

Tropical Cyclone Freddy exposure and vulnerabilities

CRISIS OVERVIEW

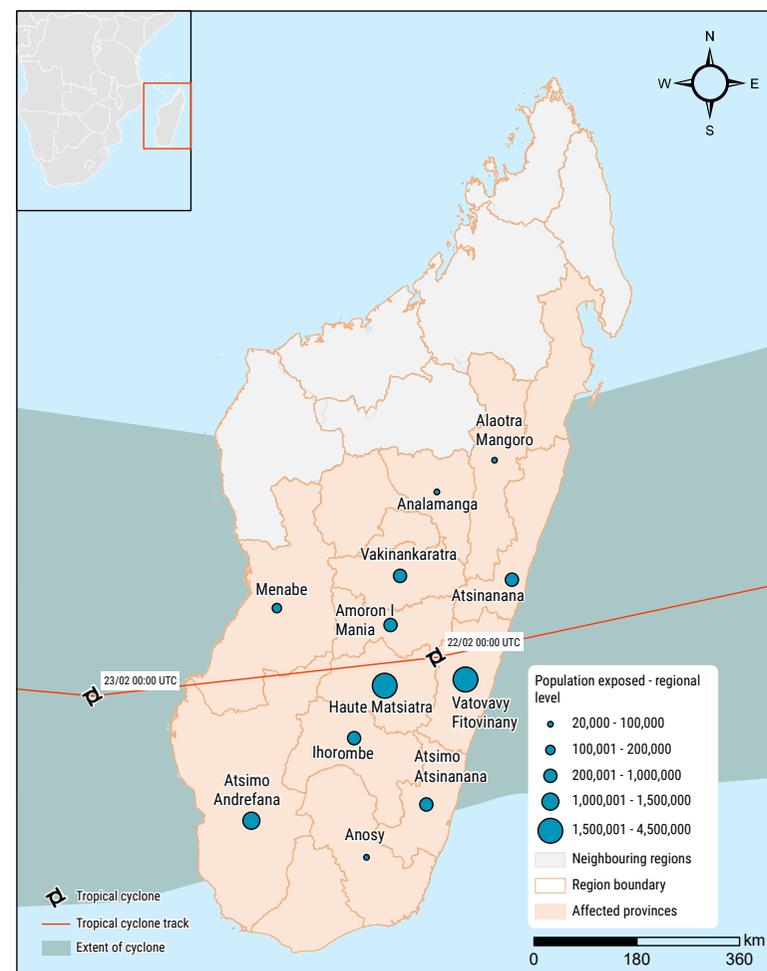
On 21 February, Tropical Cyclone Freddy made landfall as a category 3 cyclone on the southeastern coasts of Madagascar (BBC 21/02/2023). The cyclone hit four of the six provinces in the country. Fianarantsoa is likely the most affected province, with more than ten million residents exposed to the cyclone's maximum intensity, including more than two million people exposed to devastating 120km/h winds.

Freddy landed north of Mananjary, a coastal town of 25,000 people that was still suffering from the effects of Cyclone Batsirai, which killed more than 130 people across the country in 2022 (France 24 21/02/2023).

The current tropical cyclone is likely to cause heavy rains, sustained winds, and storm surges that will trigger flash floods and damage trees and infrastructure. Flood risk is particularly high in central parts of the island, as soils are already saturated from the impact of Cyclone Cheneso, which stalled off the west coast of the island and brought torrential rains in late January 2023. Cheneso affected over 90,000 people, including 33 who died and 20 still missing. Currently, about 34,000 people are still homeless (OCHA 20/02/2023).

The capital city, Antananarivo, will likely not be among the worst affected areas, but it could still receive up to 50mm of rain, with wind gusts of up to 60km/h (AccuWeather 18/02/2023).

Population exposed to Tropical Cyclone Freddy in Madagascar



Source: WFP (accessed on 21/02/2023), GDACS (accessed on 20/02/2023)

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About this report

Aim: the report aims to provide a brief overview of the key regions exposed to Tropical Cyclone Freddy and highlight existing vulnerabilities that might increase the needs of the exposed population.

Methodology: the report is based on a secondary data review of publicly available sources.

Limitations: at the time of writing (on 21 February 2023), the cyclone was still a few hours off the coasts of Madagascar, limiting the information available on its actual impact.

Scope: although Mozambique is also anticipated to experience the impact of Cyclone Freddy, this report focuses exclusively on Madagascar. The country is projected to be the most affected given its exposure to the cyclone's maximum strength and pre-existing vulnerabilities.

EXPECTED IMPACT

Intensity

On 21 February 2023, the Global Disaster Alert and Coordination System issued a red alert for the cyclone, which had reached a maximum wind speed of 250km/h and was expected to bring rainfall amounts of 100–200mm along its path (GDACS accessed 21/02/2023). The cyclone continues to tear across the country on 22 February, sweeping through some of the same areas that faced days of flooding from the rain and damaging winds brought about by Tropical Cyclone Cheneso in January (AccuWeather 18/02/2023).

