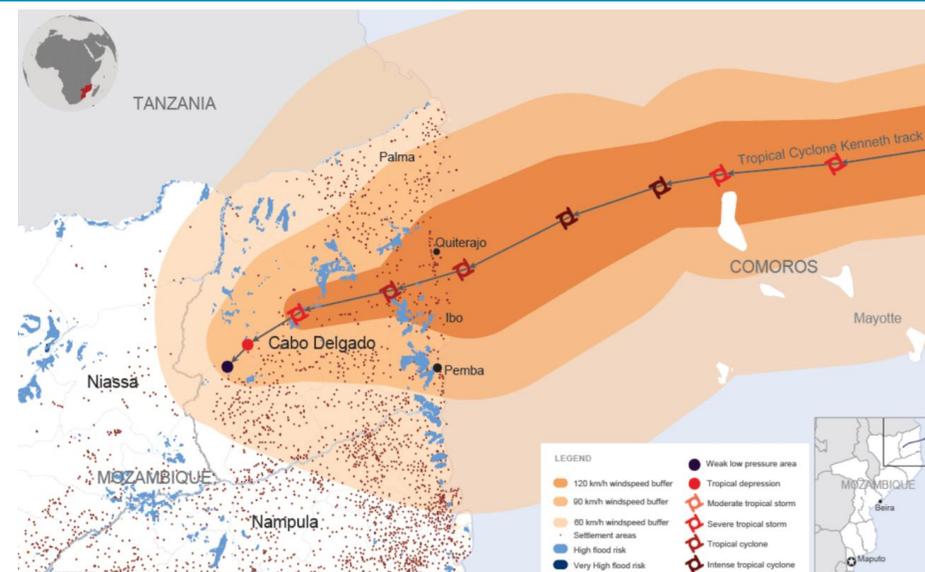
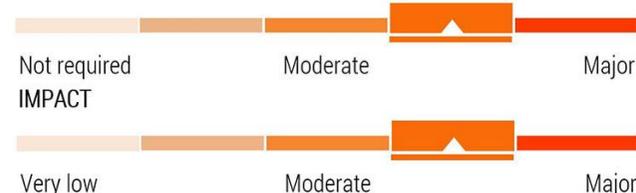


# MOZAMBIQUE

## Tropical Cyclone Kenneth

Tropical Cyclone Kenneth made landfall on the evening of 25 April 2019, about 100km North of Pemba city, Cabo Delgado province. It is estimated that 740,000 people have been exposed to winds of around 220km/h, and preliminary government estimates indicate that 163,000 people were directly affected. At least 5 deaths have been reported, and some 23,700 people have been displaced to transit and evacuation centres in Pemba, Quissanga, Mocimboa da Praia, and Metuge. Electricity and communications are down in some of the most affected areas. The full extent of the damage caused by the cyclone is still unclear, but initial assessments indicate that the districts of Macomia, Quissanga, and Ibo are the hardest hit, with the most urgent needs being food, water, and shelter.

### NEED FOR INTERNATIONAL ASSISTANCE



Source: OCHA 26/04/2019

### Anticipated scope and scale

Cyclone Kenneth has now slowed down and weakened into a tropical depression. It is forecasted to keep bringing significant rainfall over the next 10 days, about twice as much rain as Cyclone Idai. Rainfall is expected to be in excess of up to 750mm in some areas, leading to further flooding (especially in coastal basins) and potential access constraints. The impact on farmland is unclear, but damage to crops occurring at the beginning of the harvest season could severely impact food security in short and long-term. In addition, agricultural outputs in Sofala and Manica provinces were already comprised by devastation caused by Idai, and populations were relying on the North for supplying food.

### Key priorities



**+23,700 people**  
in accommodation centres



**+35,100**  
houses destroyed



**Insecurity & violence**  
since October 2017



**56% of the population**  
without access to clean water

### Humanitarian constraints



Electricity and communications are reportedly down in several districts, making it difficult to reach affected populations. Ongoing insecurity and violence across the district is likely to hamper relief efforts.

#### Limitations

The full picture of the impact of Cyclone Kenneth is still unclear, as it is expected to continue raining over the next few days, and initial assessments are still ongoing.

