

Learning from Cyclone Idai to strengthen Climate Information and Early Warning Services in Malawi



Houses that may collapse any moment because of flood water in the Lower Shire, southern Malawi © Flooding in Malawi flickr photo by George Ntonya/UNDP shared under a [Creative Commons \(BY-NC-ND 2.0\) license](https://creativecommons.org/licenses/by-nc-nd/2.0/)

This brief is based on a Zurich Flood Resilience Alliance (ZFRA) Post Event Review Capability (PERC) study analyzing the 2019 Cyclone Idai impacts in Malawi, Mozambique and Zimbabwe. This brief presents a series of resilience lessons from Cyclone Idai based on key informant interviews and background research, and highlights opportunities for strengthening early warning and climate information services in Malawi. An electronic copy of this brief and other materials from the study are available at: <https://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

Introduction

In early March 2019 the precursor of Cyclone Idai, Tropical Depression 11, brought torrential rains and wind to southern and central Malawi. From March 4 to March 8 widespread flooding washed out bridges and roads and destroyed numerous homes. Winds tore off roofs allowing rain to enter and destroy mud-brick homes. Rising waters overwhelmed flood mitigation infrastructure, causing dams to collapse. Of the fifteen districts that experienced direct effects from the storm, Nsanje and Phalombe were the hardest-hit. The government of Malawi declared a state of disaster late on March 8.

On March 9 the storm moved back out over the Mozambique Channel where it rapidly intensified before making landfall a second time, as a named storm, on March 15. That storm, Cyclone Idai, caused massive damage in Mozambique and Zimbabwe and further damage in southern Malawi. In total, the disaster directly affected 975,000 people in Malawi and displaced or rendered homeless 125,382. 60 people were killed and 672 others injured.

Challenges for Climate Services and Disaster Risk Management

Though hugely destructive, Cyclone Idai in Malawi highlighted a number of successes in disaster risk reduction (DRR) that communities, districts, and the country as a whole can build on. Primary among these is that though the flooding exceeded that experienced in 2015, the death toll was significantly lower. Effective risk reduction and preparedness actions, timely early warning, and the heeding of those warnings (with the 2015 event fresh in people's memories), in addition to an effective response all contributed to decreasing the death toll in this event. Nonetheless, Idai also highlighted ongoing challenges, particularly in regards to strengthening disaster risk reduction efforts given the capacity and resources available as well as preparing for and responding to climatic events that have not been experienced before.

Climate change is leading to the emergence of new hazards (e.g. changes in the timing of the rainy season) and intensification of existing hazards at a scale previously unimagined. Idai was the deadliest and one of the most destructive cyclones to ever hit Africa. As sea surface temperatures continue to rise, storm intensity and rainfall delivered by tropical cyclones is increasing and storms are extending further south. Consequently, though Idai may have been anomalous compared to past events, more events similar to Idai should be anticipated in the future. Equally, changes in rainfall intensity, unusual dry spells, extended droughts, hailstorms, heat waves and cold spells, and overall weather variability are expected with climate change.

Coupled with the challenges of a changing climate, Malawi is seeing ever increasing demands on the natural environment. In a country where most of the population are dependent on rain-fed agriculture and biomass for fuel, population pressure has led to overuse of lands across the country, including in sensitive and vulnerable areas (i.e. along river

DISASTER RISK MANAGEMENT, DISASTER RISK REDUCTION, AND CLIMATE CHANGE ADAPTATION

Disaster Risk Management (DRM) recognizes that disasters will occur, and focuses on how to prepare for, respond to and recover from those disasters and to reduce disaster risk both in advance of and following disaster events. In practice, however, DRM budgets are primarily spent responding to disaster; the second-largest expenditure is on recovering to vulnerable, pre-disaster conditions. Preparedness, prospective and corrective risk reduction, and incorporating resilience into rebuilding receive far too little attention and funding.

Disaster Risk Reduction (DRR) consists of identifying, assessing and reducing the risk of disasters before they occur through preparation, early warning, mitigation, prevention and risk transfer. A resilience approach to DRR integrates ecosystem management, development planning, and climate change adaptation. If done well, DRR can substantially reduce losses, damages, and vulnerability caused by disasters.

Climate Change Adaptation (CCA) involves both adapting to changes already observed and proactively adjusting to expected climate risks and uncertainty. Without adaptation, climate change will increase the number, intensity, and impact of disasters.



Boarding a rescue boat of Malawi Defence Force © Flooding in Malawi flickr photo by Arjan van de Merwe/UNDP shared under a [Creative Commons \(BY-NC-ND 2.0\) license](https://creativecommons.org/licenses/by-nc-nd/2.0/)

banks, on extreme slopes, and on poor and erosive soils), and to deforestation and overgrazing. These practices are increasing people's vulnerability to hazards and to the risk of reduced agricultural production. Without change at all levels, from communities to national ministries, and across all sectors, losses will continue to increase.

