

Learning from Cyclone Idai and Cyclone Kenneth to Inform Long-term Disaster Risk Reduction Programming in Mozambique



This brief is based on a Zurich Flood Resilience Alliance Post Event Review Capability (PERC) study analyzing the 2019 Cyclone Idai and Cyclone Kenneth impacts in Mozambique. This brief presents a series of resilience lessons from Cyclone Idai and Cyclone Kenneth based on key informant interviews and background research, and highlights opportunities to inform long-term Disaster Risk Reduction (DRR) programming in Mozambique. This product is accompanied by several other similar break out products as well as a longer report. An electronic copy of this brief and other materials from the study are available at: www.i-s-e-t.org/perc-cyclone-idai-2019. Additional information about the PERC can be found at www.floodresilience.net/perc and additional information about flood resilience at www.floodresilience.net*

*We define (disaster) resilience as the ability of a system, community, or society to pursue its social, ecological, and economic development and growth objectives, while managing its (disaster) risk over time, in a mutually reinforcing way, outlining the multi-faceted and interdisciplinary approach to resilience.

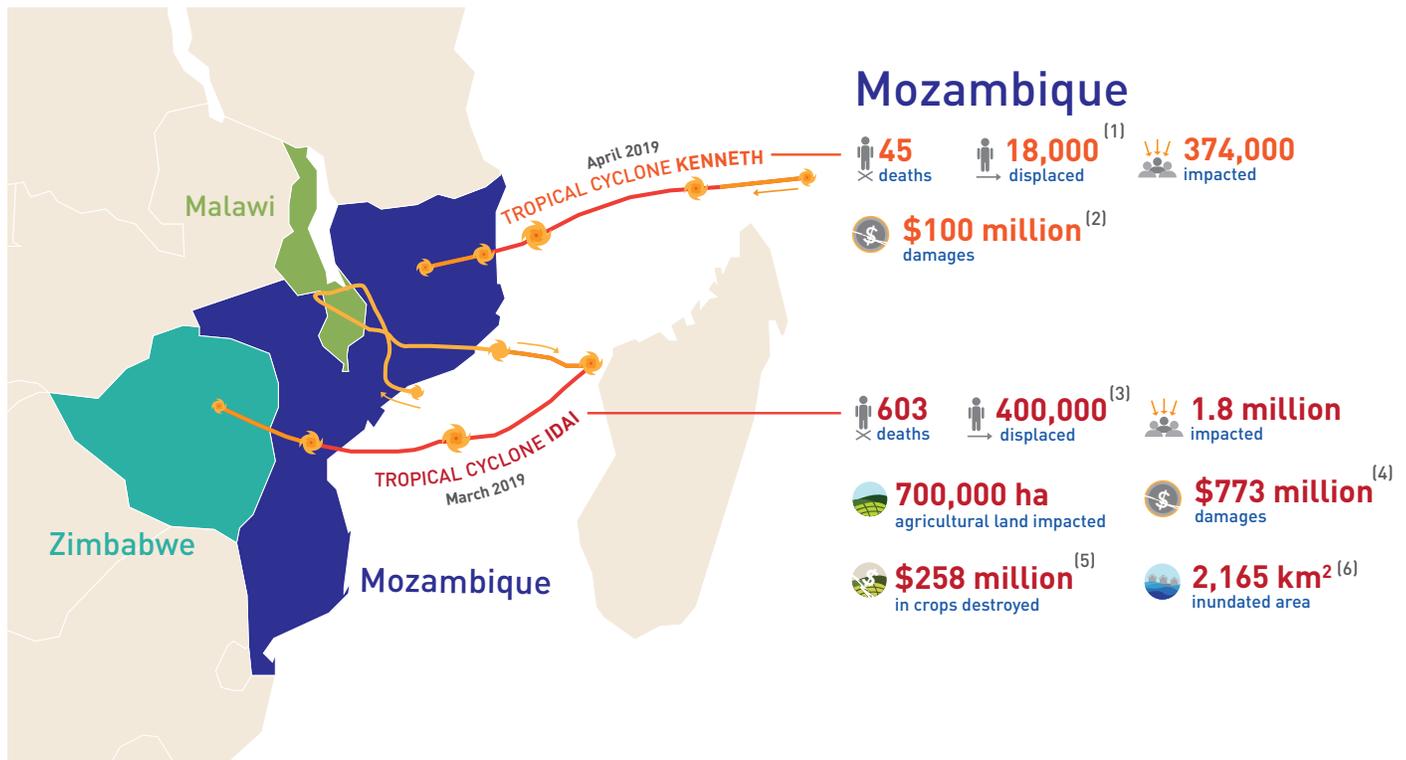
Introduction

The impacts of Cyclones Idai and Kenneth highlighted the need for far greater investment in Disaster Risk Reduction (DRR) in Mozambique. In March and April of 2019, the two cyclones made landfall in central and northern Mozambique causing widespread destruction, damage, and loss of life from strong winds, rainfall, and ensuing flooding. Cyclone Idai, a category 2 cyclone when it made landfall, was the deadliest storm ever to hit Africa and the largest humanitarian disaster of 2019, causing 1,300 deaths across southeastern Africa¹. Cyclone Kenneth, which made landfall a month later as a category 4 cyclone with wind gusts of

¹ Aon. (2019). *Weather, Climate & Catastrophe Insight 2019 Annual Report*. <https://reliefweb.int/sites/reliefweb.int/files/resources/20200122-if-natcat2020.pdf>

FIGURE 1

The impacts of Cyclone Idai and Cyclone Kenneth in Mozambique



Note:

- (1) OCHA. (2019). *Cyclones Idai and Kenneth*. <https://www.unocha.org/southern-and-eastern-africa-rosea/cyclones-idai-and-kenneth>
- (2) Aon. (2019). *Weather, Climate & Catastrophe Insight 2019 Annual Report*. <https://reliefweb.int/sites/reliefweb.int/files/resources/20200122-if-natcat2020.pdf>
- (3) Government of Mozambique. (May 2019). *Mozambique Cyclone Idai Post Disaster Needs Assessment*.
- (4) World Vision. (2019). *2019 Cyclone Idai: Facts, FAQs, and how to help*. <https://www.worldvision.org/disaster-relief-news-stories/2019-cyclone-idai-facts>