## Crisis impact

Tropical Cyclone Kenneth began forming North of Madagascar on 23 April, and quickly turned into a tropical cyclone on 24 April, passing through Comoros and causing significant infrastructure damage, 4 deaths, and the displacement of over 14,500 people. It was upgraded to Category 4 strength on 25 April, with wind sustained winds of around 220km/h, and wind gust of up to 270km/h (WMO 26/04/2019, The South Africa 25/04/2019, Accuweather 25/04/2019, Al Jazeera 25/04/2019, OCHA 25/04/2019, OCHA 28/04/2019). In Mozambique, cyclone Kenneth made landfall on 25 April, late afternoon, around 100km North of the city of Pemba, located in Cabo Delgado province, between Matemo and Tambuzi islands, in a fairly rural town called Mucojo. South of landfall, a storm surge of 3-5 metres high was recorded, which, combined with tides and rough surf, led to flooding (Accuweather 27/04/2019, WMO 26/04/2019). UNOSTAT projections from 23 April estimate almost 740,000 people in 12 districts in Cabo Delgado province are exposed to the cyclone, including 117,000 people in high wind speed zones of 120km/h (UNOSAT 23/04/2019).

*Estimated population exposed to Cyclone Kenneth:*

District	60km/h	90km/h	120km/h	Grand total
Ancuabe	26,267			26,267
Ibo	1,162			1,162
Macomia	76,226	552	6,133	82,881
Meluco	28,669			28,669
Mocimboa Da Praia	3,061	6,827	103,725	113,613
Montepuez	74,360			74,360
Mueda	89,351	43,628		132,979
Muidumbe	49,304	33,567	3,767	86,637
Nangade	40,985	36,919		77,904
Palma	51,880	1,111	3,451	56,443
Pemba	9,037			9,037
Quissanga	49,552			49,552

Source: UNOSAT 23/04/2019

Information about the impact is still incoming but Ibo, Macomia and Quissanga are reported as the hardest-hit districts, with entire villages destroyed. As of 27 April, five people are reported as killed and 11 injured. More than 23,700 people are sheltering in 39 accommodation centers across eight districts. Torrential rainfall (up to 750mm in some locations) is expected to persist in the coming days, resulting in widespread flash flooding and landslides, likely to bring about more damage to the province. River basins of Rovuma, Messaio, Montepuéz, Megaruma, and Lurio are particularly at risk of overflowing, potential impacting over 70,000 people. Over the next 10 days, the storm's remnants could trigger twice as much rain as Cyclone Idai did only a month prior in the central part of the country. This is the first time in Mozambique's recorded history that two cyclones hit within the same season, and the third ever in the North of the Mozambique Channel to evolve into a moderate tropical storm phase of higher (WFP 27/04/2019, IFRC 26/04/2019, AP 26/04/2019, BBC 26/04/2019, OCHA 25/04/2019, OCHA 24/04/2019, OCHA 28/04/2019). Initial reports also indicate some 42,000 people have been displaced due to rains and flooding in Nampula province, located south of Cabo Delgado province (WFP 27/04/2019).

**Shelter and NFIs:** The majority of houses in Cabo Delgado province are made of nondurable material, making them especially vulnerable to sudden-onset disasters such as storms and floods (INGC). More than 35,100 houses are reported to be either totally destroyed (approximately 3,800) or partially destroyed (approximately 31,300) (OCHA 28/04/2019). Macomia, Ibo, and Quissanga appear to be the most severely hit districts. In Macomia district, families had taken shelter in a church, however, the church's roof was then destroyed by the cyclone. 90% of houses were reported destroyed in Ibo island, where 7,000 people live (Club of Mozambique 27/04/2019, AP 26/04/2019). The government has established transit and evacuation centres, currently hosting over 23,700 people in Pemba, Quissanga, Metuge, and Mocimboa da Praia. 4,500 people are staying in 11 accommodation centres in Pemba city alone. Access to those centres is reportedly difficult (WFP 27/04/2019, CARE 27/04/2019, UNICEF 27/04/2019). The terrain in affected communities is precarious, and continuous rains over the coming days are expected to bring more flooding and landslide, leading to additional shelter damage (IFRC 26/04/2019).

