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Mozambique

Cyclones

Floods

Mozambique

Maputo

Forecast-based Financing

Mozambique

Mozambique's coastline measures 2,700 km along the Indian Ocean, and tropical cyclones regularly impact both the coast and the mainland.

A total of 104 rivers in Mozambique form 13 major river basins and 35 sub-basins, nine of which span international borders. Flooding due to extreme rainfall and storms is common along their shores. Human settlements and their economic activities concentrate along the coast and the major waterways, leading to hotspots of vulnerability in hazard-prone areas. Due to its low adaptive capacity, Mozambique's vulnerability to extreme weather events ranks as the third highest in Africa. Floods, tropical cyclones, droughts and epidemics acutely impact poor populations. Forecast-based Financing in Mozambique aims to reduce the impacts of extreme weather through anticipatory humanitarian action.

The concept of FbF

Anticipation instead of reaction: with **Forecast-based Financing (FbF)**, the International Red Cross and Red Crescent Movement is reshaping the future of the humanitarian system. Based on forecast information and risk analysis, FbF releases humanitarian funding for pre-agreed activities, referred to as **early actions**. These predefined measures aim to minimise the **impacts of extreme weather events and save human lives**. For early actions to be performed quickly and efficiently before disaster strikes, **funds are allocated automatically** when **a trigger** is reached, based on weather and climate forecasts. This is defined in the **Early Action Protocol (EAP)**. A **dedicated financing mechanism** is key for taking fast and effective action before disaster strikes: **Forecast-based Action by the DREF**.
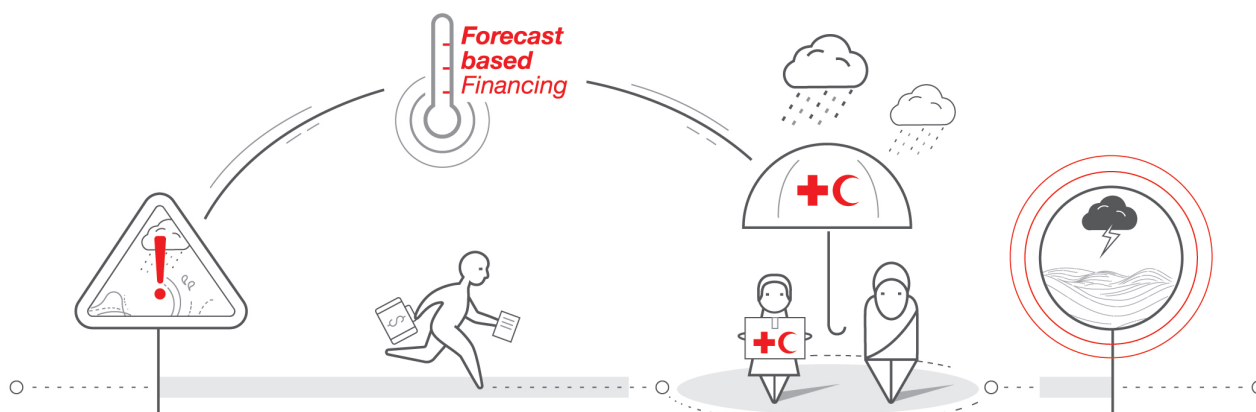
The FbF project in Mozambique

The **Mozambique Red Cross (CVM)** and the **German Red Cross (GRC)** have been working on establishing FbF in Mozambique since 2015, with the support of the **Red Cross Red Crescent Climate Centre (RCCC)** and the **German Federal Foreign Office**. CVM's country-wide cyclone protocol, approved in 2019, is the first EAP that has been accepted by the **FbA by the DREF** fund in Africa. A flood protocol for three major rivers – the Limpopo, the Buzi, and the Licungo – has also been submitted. With the support of the FbF team, CVM was able to swiftly deploy staff and relief items to the areas with the highest predicted impact before Tropical Cyclone Idai made landfall in March 2019. Lessons from this experience have been used to improve the existing FbF protocols.

Partners in Mozambique

FbF and the EAPs in Mozambique are jointly developed and implemented by the following stakeholders:

- The **CVM** is the main implementing organization and responsible for mobilizing funds, deploying staff, and implementing the early actions in the EAP upon activation. CVM receives technical support from the **GRC**, the **RCCC** and the **Belgian Red Cross-Flanders Centre for Evidence-based Practice (CE-**

BaP).
- **CEBaP** conducted research to identify the primary impacts of floods and cyclones in Mozambique and potential early actions.
- CVM has built important relationships with government authorities, including the National Institute for Disaster Management **(INGC)**, the National Institute for Meteorology **(INAM)**, and the National Directorate for Water Resource Management **(DNGRH)**, as well as **UN agencies** and the **Humanitarian Coordination Team (HCT)**.
- The **HCT** serves as the coordinating body among humanitarian actors in Mozambique and will therefore advise in updating the EAP.
- Activations of EAPs are funded through the International Federation of Red Cross and Red Crescent Societies' **FbA by the DREF**. IFRC will further provide guidance and support linked to procurement, PMER, and finance.