- (5) Gulland, Anne. (7 August 2019). *Floods and drought: the challenges facing Mozambique's farmers after cyclone Idai*. The Telegraph. <https://www.telegraph.co.uk/global-health/climate-and-people/floods-drought-challenges-facing-mozambiques-farmers-cyclone/>
- (6) United Nations Institute for Training and Research. (20 March 2019). *UNOSAT MOZAMBIQUE Sofala province Imagery analysis: 19 and 20 March 2019*. https://reliefweb.int/sites/reliefweb.int/files/resources/UNOSAT_A3_Natural_Portrait_TC20190312MOZ_SofalaProvince_20190320.pdf

220 km/h, was the strongest cyclone to ever make landfall in Africa².

Tropical Depression 11, the precursor to Cyclone Idai, brought heavy rains to Mozambique, causing flooding in the Zambezi Valley (Tete and Zambezia Provinces) in early March. The storm however, didn't stop there. Following an unusual path, it moved back out into the Mozambique Channel, where it

rapidly intensified and then returned to land as Cyclone Idai, making landfall near the port city of Beira on March 15. Wind speeds of 180 km/h tore roofs off homes and buildings and pushed a storm surge of up to 6 meters³ into low-lying residential and agricultural areas. Over the next several days, Idai moved inland and into Zimbabwe,

2 Government of Mozambique. (May 2019). *Mozambique Cyclone Idai Post Disaster Needs Assessment*.

3 Idai's landfall was around the same time as high tide, though fortunately, it was not a new or full moon where tides are at their highest. The Earth Observatory. (2019). *Devastation in Mozambique*.

where it released torrential rains that caused downstream rivers in Manica and Sofala provinces in Mozambique to overflow forming an ‘inland ocean.’ While windspeed and landfall were accurately forecasted and warnings disseminated several days ahead of the storm, there was very limited warning about the floods. As a result, the impacts to communities from floodwaters were severe, with sudden flooding forcing people into trees and onto rooftops to escape floodwaters.

On April 25, Cyclone Kenneth made landfall in the northern province of Cabo Delgado, hitting an area already suffering from protracted conflict. While Kenneth weakened as it moved inland, the storm brought high winds, storm surge, heavy rains, and flooding that damaged or destroyed homes, caused power outages, and damaged key transportation routes and bridges across the province.

The government and their partners have focused on development and disaster response with significant successes. However, in the face of growing climate risk, DRR is critical for safeguarding those wins by assuring they aren’t lost to the next extreme event.