Batsirai and Emnati, which tore through southeastern Madagascar in 2022, were category 3 cyclones. They killed more than 200 people and caused significant crop and infrastructure damage, including the severe flooding of 60,000 hectares of rice fields (STC 17/02/2023; FEWS NET 31/03/2022).

Exposure

The table below provides an overview of the population exposed to the cyclone at the provincial and regional levels.

Tropical Cyclone Freddy exposed population

		POPULATION			TOTAL
		60km/h	90km/h	120km/h	
PROVINCE	REGION				
Fianarantsoa	Amoron I Mania	687,131	67,912	7,184	762,227
	Atsimo-Atsinanana	638,618	1,202	0	639,820
	Vatovavy Fitovinany	1,870,352	1,323,713	1,104,569	4,298,634
	Haute Matsiatra	1,198,778	1,181,457	1,118,414	3,498,649
	Ihorombe	560,936	207,549	100,560	869,045
	Total (Fianarantsoa)	4,955,815	2,781,833	2,330,727	10,068,375
Toamasina	Atsinanana	529,250	26,962	394	556,606
	Alaotra Mangoro	92,218	0	0	92,218
	Total (Toamasina)	621,468	26,962	394	648,824
Toliara	Menabe	153,375	9,241	2,400	165,016
	Anosy	95,705	0	0	95,705
	Atsimo-Andrefana	999,261	266,788	203,226	1,469,275
	Total (Toliara)	1,248,341	276,029	205,626	1,729,996
Antanarivo	Analamanga	19,875	0	0	19,875
	Vakinankaratra	816,517	0	0	816,517
	Total (Antanarivo)	836,392			836,392
Madagascar	Total exposed	7,662,016	3,084,824	2,536,747	13,283,587

Source: ACAPS using data from WFP (21/02/2023)

PRE-CYCLONE HUMANITARIAN OVERVIEW

Food insecurity and malnutrition

More than 3.8 million people are in need of humanitarian assistance in Madagascar in 2023 following a catastrophic drought in the Grand Sud from 2021–2022 and devastating cyclones in the Grand Sud-Est in 2022. At least 1.35 million people are expected to face Crisis (IPC Phase 3) or worse food insecurity outcomes during the peak of the lean season from January–April 2023, including 157,314 facing Emergency (IPC Phase 4) outcomes. Between November 2022 and March 2023, almost all districts in the Grand Sud-Est were facing IPC 3 outcomes, while approximately 95,000 people were experiencing IPC 4 outcomes (IPC 04/01/2023).

Communities are still struggling to recover from the effects of Tropical Cyclones Batsirai and Emnati, which both landed in February 2022. Major crop losses were recorded in the region in June 2022, with a loss of up to 65% of food crops and 80% of cash crops (IFRC 04/02/2022; USAID 02/09/2022; OCHA 19/02/2023).

The nutritional situation in Atsimo-Atsinanana region, in Fianarantsoa Province, is particularly concerning. Out of the five districts in the region, one (Befotaka) is in a critical situation, with a global acute malnutrition (GAM) rate of over 15%; two (Farafangana and Midongy) are in a severe situation (with a GAM rate between 10–15%); and two (Vangaindrano and Vondrozo) are in an alert situation (with a GAM rate between 5–10%) (OCHA 19/02/2023).

Livelihood vulnerabilities

An estimated 90% of the population in southern Madagascar depends on agriculture, livestock, and fishing. In the past 20 years, consecutive droughts, pest infestations, and climate shocks have heavily affected peoples' livelihoods and resilience to natural hazards (UNU 23/11/2022). Most farmers rely on rain-fed subsistence farming for crops like rice, cassava, bananas, maize, and sweet potatoes, with poor yields that do not keep up with population growth (CB 01/12/2021).

The lean season in southern Madagascar runs from December–February, and from March–April in the northern and central regions. Cyclones usually hit the country from January–February, worsening the effects of the lean season and damaging crops less than one month from the harvest time in March/April (FEWS NET accessed 21/02/2023; IFRC 16/12/2021).

AGGRAVATING FACTORS

Climate change

Madagascar is one of the thirty countries most vulnerable to climate change across the globe (Inform Climate Change accessed 21/02/2023). Climate change has made tropical storms and cyclones more intense and destructive (WMO 12/04/2022). In Madagascar specifically, extreme weather events have become increasingly frequent and intense. From 1996–2016, Madagascar has been struck by 35 cyclones, eight flooding events, and 5 periods of severe drought, a threefold increase over the previous 20 years, causing USD 1 billion in damage and affecting food security, drinking water supply and irrigation, public health systems, environmental management, and the quality of life in the country (Climate Links 30/06/2016).

