Myanmar regions of Sagaing and Magway, which respectively rank as the third and fifth largest paddy production areas in the country, further worsen the situation as they increase the likelihood of injury and displacement by unexploded ordnance among farmers (Mizzima 17/06/2023; UNICEF 07/11/2023).

Flooding can dislodge landmines and ERW, making them more likely to be accidentally triggered, exposing displaced people moving to unfamiliar areas to heightened risks of injury or death.

Poverty and economic crisis

Myanmar's poverty rate reached 49.7% in early 2024, the highest since 2015, because of a decline in industrial production and income levels. Poverty is spreading across the country, affecting even wealthier states such as Mandalay and being particularly high in Sagaing, which had the fourth-highest poverty headcount in the country by June 2024 (WB 12/06/2024; UNDP 11/04/2024; OCHA 09/06/2024).

Conflict-affected regions exhibit heightened poverty rates because of factors such as destroyed homes, limited access to farmland, and large-scale displacement. These areas have the highest poverty rates, including Kayah (67%), Chin (63%), and Sagaing (57%), which have the highest rates of people without a secondary income source and who face intense conflict, also report the lowest per capita income. Kachin and Sagaing had the third and fourth highest poverty rates at around 64% and 61%, respectively (UNDP 11/04/2024). Poverty has pushed households to increasingly adopt coping mechanisms with potentially negative outcomes and asset-depleting strategies, such as the sale of household equipment (OCHA 07/06/2024).

Because the majority of the affected depend on agriculture for income, the loss of income as a result of the destruction of farmlands from flooding is likely to drive more people into poverty. Myanmar's economy has faced significant challenges because of currency devaluation. Since early 2024, the Myanmar kyat has depreciated rapidly against the US dollar, losing nearly 20% of its value by June. This economic downturn has led to a widening gap between the official and parallel exchange rates, fuelling inflation and eroding purchasing power. Consequently, the cost of imports has surged while export earnings have diminished, further aggravating the economic crisis (WB 12/06/2024).

Conflict in Myanmar has already severely affected livelihoods and economic activity. With predictions showing more flooding through the monsoon season, this will further affect livelihoods, driving more people into poverty (MPA 16/07/2024; DMH accessed 30/07/2024). According to a 2023 UNDP survey, monthly income per capita was notably lower in all conflict-prone areas (UNDP 11/04/2024). The conflict has disrupted trade and economic activities within Myanmar, significantly affecting border trade and decreasing exports and imports by 13% and 20%, respectively, in the first six months of 2024 compared to the previous year. This trade disruption has had a devastating impact on border states, leading to economic hardship and increased poverty levels (WB 12/06/2024; UNDP 11/04/2024).

Land use and topography

Myanmar's geographic and climatic conditions make it highly susceptible to landslides. The country's mountainous terrain, coupled with heavy monsoon rains, creates a favourable condition for flooding and landslides (GFDRR 11/2015; UNDRR 27/01/2021). The presence of floodplains largely influences flood exposure, and Myanmar is home to around 60 major rivers, including the Ayeyarwaddy, Chindwin, Sittaung, and Thalwin Rivers. Most of these rivers flow from the north to the south, eventually draining into the Bay of Bengal (NMI 14/09/2017). In 2015, similar severe flooding and landslides had a significant impact, affecting

2,952,753 hectares of rice cultivation (20.4% of the total production area) (UNDRR 24/01/2024). In 2019, the monsoon triggered landslides linked to mining activities in Mon state, causing landslides that killed at least 41 people (FloodList 11/08/2019).

Human activities have aggravated the occurrence of landslides and flooding in Myanmar. The economic hardships resulting from the conflict have driven many rural Myanmar residents to unsustainable livelihoods, including charcoal production. At the same time, deforestation increases flood risks by reducing the soil's ability to hold and absorb water and destabilises slopes, making the country more susceptible to landslides. Unregulated mining, particularly in mineral-rich areas such as Kachin state, has also created unstable conditions through the excavation of deep pits and the removal of natural support systems. Mining increases runoff, destroys riverbeds, and increases water flow. The rapid expansion in mining activities has also deteriorated the water quality in many rivers, including Ayeyarwady and Chindwin Rivers (Kyaw Htun accessed 01/08/2024; RFA 05/06/2024; SEI 29/07/2015).