Addressing these climate and land use challenges requires expanding and strengthening disaster risk reduction and climate change adaptation (CCA) actions in Malawi. In particular, we need to significantly increase our focus on long-term risk reduction.

Interviewees and background reports consulted for the Zurich Flood Resilience Alliance Post-Event Study of Cyclone Idai highlighted the following challenges and insights for DRR and CCA in Malawi:

- The Department of Disaster Management Affairs (DoDMA) is the coordinator of all

disaster management activities in Malawi and Co-Chairs the National Disaster Preparedness and Relief Committee. DoDMA coordinates the development of disaster risk management with government Ministries, Departments, and Agencies (MDAs), UN Agencies, non-governmental organizations, local and district authorities and other key stakeholders, and acts as the centre for dissemination of information about DRM through relevant technical sub-committees. DoDMA provides leadership in conducting assessments, coordinates response and communication among various players, supports resource mobilisation and financial prioritisation, tracks progress of implementation, and holds regular monitoring and coordination meetings with key stakeholders. Outside of this, however, there is little coordination between government departments responsible for agriculture, environmental protection and restoration, and

DRM. Consequently, opportunities to implement projects that simultaneously deliver benefits across all of these sectors are being lost.

- Centralized funding leaves even the best-intentioned and most capable District officers with little capacity to act, let alone work proactively.
- The condition of the natural environment is exacerbating disaster effects. Because the government has prioritized its limited funding for response, the majority of disaster risk reduction work in Malawi is implemented by NGOs. However, there is insufficient coordination either within the NGO community or by government. As a result, efforts are piecemeal and fail to achieve the scale of impact needed. Further, such efforts lock both the country and the donor community into an escalating cycle of disaster response, leaving Malawi's most vulnerable people increasingly reliant on humanitarian aid as a livelihood asset.
- The Department of Climate Change and Meteorological Services (DCCMS) have been actively working to improve weather forecasts and to accompany those forecasts with information about how to act in response to stay safe and preserve assets. Nonetheless, communities that do not typically experience flooding were unable to envision how the Idai forecast would impact them and failed to take action.
- There is limited use of weather forecasts by NGOs that are not focussed on climate change. Forecasts primarily go to DoDMA and NGOs. However, only NGOs that are implementing climate change related projects receive forecasts and 'understand' how to use that information. NGOs engaged primarily, for example, in development are not receiving or using forecasts. This results in development gains repeatedly being eroded by disaster events.

CLIMATE CHANGE REQUIRES SOLUTIONS THAT ADDRESS BOTH RAPID ONSET WEATHER AND SLOW-ONSET HAZARDS

The entry point for this assessment was Cyclone Idai, a rapid onset weather hazard that became a disaster. But to reduce risk and improve livelihoods we must also address much broader climate change risks.

Rapid onset weather events, which are increasing as a result of climate change, become disasters because of underlying vulnerabilities, and the impacts of these events exacerbate those vulnerabilities. However, climate change will also exacerbate underlying vulnerabilities through the erosive nature of slow-onset or chronic events like droughts, increased weather variability, and shifts in the timing of rains.

As we tackle climate change adaptation, we need to focus beyond the rapid onset, headline events and work to shift underlying vulnerabilities that leave people exposed to slow-onset hazards. Projects solidly grounded in systems thinking, projects that work to address current project needs in ways that also reduce underlying vulnerability, and projects that deliver co-benefits like ecosystem restoration, increased resilience, climate change adaptation and risk reduction need to become the norm.



New borehole and sweet potato vine nursery installed in a Nsanje village post-flood © ISET-International

The opportunity

The Cyclone Idai PERC findings highlight several lessons regarding climate information services and disaster risk management, collaboration, and coordination in Malawi. These lessons suggest several entry points and needs including:

1. Improved climate information services and early warning systems that provide usable and tailored information for weather related events such as intense rainfall, flooding, drought/dry spells, and strong wind to reduce the risk of death, injury, property loss, and damage in both the short- and long-term.
2. Increased collaboration and communication between government, NGOs, research and academic institutions, and communities themselves regarding disaster preparedness, disaster risk management, and climate change adaptation best-practices that will increase community resilience to climate change.
3. Effective project coordination and integration across sectors at community, district and national levels to deliver disaster risk reduction, including early warning, as part of development, climate change adaptation, and environmental restoration and protection efforts.