Aftermath of Tropical Cyclone Idai.

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Cyclones

Early Action Protocol: Cyclones

Tropical cyclones – known as hurricanes or typhoons elsewhere – pose a serious threat to Mozambique's population, as demonstrated by the devastating damage caused by Tropical Cyclone Idai in March 2019. CVM's FbF project thus aims to reduce the humanitarian consequences of cyclones. The Cyclone EAP is based on a historical analysis of cyclone impacts spanning the last 30 years. Based on risk assessments using data on past impacts, vulnerability and exposure, CVM prioritized 15 districts for preparedness and prepositioning. Early actions were designed to be relevant and useful for any of Mozambique's 43 coastal districts, thus assuring scalability. In order to facilitate smooth implementation, the FbF team monitors data from international forecast providers and begins no-cost logistical preparations before the formal trigger is reached.

How do cyclones affect the population?

Cyclones in Mozambique have dire implications for the coastal population. Destroyed houses, lost crops and assets and damage to public infrastructure are among the most critical impacts. For poor populations, the consequences of cyclones severely threaten lives and livelihoods. Further, cyclone-associated flooding leads to increases in water- and vector-borne diseases such as malaria, cholera and diarrhea.

Cyclone Early Actions

The pre-identified early actions are designed to assist up to 7,500 people in the affected area with a lead-time of 72 hours. Once the formal trigger has been reached (predicted wind speeds above 120 km/h), the implementation of early actions must be completed at least six hours before the cyclone makes landfall to ensure the population still has enough time to take shelter. Early actions include:

- **Distribution of shelter kits** to reinforce houses made of local or natural materials
- **Distribution of school-reinforcement kits** to strengthen school buildings against winds
- **Distribution of chlorine tablets and buckets** to assist households to keep access to clean water

Unloading of assistance items following Tropical Cyclone Idai in 2019.

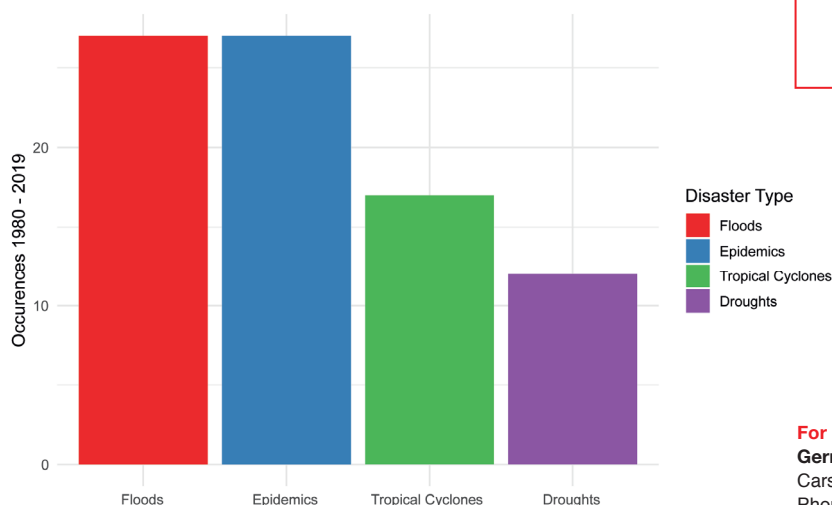© Denis Onyodi: IFRC/DRK/Climate Centre

Early Action Protocol: Floods

From 1980 to 2019, Mozambique experienced over 28 floods, affecting roughly 10 million people and resulting in more than 2,250 deaths[1]. Floods are thus responsible for more than 50% of disaster-related deaths. CVM's Flood EAP is designed for three major river basins: the Limpopo, the Buzi, and the Licungo. They are considered representative for other rivers which experience flooding, thus sketching a blue-print for scaling-up.

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Early warnings ahead of extreme weather.

How do floods affect the population?

In Mozambique, many vulnerable people live in low-lying areas close to major streams or the coast due to cultural and familial ties, as well as resources and economic opportunities available there. Loss of agricultural produce and housing is the most prevalent consequence of flooding. Particularly, common staple crops in Mozambique like maize, sorghum and groundnuts that are not resistant to submersion are susceptible. Loss of life and injuries can be a result of failing to evacuate promptly. In the aftermath of a flood, waterborne diseases and loss of assets are the most devastating impacts in rural communities. Destruction of drinking water sources or their contamination lead to diarrhea and cholera, and stagnant water supports mosquito-borne diseases.

Flood Early Actions

Flood-forecasting depends on several models and discharge measurements that vary between the three river basins chosen. The following early actions in Mozambique will be triggered 48 to 72 hours before the flood peak:

- **Evacuation assistance:** CVM will encourage and assist people to evacuate towards secure areas before the flooding starts and will distribute impermeable plastic folders to assist the safe storage of essential documents (birth certificates, ID cards, property titles, certificates, etc.)
- **Distribution of water purification materials, buckets, instructions** for their use, as well as **mosquito nets** in the evacuation sites

Most frequent extreme events in Mozambique 1980–2019.
Data: EM-DAT, 2019.

[1] DesInventar & PDNA 2019