HUMANITARIAN ACCESS

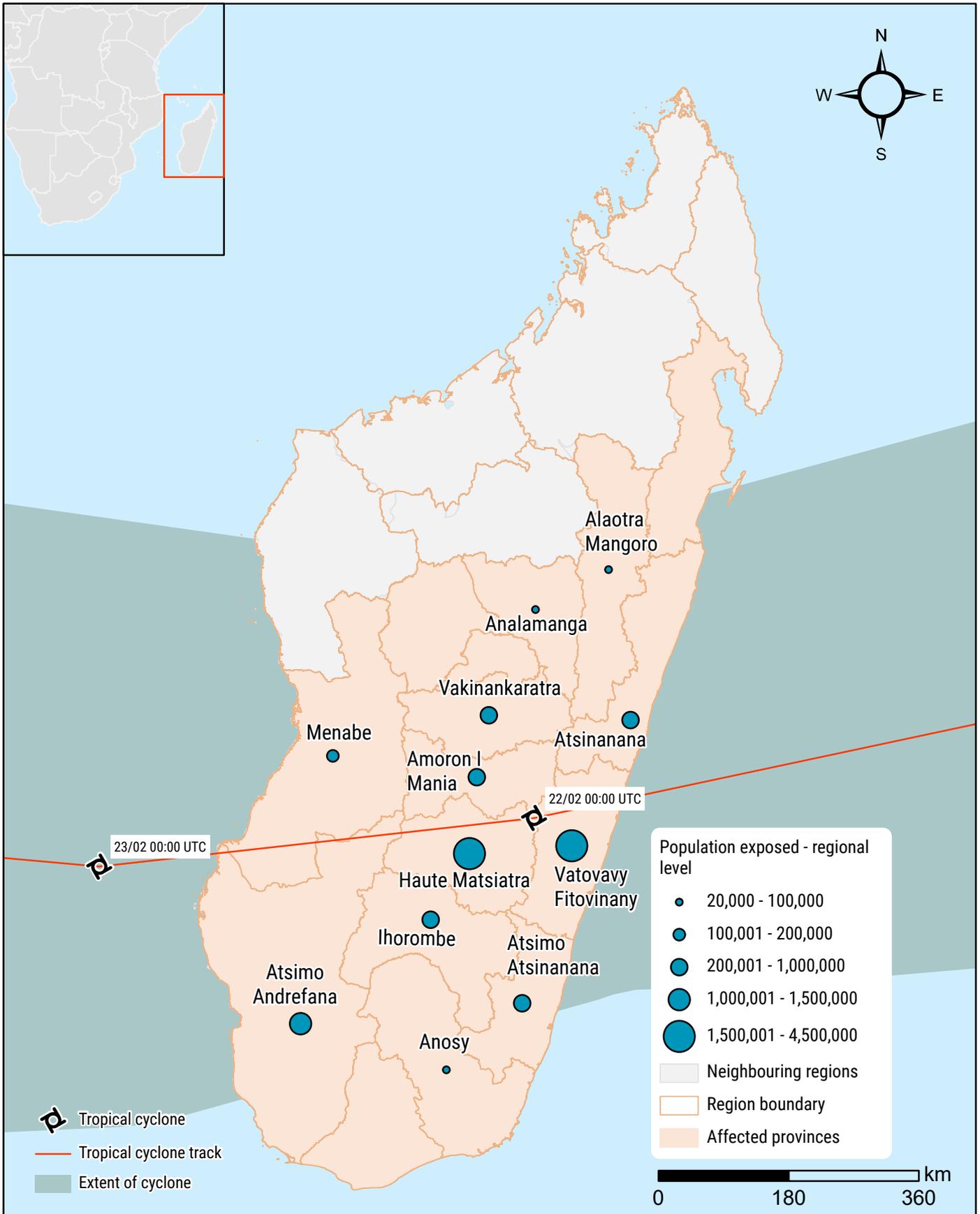
Access of people to essential services

An estimated 60% of Madagascar's population lives more than 5km from a health facility, usually in extremely rural and hard-to-reach locations with poor or no roads. Health facilities face shortages of supplies and health personnel, with the physician-to-patient ratio in the country falling at 0.2 for every 1,000, compared to a global standard of one physician per 1,000 people in 2022 (The Global Fund 25/11/2022; WHO accessed 21/02/2023; USAID accessed 21/02/2023; WHO 22/03/2022).

Physical access

Madagascar ranks 132nd out of 148 countries in terms of overall quality of infrastructure (Log Cluster accessed 21/02/2023 a). Many roads in the country are impassable during the rainy season, which runs from November–April, especially those in the provinces prone to cyclones. Only 10% of the 31,640km of roads in the country are in good shape and usable all year, 28% are in moderate condition, and 64% are in poor condition (Log Cluster accessed 21/02/2023 b; FEWS NET accessed 21/02/2023). The country has six international airports (Antananarivo, Antsiranana, Majunga, Nosy Bé, Taolagnaro, and Toamasina) and three major commercial seaports (Antsiranana, Majunga, and Tamatave), which account for 80% of the import and export of goods (Log Cluster accessed 21/02/2023 a).

POPULATION EXPOSED TO TROPICAL CYCLONE FREDDY IN MADAGASCAR



Source: WFP (accessed on 21/02/2023), GDACS (accessed on 20/02/2023)

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