Deforestation has intensified as a coping mechanism for declining income and unreliable electricity supply. The destruction of mangroves, which serve as natural barriers against cyclones (such as Cyclone Mocha that hit the country in 2023), has further compromised the country's climate resilience (GJIA 09/06/2024; EAF 09/11/2023; WB accessed 12/08/2024).

Map 2. Landslide susceptibility in Myanmar by state
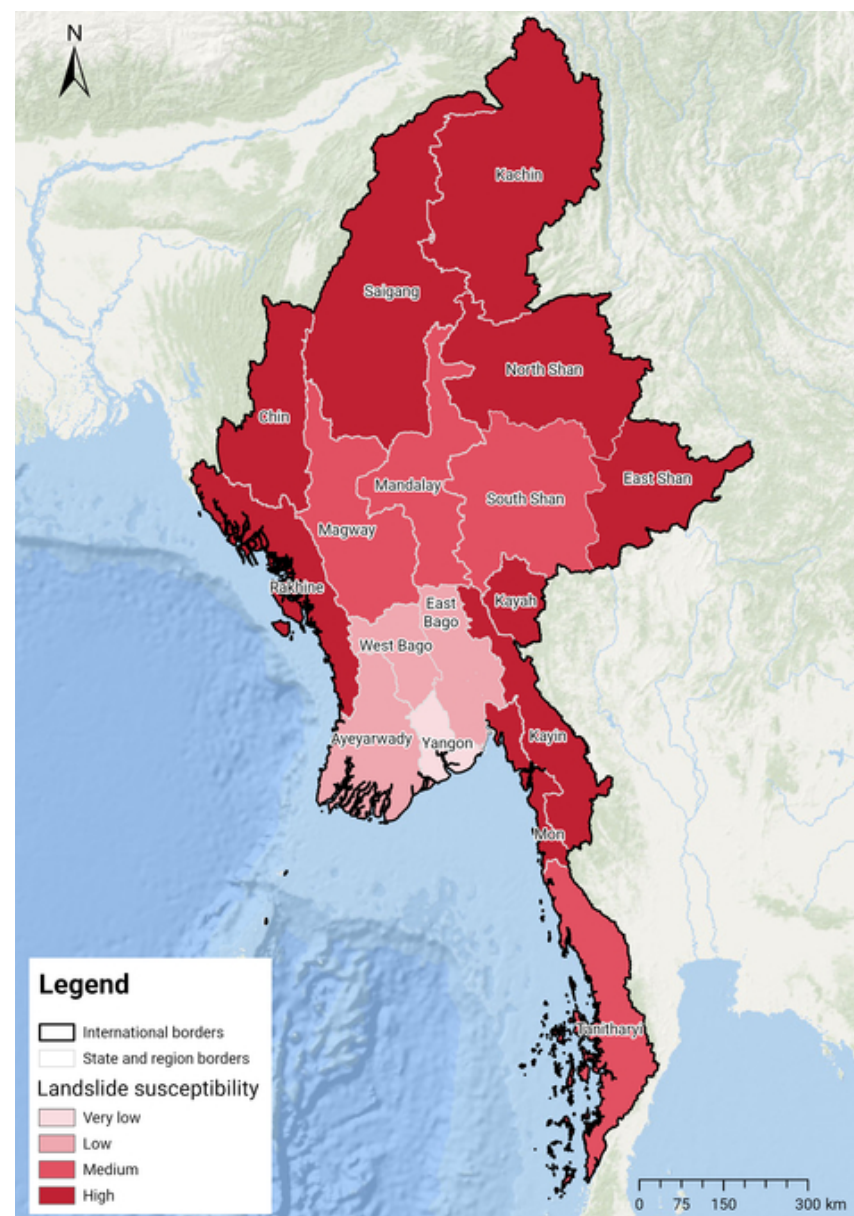
Source: ACAPS with data from ThinkHazard! (accessed 02/08/2024)

HUMANITARIAN RESPONSE

Humanitarian constraints

ACAPS' 2023 Humanitarian Access Index classifies Myanmar's access constraints as extreme. Violence and insecurity between the MAF and EAOs particularly constrain access to conflict-affected and non-military controlled areas in Bago, Kachin, Sagaing, and Shan (MSF 17/04/2024; CORE 22/04/2023; ACAPS 05/07/2023).

Since the start of the monsoon season, Thayarwaddy and Okpho townships in western Bago region have experienced above-average rainfall. By 30 July, this heavy rainfall had led to landslides, dam overflows, and significant damage to roads and bridges, which will likely hinder access to affected communities (MPA 30/07/2024).