The study also identified specific opportunities to address these needs in ways that build on existing structures and efforts. These opportunities include:

- In partnership with DCCMS, media houses and the Department of Water Development, implement projects that will produce targeted and user oriented early warning messages that incorporate visual imagery. “A picture is worth a thousand words” is particularly true in disaster early warning, as it conveys not only the potential severity of impacts but also illustrates the scale of action required to minimize impacts. Visualization of potential impacts is a technique increasingly being adopted in early warning messaging.
- Create platforms to connect different government sectors and response clusters to support the messaging, packaging, dissemination and use of early warning. Nearly every district and national-level stakeholder interviewed for the study mentioned that coordination within the NGO community and between NGOs and government is strong during the response phase of disasters, but is not as strong around risk reduction, preparedness, early warning and recovery.
- Work with communities and government to develop locally adapted community response strategies and plans. Disaster events are rapidly outpacing the ability of governments and the humanitarian community to respond. Increasing communities’ awareness and preparedness to respond to disasters can enable them to save assets and minimize impacts. This, in turn, frees up funds that would otherwise be spent on response and recovery to invest instead in risk reduction and development.
- Partner with other organizations, such as the Centre for Environmental Policy and Advocacy (CEPA), to produce advocacy and training materials that identify ways to build DRR thinking

CLIMATE CHANGE MEANS WE MUST THINK AND ACT MORE BROADLY IN BUILDING COMMUNITY CAPACITY

Cyclone Idai highlighted significant gaps in coordination, community awareness, connection with government, early warning, preparedness, and response structures for natural hazard events in communities that are not regularly impacted by disasters. These mechanisms were stronger in areas that regularly experience extreme events and where the impacts were of a type and scale that had been seen before. This isn’t surprising, but it highlights a critical and rarely discussed gap for climate change adaptation. DRM is focused in places and on people who experience disasters. Areas that don’t regularly experience disasters lack or have only weak mechanisms for effective preparation and response.

In Malawi, Mozambique and Zimbabwe, NGOs are the primary players addressing community-level DRR and CCA. If those NGOs continue to be funded to work only with disaster impacted communities, the ‘not currently disaster prone’ populations will be left at risk. NGOs, DRR and CCA stakeholders, and donors need to begin actively engaging with this gap and piloting approaches for building skills in both vulnerable and less-vulnerable populations before climate change impacts push those who were previously less-vulnerable into the vulnerable category, and before development gains, where they have been made, are eroded by events.



Queuing to access services from a Health Surveillance Assistant health services from a Health Surveillance Assistant in Chikhwawa Malawi © Flooding in Malawi flickr photo by Arjan van de Merwe/UNDP shared under a [Creative Commons \(BY-NC-ND 2.0\) license](https://creativecommons.org/licenses/by-nc-nd/2.0/)

into all levels of development planning. Some of the lack of action in this area is simply lack of awareness of the need.

- Implement projects that demonstrate the linkage between DRR, development, climate change adaptation and environmental restoration and protection efforts. Actively promote successes within NGO, donor, and government forums.
- Engage at the community level in multiple locations within a single river basin, linking upstream and downstream communities, to strengthen community-based early warning. Couple this with climate information services that support small-holder farmers to reduce disaster losses, improve their livelihoods and adapt to climate change through the use of improved environmental practices. Use these

efforts to illustrate the potential impact of basin-scale change to increase donor, NGO, and government interest and funding.

- Document and disseminate best practices on early warning and DRR strategies/approaches in collaboration with research and academic institutions. PERC interviews highlighted multiple successful, cost-effective and life-changing interventions and technologies, such as how to build a more resilient mud-brick house using only traditionally available materials, or how to trench steep slopes to capture and infiltrate water to reduce erosion and improve yields. Many of these are not documented and have not been shared outside the project beneficiaries.



Group discussion © ISET-International

Conclusion

The climate is changing. The climate of the future will not resemble the climate of the past, nor that of the present. Faced with deeper extremes and more variability, the future holds the potential for much more damage and loss of life. However, it also provides an opportunity for change and for communities to learn from their own experiences as well as experiences around the globe and to act with alacrity on that learning.

This study presents the concerns, lessons and priorities of a multitude of government, NGO,

media, research, business and citizen stakeholders from Malawi based on their lived experience with Cyclone Idai. They have identified challenges, such as a need for greater coordination and action around risk reduction. They have also identified clear opportunities to strengthen development practices by improving early warning, couple early warning with climate information services, and integrate both into projects that systemically deliver development in combination with disaster risk reduction and ecosystem restoration. Now, all that remains is to act.

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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 - Practical Action (PA) and Zurich Insurance Company Ltd. - 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 Zurich Flood Resilience Alliance, Zurich Insurance Company Ltd., Practical Action, and ISET-International. — January 2020