**Food security and agriculture:** There is about 266,000 hectares of cultivated land across areas exposed to the cyclone, with cassava, maize, and sorghum being the main crops cultivated (INGC, FEWSNET 2014). Although the full impact on livestock and crops is currently unknown, flooding is expected to severely impact agriculture and rural livelihoods, as the main harvest season in Cabo Delgado spans from April to the beginning of July. Cyclone Kenneth occurred right at the beginning of the harvest season, meaning populations will have to wait until next April for the next harvest. This is likely have a negative impact on

food security in the area, especially if households do not have any food stocks (FEWSNET 28/02/2019, CARE 27/04/2019). In addition, agriculture and rural livelihoods were already fragilised by heavy rains that occurred in late January in Cabo Delgado and led to the destruction of 1,500 hectares of cropland (Club of Mozambique 24/01/2019). Many households rely on market purchases for basic foods, and access to food is expected to be increasingly challenging, if the cyclone impacts local markets leading to potential market disruptions, price increases, and decreased availability and quality of produce (FEWSNET 28/02/2019). Fishing is also prevalent in Massalo and Rocuma river, as well as in the coastal areas of Cabo Delgado where deep sea marine fishing is one of the main sources of livelihoods. There is a risk that the cyclone led to the destruction of fishing boats and equipment, disrupting livelihoods relying on fishing (FEWSNET 2014).

**Health:** As of 27 April, at least five people have died as a result of the cyclone and 11 are reported as injured (The Guardian 27/04/2019; OCHA 28/04/2019). It is possible the number of deaths and injuries sustained during the cyclone is higher. There are 107 health units serving Cabo Delgado province. Three health units are reportedly affected, however, their location is unclear (UNICEF 27/04/2019). As of 28 April, no cholera cases had been reported in affected areas. The combination of rising floodwaters, shelter destruction, damaged health and sanitation infrastructure, and population displacement represents a major risk for the proliferation of waterborne diseases such as AWD and cholera (Relief Direct 27/04/2019).

**WASH:** Access to drinkable water is challenging in Cabo Delgado province, where only 44% of the population is using safe water sources. The rest of the population is primarily accessing water through unimproved water sources (IPC Info 10/2018). The impact of the cyclone on infrastructure most likely led to the destruction of WASH facilities, including household latrines, and the disruption of water supply. There is a risk that not only will the population rely on unsafe, contaminated water sources, but that the prevalence of open defecation might also increase. This is likely to lead to the proliferation of waterborne diseases such as cholera.

**Protection:** Women and children face heightened protection risks, especially gender-based violence if the impact of the floods and cyclone has left them with precarious shelter conditions (OCHA 15/03/2019). Without adequate shelter facilities, children are at risk of being separated from their families, and more vulnerable to exploitation.

**Education:** According to the latest government figures, 31 schools were impacted by the cyclone, with at least 75 classrooms destroyed or damaged, affecting approximately 3,900 students (UNICEF 27/04/2019; OCHA 28/04/2019). There are reports of schools being destroyed in Macomia district (Club of Mozambique 27/04/2019, AP 26/04/2019). In addition to

schools being damaged and closed, there is a possibility that schools could be used as temporary accommodation centres, preventing children from attending school as normal and disrupting the regular school schedule.

## Impact on critical infrastructure

54 electricity poles were destroyed across the province, and nine districts in the North of Cabo Delgado (Meluco, Quissanga, Ibo, Macomia, Muidumbe, Mueda, Nangade, Mocimboa da Praia, and Palma) are reportedly without electricity (UNICEF 27/04/2019). The city of Premba one of the main urban areas of the province, also lost its power. Four ships sank off its coast, but no fatalities were reported (AP 26/04/2019). A least one bridge has collapsed in the North of Cabo Delgado, creating further access constraints (WFP 27/04/2019). Communications are down with Macomia district, being one of the most affected areas. A cellphone tower was destroyed in Ibo island, leaving no access to mobile service (Club of Mozambique 27/04/2019, OCHA 28/04/2019).

## Humanitarian and operational constraints

Due to the low internet penetration rate in Mozambique (only 10% of the population has access to internet) in combination with power outage, information is difficult to collect (Research ITC Africa 2019). Communications with Macomia and Muidumbe are completely down (IFRC 26/04/2019, Club of Mozambique 27/04/2019). The Northern districts of Cabo Delgado are the most difficult to access, as the road linking Macomia to Mocimboa, Palma, Mueda, And Nangade has been impacted by the overflowing of Muagamula river. Some road damage have been reported, a section of about 2km of the road linking Montepuéz to Meluco collapsed. As rainfall will persist in the coming days, road access it is possible road access will deteriorate even further (WFP 27/04/2019, Club of Mozambique 27/04/2019). Quirimba, Ibo, Matemo, and Tambuzi islands are completely isolated due to the flooding, and access by boat is reportedly impossible (WFP 27/04/2019).