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The recent southeastern Africa droughts and the intensity and destructiveness of cyclones Idai and Kenneth are representative of the types of increasing weather challenges expected with climate change. Shifting rainfall patterns, variable temperatures, sea level rise, the intensification of extreme events, and the emergence of new weather hazards in places that were previously safe are the expected consequences of climate change. These impacts are likely to lead to an increase in disaster risk, food insecurity and water shortages, further exacerbating pre-existing vulnerabilities.

Recommendations for Strengthening Disaster Risk Reduction in Mozambique

Though the breadth and depth of the impacts from Cyclones Idai and Kenneth were severe, there were clear successes that prevented even worse devastation. The forecasting of the cyclones themselves was largely accurate, in part due to cross-country and international collaboration in forecasting. Additionally, interviewees relayed that since the establishment of the National Institute of Disaster Management (Instituto Nacional de Gestão de Calamidades, INGC) in 1999, the INGC’s collaboration with key governmental agencies and humanitarian and non-governmental organizations (NGOs) has led to clear delineation and knowledge of roles and responsibilities, which has facilitated preparing for and immediately responding to disasters. There were also clear successes in water, sanitation, and hygiene (WASH). The city of Beira, for example, quickly got their water treatment and distribution system running again following Cyclone Idai, and strong pre-disaster WASH programming in rural areas contributed to limiting the spread of disease.

Nonetheless, interviews and background research for this study revealed several key points that should be addressed to limit similar impacts and destruction in future events.

- **Improve end-to-end early warning systems.** While cyclone forecasting was accurate, dissemination of early warning messaging to the community level was inadequate in regards to comprehension and uptake for Idai. People received warnings, but failed to realize the intensity of winds they would experience and the impact those winds would have, and therefore failed (or were lacking the ability) to take appropriate preventative actions. Early warning regarding flooding, according to community residents, was practically non-



Damages from Cyclone Kenneth in Mozambique © IFRC

existent. Lack of preventative action was in part due to the extreme nature and scale of the events; Idai's windspeeds and the rainfall were record-breaking. Nonetheless, such events are being intensified by climate change and are likely to occur again. The far more proactive evacuation of 30,000 residents in advance of Kenneth's landfall shows the alacrity with which the government and their partners are willing to learn and adapt to their new reality.

- **Identify safe evacuation routes and shelters in communities, and where to construct them if none exist.** Thousands of people were trapped by floodwaters with no knowledge of, or access to, safe locations to evacuate to. At the same time, many buildings that did serve as inadvertent shelters lost roofs from intense winds. Given the less resistant construction standards and building materials available to poorer residents in Mozambique, identifying existing resistant shelters and reinforcing, equipping, or constructing new emergency shelters if none exist, is critical.
- **Protect successes in WASH programs by incorporating DRR thinking in their siting and construction.** Boreholes, wells, and sanitation systems were inundated across the Idai impact area, leading to a cholera outbreak that was suppressed only through rapid humanitarian mobilization and heavy investment in emergency response. Hand pumps were also damaged compromising people's access to clean water.
- **Support risk-informed livelihood development.** Idai floodwaters inundated acres of agricultural fields, ruining harvests and leaving subsistence farmers facing dire food shortages. There is a critical need in Mozambique and regionally for diversification of income strategies, improvement in farming techniques, diversification of crops, and training in creating higher value end products so that residents have a broader range of options and strategies to build their own resilience.
- **Support the localization of knowledge, technical skills, capacities, and equipment**

and its maintenance to support disaster preparedness, response, and recovery. Many disaster response volunteers reported lacking access to functioning boats and the protective equipment they needed to respond safely. Where boats and other minimal equipment was present prior to the Idai floods, they were either inappropriate to the scenario (no engine or not strong enough), or not maintained well enough to perform its task.

- **Make sure investment of time and money in recovery is used to maximum benefit.** Post-Idai, some people are adapting their homes to be more resistant to the next cyclone by improving the quality of sand in foundations or roof fixtures. Many others, however, are rebuilding in the same way as before, putting their household at risk again from the impacts of winds and rain. The difference in response is often not a lack of resources, but simply a lack of knowledge. Households are unaware there are locally accessible and affordable materials they could utilize to bolster the resistance of their homes. Where institutional reconstruction programs are being discussed, the release of funds lags behind the time realities on the ground. Needing housing now, people are investing their own funds and acting, but rebuilding to less resistant standards. The delays in reconstruction programs means opportunities for reconstructing to more resistant standards are being lost.
- **Identify and work with difficult to reach communities in remote areas prior to, during, and following a disaster to increase critical systems access.** This need was particularly evident in Buzi district, where the hospital was damaged and floods washed out the main road to Beira, compromising people's access to external markets and health care.