By 19 August, the country was facing widespread fuel shortages, affecting the humanitarian response across the country (RFA 14/08/2024; Mizzima 19/08/2024).

Laws enacted in 2022 to control the operations of NGOs and INGOs in Myanmar have further increased bureaucratic barriers for these organisations, reducing the reach and access of people in need of assistance across the country (CLD 21/08/2023).

Conflict between the MAF and armed resistance groups has posed significant humanitarian access constraints in all states and regions of Myanmar since 2021 (see Section 4 for context) (UNICEF 10/07/2024; UNHRC 14/03/2024; Frontier Myanmar 29/07/2024; RFA 25/04/2024). In this context, regional organisations have been providing the bulk of assistance (OCHA 18/12/2023). At the same time, the conscription law has led many of the responders of regional NGOs to flee to neighbouring countries, severely affecting humanitarian operations (Sida 31/03/2024).

- **Ayeyarwady:** floodwaters submerged intervillage roads in Kangyihtaung township, Pathein district, Ayeyarwady region, after the water levels of Dakha River rose from the torrential downpours. These downpours and rise in water levels have inundated Kyunlyarshae-Dhakawa and Pyinmangue-Hteinbingone intervillage roads (MDN 29/07/2024). At the same time, flooding in Kangyidaunt, Kyaunggon, and Yekyi townships along the Pathein-Hinthada-Kyangin railway section has disrupted railway operations (GNLM 30/07/2024).

- **Bago:** the flooding has caused the collapse of at least four bridges. By 30 July, in Tharrawaddy township, the bridge near Sharseebo village (Taung Su) on the Inn Ywa-Bee Lam Road and the bridge on the Ahlelkone-Pho Khaung-San Yway Road were damaged. On 26 July, San Yway Bridge No. 2, which connects San Yway and Nyaung Thar villages in Tharrawaddy township, was also damaged (MPA 30/07/2024). Although bridges inundated in past floods have been repaired within about a month, this could still delay aid delivery, hamper evacuation efforts, and increase transportation costs (GNLM 29/11/2016).

By 29 July, the overflowing of the Bago River (with water levels exceeding the danger level of 880cm by 97cm) had affected the Yangon-Mandalay Highway in Bago. By 30 July, flooding had occurred on the railways between Bago and Phayagyi Stations on the Yangon-Mandalay line, as well as between Bago and Kali Stations on the Bago-Mawlamyine line (GNLM 30/07/2024).

RESPONSE AND FUNDING

Despite the Government's efforts to improve preparedness and response mechanisms, the country continues to encounter substantial challenges. The conflict has worsened resource constraints and hindered disaster management initiatives. Limited infrastructure, geographic barriers, and a lack of public awareness contribute to the country's vulnerabilities. Although dedicated organisations are working on the disaster response, the overall capacity remains constrained, especially in reaching remote and conflict-affected areas of Chin, Kachin, Magway, Rakhine, Sagaing, and Shan states (ADRC 2022; ADB 03/2017; Tun and Lassa 14/02/2023).

Until 7 August, WFP and IFRC were providing food, shelter, healthcare, protection, and livelihood assistance to at least 120,000 flood-affected people in Ayeyarwady, Bago (East), Bago (West), Kachin, Kayin, Magway, Mon, Sagaing, Tanintharyi, and Yangon (WFP 07/08/2024; IFRC 10/08/2024).

Information regarding the presence and activities of UN agencies, INGOs, and NGOs in the affected regions is limited. Conflict and insecurity severely restrict humanitarian access, hindering the delivery of aid and assistance (OCHA 09/06/2024).

By 26 July, the Myanmar Government had provided rice, canned fish, and cash in relief supply to flood-affected people, totalling over MMK 390 million (about USD 120,000) (Social News XYZ 26/07/2024). On 29 July, rescue and relief operations were initiated in the flood-affected regions and states. Personnel from the Tatmadaw, fire brigades, police force, and relevant government departments, in collaboration with charity volunteers, were deployed to assist those in need (GNLM 29/07/2024). The absence of government control in regions governed by EAOs, such as Shan and Kachin states, significantly hinders disaster response efforts. The lack of trust between the State and these communities further complicates humanitarian operations, limiting access and effectiveness across affected areas (Lowy Institute 12/05/2024).