## Vulnerable groups affected

Children are particularly vulnerable during flooding, due to higher risk of drowning or being separated from their parents. According to UNICEF, some 368,000 children in Cabo Delgado are at risk of being impacted by the cyclone (UNICEF 27/04/2019).

## Aggravating factors

### Rainy season

The rainy season in the North of Mozambique usually occurs between November and April. Cyclone Kenneth comes at the end of rainy seasons, when river levels are already high. Several rivers in the province are expected to overflow, most likely around 29 April. In particular, Messalo, Montepuéz and Megaruma rivers are at risk of overflowing, and could represent an additional flooding danger for some 14,000 people living in surrounding areas (WFP 27/04/2019, OCHA 26/04/2019, UNICEF 27/04/2019).

The effect of rain and erosion on the Chipembe dam near Montepuéz city is another cause for concern. Built in the 1970s and now in a state of abandonment, the dam is at risk of breaking due to heavy rainfall. It is located near a rural settlement of around 200 houses (GEAMA, 14/06/2017).

## Vulnerability to natural disasters

According to the World Meteorological Organisation, there have been 15 storms, including nine intense cyclones during this year's cyclone season in the Southwest Indian Ocean. It is tied with the record season of 1993/1994 (France 24 26/04/2019). The frequency and intensity of tropical cyclones off East Africa are increasing, with rising sea surface temperatures and warming weather creating ideal conditions for the formation of cyclones. This is the first time in recorded history that Mozambique is affected by two different cyclones during the same season. Due to global warming, not only will Mozambique's 2,400km coastline be increasingly vulnerable to climate hazards, inland areas will also be exposed to storms that are getting more intense (AP 26/04/2019).

## Food insecurity and drought

Mozambique is vulnerable to recurring drought, and the likelihood of a dry El Niño event between November 2018 and March 2019 has been revised to at least 80%, which has had a deteriorating impact on food insecurity in the country (IPC 10/2018, HRP 2018-2019). Insecurity is the main driver of food insecurity in Cabo Delgado, where violence is disrupting livelihoods and the agricultural season. IPC projections from January to March 2019 estimate that almost 47,000 people are in IPC 3 and 4 across the province, 2% of the population. The situation is particularly worrying in Macomia district, which has been severely impacted by the cyclone (FEWSNET 28/02/2019). Cabo Delgado also displays high rates of malnutrition, with a 6.4% GAM prevalence (alert situation, GAM 5-9.9%), especially in the districts impacted by the conflict: Quissanga, Macomia, Mocimboa da Praia, Nangade, and Palma (HRP 2018/2019, FEWSNET 28/02/2019). Levels of food insecurity are expected to rise following Cyclone Kenneth, as floods have both short and long-term impact of food security and livelihoods. Not only will the cyclone have localised effects, it is likely to also impact the rest of the country: after Cyclone Idai destroyed a significant

part of the harvest in the centre provinces of the country, the Northern provinces were expected to provide food for markets in other parts of the country. However, this is likely to be compromised due to the potential impact of Kenneth on cropland in Cabo Delgado.

## Political instability and insecurity

A violent Islamist insurgency has been ongoing in Cabo Delgado province since October 2017, with Macomia, Mocimboa Da Praia, and Palma being the most affected districts (ISS 14/06/2018, ACLED). There is a risk insecurity might hamper relief distribution and humanitarian access in districts most affected by violence.

### Cabo Delgado districts most affected by violence (October 2017 – April 2019)

District	# violent events	# fatalities
Macomia	26	65
Mocimboa Da Praia	33	75
Nangade	6	24
Palma	56	162
Pemba	10	27

Source: ACLED

## Diseases outbreaks

**Cholera:** Mozambique regularly suffers outbreaks of cholera and AWD during the December – April rainy season. As cholera is spread through contaminated water, the most affected communities are usually those having poor access to sanitation facilities, Children, especially under five, and pregnant women are particularly vulnerable (Direct Relief 22/03/2019). Mozambique suffered a major outbreak of cholera in Tete, Nampula, and Niassa provinces in 2015, and in Nampula and Cabo Delgado in 2017 (MSF 27/02/2015, WHO 19/02/2018). A cholera outbreak is currently ongoing in the central part of the country that was hit by Cyclone Idai in March 2019, with almost 6,600 cases recorded (OCHA 22/04/2019).