These challenges highlight areas that can be strengthened now, via specific interventions and/

or programs, to reduce harm from future events. In particular, they highlight the need for increased ex-ante and resilience building actions. Unfortunately, current funding trends tend to favor programs that focus largely on short-term and response versus programs that focus on longer-term DRR initiatives, even though the global community has acknowledged a need to shift these practices. For example, in spite of recent global commitment to increase funding and focus on recovery and resilience within humanitarian responses, the Mozambique Humanitarian Response Plan has identified far greater need and raised far more money for the logistics and WASH sectors than for early recovery and resilience. Funding needs for logistics and WASH have been identified as US\$15.3 million and US\$34 million respectively, and slightly over 50% of that money has been raised. In contrast, not only have resilience and early recovery needs been assessed at only US\$8.3 million, a mere 4.3% of that total has been raised⁴.

Global Implications for Disaster Risk Reduction Efforts

Integrating DRR and resilience building efforts into existing development programming can help to ensure that development investments aren't lost when the next extreme event happens. Failing to do so will support the currently increasing trend in disaster losses. However, increasing DRR and resilience efforts will require donors to commit to longer-term funding that supports lasting change and reduces underlying vulnerabilities.

Further, both humanitarian and development donors need to begin collaborating on how they fund response and programming. Rather than seeing humanitarian response and development as separate domains, the global community must recognize that humanitarian response is required

4 UNOCHA. (2019). *Mozambique Humanitarian Response Plan 2019*. <https://fts.unocha.org/appeals/761/clusters?order=coverage&sort=desc>

in areas where development and DRR have been insufficient and where, consequently, delivering aid alone will be a never-ending effort. Stakeholders must begin to think creatively about where development and DRR can be integrated into or efficiently sequenced with humanitarian response, and donors should commit to and follow through on funding both. While ultimately, this may mean spending more upfront, the outcomes over the longer term should reduce the need for future investment.

This PERC study highlights several avenues for strengthening DRR in Mozambique and for integrating a stronger DRR element into humanitarian response to begin resolving underlying chronic vulnerabilities:

- **Donors should base aid on need, and program durations on outcomes.** Current humanitarian response funding remains too focused on timelines instead of centering on outcomes and needs such as returning households to acceptable levels of food security or permanent housing. Regardless of the need, all too often donor focus and funding moves to other disasters and other priorities. Due to time constrained funding, interviewees reported that many humanitarian organizations began pulling out of Mozambique, regardless of communities' needs, towards the end of 2019. This is leaving communities in tenuous positions that may well result in them needing humanitarian aid again in the next few years.
- **Make DRR an integral part of humanitarian response planning and funding.** Particularly as climate change contributes to the intensification of existing hazards and the emergence of new ones, focusing solely on responding to disasters will result in humanitarian actors and governments falling ever further behind. Responding to ongoing and pressing humanitarian needs should

be increasingly balanced with longer-term climate-smart risk reduction, preparedness, and development programming. An integral part of humanitarian response should thus include not only supporting people for a period of time post-disaster but also efforts to mitigate the issues that contributed to an event becoming a disaster in the first place. This includes building back better, adaptation, and reducing underlying risk. For example, one opportunity to address emergency needs in a way that raises communities to a better place than they started is to train people in impacted communities in psycho-social support as some organizations did following the cyclones. This allows community members to support one another in recovery, on the timeframe they need, rather than be dependent on external help. In turn, this helps move community members from being the victim to being part of the solution, and reduces post-traumatic stress that if left unaddressed can push individuals further into vulnerability.

- **Use a systems-thinking approach to humanitarian relief and DRR.** Humanitarian responders, governments, and development practitioners should work together to address underlying disaster risk, poverty, and inequality through a coherent, comprehensive portfolio of sectoral investments combined with climate change action and disaster risk reduction. Humanitarian aid should not be thought of as separate from this, but instead as an opportunity to temporarily increase the available focus and funding. By thinking critically in advance about how humanitarian response in a given country or area could be integrated with ongoing efforts around development, risk reduction, and climate change adaptation (CCA), stakeholders will be better positioned to respond in an emergency in ways that leverage co-benefits from disaster response.