**Malaria:** Most of the country has year-round malaria transmission with a seasonal peak during the rainy season, which lasts from November to April in the north of the country. Floods have likely contributed to an increase in malaria transmission in recent years, particularly in low-lying coastal areas and along major rivers. Between 2015 and 2016 malaria cases increased by 17%, reaching 8.5 million cases, and nearly 10 million cases were recorded in 2017 (AllAfrica 26/04/2018, USAID 2018). A decline of 2.6% in malaria cases was recorded in the first nine months of 2018 compared to the same period the previous year, mainly due to the late start of the rainy season that extended the mid-season dry spell (Club of Mozambique 02/11/2018, HRP 2018/2019). Malaria is considered the most

significant public health problem in Mozambique, and accounts for 29% of all deaths. Among children under five, malaria accounts for 42% of deaths (USAID 26/10/2016).

## Key characteristics

- **Demographic profile:** According to the preliminary result of the 2017 Census, there are 2,333,278 inhabitants in Cabo Delgado (28,861,863 in Mozambique). The province has a land surface of 82,625km<sup>2</sup>, and population density of 28.2hab/km<sup>2</sup>
- **Food security figures:** 47,000 people are in IPC 3 and 4 in Cabo Delgado province according to IPC projections from January to March 2019
- **Nutrition levels:** 6.4% GAM prevalence in Cabo Delgado
- **Health statistics:** maternal mortality ration per 100,000 live births: 489; infant mortality rate per 1,000 live births: 53.3 (countrywide)
- **WASH statistics:** 56% of the population in Cabo Delgado is relying on unimproved water sources
- **Literacy levels:** literacy rate (15 years old and above): 56%

Sources: INE 2017, FEWSNET 28/02/2019, World Bank Data

## Response capacity

### Local and national response capacity

The local response is coordinated by the National Institute for Disaster Management (INGC), which has worked on disaster preparedness with the local INGC office in Pemba, using estimations of people in need and vulnerabilities in the area and pre-positioning relief teams on site (INGC, OCHA 25/04/2019). Authorities issued a 24 hours warning prior to the storm, advising communities living in areas at risk of flooding and landslides to move to elevated areas. In addition, 30,000 people from most at-risk areas were evacuated. As of 27 April, over 10,000 were reached with immediate assistance (OCHA 25/04/2019, OCHA 26/04/2019, AP 26/04/2019).

### International response capacity

A large number of international humanitarian actors are already present in-country currently responding to Cyclone Idai in Sofala and Manica provinces. In Cabo Delgado

province, humanitarian organisations are pre-positioned to support the response. IFRC volunteers were alerting communities in areas at risk of flooding and landslides. WFP, along with other agencies, is supporting the Mozambican government in the elaboration of an emergency plan (OCHA 25/04/2019, Reuters 24/04/2019). Existing relief efforts are currently focused on Cyclone Idai, and it is unclear how the response will adapt to respond to both crises simultaneously. Resources are already stretched, as the current humanitarian operation responding to Idai is currently severely underfunded, with around \$88 million USD received out of the \$390 million USD needed (Amnesty International 26/04/2019).

### Populations coping mechanisms

Although the region has been impacted by flooding in the past, Cabo Delgado has no history of dealing with cyclones. Affected communities are likely to be unprepared to the effects of the cyclone, and resilience to natural disasters appears to be quite low (UNICEF 27/04/2019).

## Information gaps and needs

- Assessments are currently ongoing, and it is difficult to estimate the full impact of the cyclone at the time of writing
- Information about existing internally displaced population in Cabo Delgado province is lacking
- Information on protection issues faced by vulnerable groups is difficult to collect
- Cabo Delgado has no history of cyclones, and information on coping mechanisms adopted by the population is lacking.