Damages in Mozambique © IFRC

- **Increase spaces for community participation and capacity building.** Community participation is critically important for efficiently and effectively guiding public investment priorities. This is a place where the Mozambique government, donors, and NGOs are focused, but findings from this study indicate further effort is still needed. Community members are best positioned to identify and manage their needs, risks, and the resources or access needed to enable their development and growth. Too often, governments invest significant resources in projects or services that fail to measurably improve the lives of their citizens simply because they failed to fully understand the needs of those citizens. Increasing the engagement and involvement of communities in planning processes is the fastest way forward. The Post-Cyclone Idai Reconstruction Office (GREPOC), for example, is working with communities as they develop resistant housing typologies to ensure that the homes they construct fit local needs.
- **Actively engage with and provide space for local leadership.** Most humanitarian organizations that responded post-Idai did not incorporate local leadership in key decision-making processes. For example, in many of the humanitarian coordination meetings, there were no local (Mozambican) participants. This led to the response being primarily driven by foreigners who had limited understanding of the local context. After a short engagement, experts often leave or change, leaving behind weak systems to carry on the recovery work. Local representation should be proactively engaged early on in humanitarian responses to maintain the impact of response beyond the initial engagement.
- **Interventions and investments must be risk-informed, evidence based, and tailored to local circumstances.** In many areas in both Mozambique and around the globe, high disaster risk is compounded by high levels of poverty and inequality. It is always important

to tailor interventions to local contexts, but it is particularly important in highly vulnerable areas and for highly vulnerable populations. Interventions that work for the general population may not work for the poor, near-poor, and most vulnerable groups. Indeed, interventions will have to be specifically tailored for each of these different groups to accommodate significantly different needs, capacities, available resources, and access.

Conclusion

The landfalls of Tropical Cyclones Idai and Kenneth in Mozambique impacted a country already suffering from drought, food insecurity, conflicts, the lingering effects of a debt crisis, and ongoing socioeconomic vulnerabilities. These underlying challenges amplified the storms' impacts and underscore the urgency with which the global community needs to move beyond business as usual. Instead of continuing to focus solely on ex-post actions, stakeholders must instead dramatically increase our ex-ante efforts to build

resilience and reduce disaster risk. This study found clear opportunity for this change across multiple areas including early warning, resistant housing, sheltering, localization efforts, WASH programming, etc. Vitaly, this calls on donors to shift their practices to using a systems-thinking approach, basing aid on need and program durations on outcomes, and making DRR an integral part of humanitarian response planning and funding.

Now is the time to act. Failing to act will leave communities around the world at the mercy of climate change and its attendant increase in the frequency and severity of disasters, and will leave communities and their countries incrementally more vulnerable to hazards and shocks. This in turn will result in governments and donors continuing to provide humanitarian aid year after year, event after event. Instead, humanitarian actors need to seize the opportunity to stabilize communities during the response phase while also building resilient societies that can stand on their own in the face of imminent changes.

FOR MORE INFORMATION

IFRC Mozambique

Leon Prop leon.prop@ifrc.org

Rui Oliveira rui.oliveira@ifrc.org

IFRC Geneva

Francisco Ianni francisco.ianni@ifrc.org

IFRC Nairobi

Phoebe Wafubwa Shikuku phoebe.shikuku@ifrc.org

PERC TEAM CONTRIBUTORS

ISET-International

Karen MacClune & Rachel Norton

Zurich Insurance Company Ltd

Michael Szoenyi

IFRC

Felicitas Ledergerber & Francisco Ianni

The Zurich Flood Resilience Alliance PERC provides research and independent review of large flood events. It seeks to answer questions related to aspects of flood resilience, flood risk management, and catastrophe intervention. It looks at what has worked well (identifying best practice) and opportunities for further improvements. Prepared by the Institute for Social and Environmental Transition - International (ISET), together with other members of the Zurich Flood Resilience Alliance - the International Federation of Red Cross and Red Crescent Societies (IFRC) and Zurich Insurance Company Ltd. - and in collaboration with the Mozambique Red Cross (CVM) and the Swiss Agency for Development and Cooperation (SDC), this publication is intended solely for informational purposes. All information has been compiled from reliable and credible sources; however, the opinions expressed are those of the authors. — March 2020