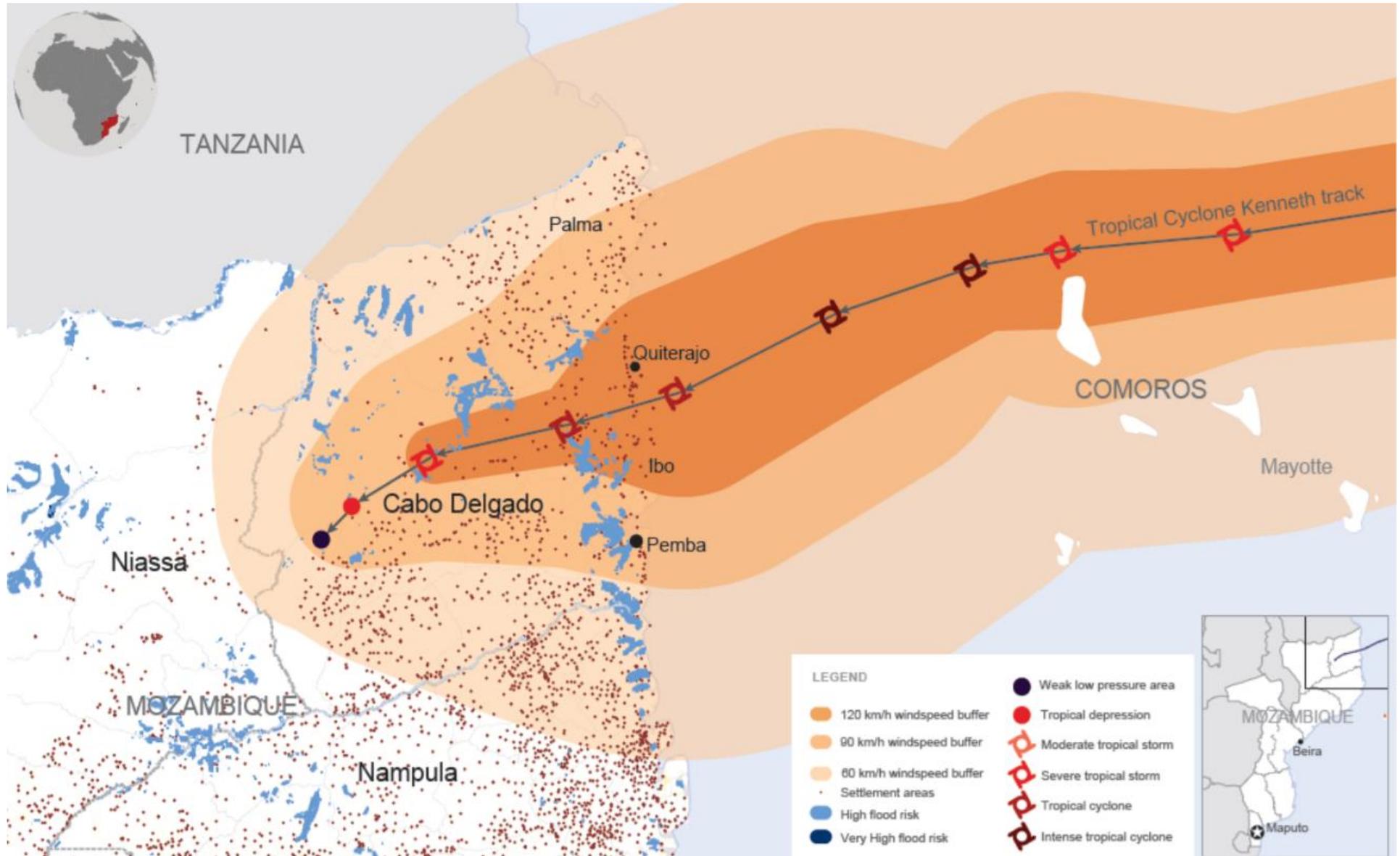
## Lessons learned

- Despite the effectiveness of early warnings, the development of more resilient infrastructures is imperative and urgent (UNDRR 18/03/2019). Risk management and mitigation is important in planning for disasters and is more effective in terms of life-saving assistance and reduction of economic losses, as opposed to disaster recovery (ECA 24/03/2019).
- The Order on Engineers of Mozambique has stated that all recovery and reconstruction operations should be an opportunity to provide a better-quality infrastructure to the population affected, rather than a combination of punctual

interventions. Despite the urgency to restore all destroyed infrastructure, rigorous criteria should be applied; infrastructure to be prioritised includes basic sanitation and domestic sewage, water supply system, drainage of rainwater, as well as infrastructures for energy supply and telecommunications and the already known works of coastal protection (O Pais 26/03/2019).

- The education sector is always affected by heavy rains, cyclones and floods in Mozambique. School infrastructure is vulnerable to weather events, given its diverse construction typology: conventional, mixed, and local material (UN 31/12/2016).

Map



Source: OCHA 26/04/2019