

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



This brief is based on a Zurich Flood Resilience Alliance 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, and highlights opportunities for strengthening early warning and climate information services in Zimbabwe. 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

On 15 March 2019, Cyclone Idai made landfall near the port city of Beira, Mozambique. As the storm crossed Mozambique and moved inland, it released heavy rains across much of eastern Zimbabwe. In some areas, the rainfall intensity was beyond anything previously experienced, resulting in unexpected and catastrophic landslides and flash flooding. Chimanimani district, where the heaviest rainfall occurred, and Chipinge district suffered the most damage from the storm with flooding and landslides causing widespread destruction and loss of life. The flooding, flash flooding, and landslides caused at least 634 deaths and over 300 people remain missing 10 months after the event¹. Floodwaters swept an unknown number of bodies into neighboring areas of Mozambique; at least 82 bodies have been found as far as 40 km from the border. In total, the storm impacted an estimated 270,000 Zimbabweans.

1 <https://www.newzimbabwe.com/over-300-cyclone-idai-victims-still-missing/>

In Chimanimani and Chipinge Districts, the rains began on 14 March and continued day and night for days. However, the majority of the landslides occurred around 9 pm on 15 March, triggered by a deluge lasting approximately 30 minutes. The rains also caused the Nyahonde River to burst its banks and to inundate numerous nearby communities washing away homes, destroying crops, and damaging key transportation infrastructure. Damage to bridges and roads isolated many residents and communities for weeks.

Challenges for Climate Information Services and Disaster Risk Management

As Cyclone Idai illustrated, climate change is leading to the emergence of new hazards and to the intensification of existing hazards at a scale previously unimagined². 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. Though Idai may have been anomalous compared to past events, more storms like Idai should be anticipated in the future. Equally, changes in rainy season timing and rainfall intensity, unusual dry spells, extended droughts, hail storms, heat waves and cold spells, and overall weather variability are expected to increase with climate change. Without proactive efforts at all levels, from communities to national ministries, climate losses will rise due to increases in hazards.

For Zimbabwe, as is true for most of the globe, meeting this challenge will require shifting from a focus on disaster response and disaster management to disaster risk reduction. The legislative framework for disaster risk management (DRM) in Zimbabwe is currently guided by the Civil Protection Act of 1989, resulting in a DRM system which is predominantly focused on civil protection and emergency management as opposed to a

² <https://reliefweb.int/report/mozambique/why-indian-ocean-spawning-strong-and-deadly-tropical-cyclones>

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

The entry point for this post-event review 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. 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 that are solidly grounded in systems thinking projects, that work to address current needs while also reducing underlying vulnerability, and projects that deliver co-benefits like ecosystem restoration, climate change adaptation and risk reduction need to become the norm.

more holistic approach. As climate change increases risk, DRM efforts must focus on disaster risk reduction; failing to do so will result in losses rapidly outpacing the capacity to respond.

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

- Provincial and District level structures for dissemination of climate information exist but are weak, particularly in areas like Chimanimani and Chipinge where disaster declarations are rare and people are basically food-secure. As a result, though communities received warnings about Idai, they still suffered impacts because they lacked the knowledge about what action to take in response to those warnings.
- Meteorological forecasting needs to be strengthened. The number of weather stations and rain gauges needs to be increased to improve forecast accuracy, and stakeholders involved in generating, disseminating, and using forecasts need greater capacity. At the national level, this needs to focus on improving forecasts and forecast messaging; at district and local levels increased capacity is needed regarding how to interpret and act upon forecast information. Forecasting can also be strengthened by connecting the Meteorological Services Department (MSD) more closely with agricultural extension, who can help interpret what the impacts of weather events are likely to be, particularly for new or more extreme events than have previously been forecast.
- Maintaining civil protection and disaster risk management resources at the national level restricts the ability of provincial and district authorities to respond quickly and limit major losses in the event of a disaster. In Chimanimani district, the local authorities and government officials found it particularly challenging as

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.



Chimanimani Damage © ISET-International

damage to roads and communication systems completely cut off the district from the rest of the country. Lacking its own resources, there was little the district could do to support its residents.

- DRM in Zimbabwe is primarily limited to avoiding loss of life and destruction of property. Though a critical component of DRM, in the face of new hazards, government, NGOs and other stakeholders remain more reactive than proactive. As climate change increases the type, frequency, and severity of hazard events, this approach will become increasingly unsustainable. Governments, NGOs, and civil society must anticipate new hazards and

prepare proactively to limit loss of life and destruction of properties.

- Lack of coordination between government and stakeholders is limiting capacity and effective action. For example, post-Idai, NGO interventions are focused primarily on WASH, and are being implemented in stand-alone projects by a multitude of actors. Lacking a coordinating body, the ability to integrate these efforts to comprehensively reduce vulnerability and disaster risk or expand the scope to deliver risk reduction or other co-benefits is being lost. Similarly, when the MSD shares information with District Civil Protection Units (CPU), it is the duty of the CPU to take action, but there is

little collaboration around how to act and with what messaging.

- Many of those impacted by Idai were unaware of the risk they faced. Months later, there is still a lack of clarity as to which areas would provide safety in a similar event or be at lower risk and suitable for future development. Settlement patterns and land use planning need to utilize geographic risk assessment to both guide appropriate development and support evacuation planning and disaster risk awareness.
- Recovery and reconstruction so that communities are less vulnerable to future disasters is complex. Interventions, particularly post-disaster, should focus on long-term sustainability and building resilience. Some of the post-Idai reconstruction is doing just this. For example, geographic risk assessments are being used to identify safe sites for resettlement communities. The AGRITEX department is advising that flood walls be included as irrigation schemes and pumps are rebuilt and that gardens are at least 30 m from riverbanks to prevent future losses. These sorts of considerations need to become standard procedure for all reconstruction.

The opportunity

The Cyclone Idai PERC findings highlight entry points for strengthening climate information services and DRM across multiple levels. The study emphasizes the need for District and Provincial levels to have their own resources for climate information services so that they can provide their communities with locally-tailored, user-friendly weather information. In turn, communities need the ability to interpret and implement measures to address or mitigate the potential effects of that weather. Cross sectoral collaboration between government departments, community partners, and stakeholders to build DRR and CCA

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 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' population 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.



People in Chimanimani talking with senior army officials in charge of a temporary camp set up after Cyclone Idai on March 22, 2019 © voanews.com

into development projects is an integral part of strengthening these services and capacities.

The study also highlights opportunities to fill these gaps that build and expand on existing efforts.

These include:

- Create community level DRM Committees, drawing on existing capacity and structures such as Agrotechs, Red Cross activities around first aid training and school DRM clubs, etc. Many of the Idai success stories center around capacity that already exist at local levels and spontaneously mobilized in response to need. These efforts could be formalized and empowered with a fairly small investment.
- Work with local CPUs and the MSD to identify indigenous knowledge and synchronize that with scientific forecasts. Develop and promote practices and technologies linked to those early warnings, so that when people receive a warning they know what it means and how to respond. In Idai, there were challenges in regard to uptake of warning - 'why should we believe this' - and in knowing, if the forecasts and warnings were true, what to do with them. By embedding forecast interpretation and response at the local level and integrating it with indigenous knowledge, the question of forecast validity is significantly resolved and response is tailored to local needs as well as



Repairing road damage in Chimanimani © ISET-International

to the support that can be provided through mobilization of local resources.

- Establish partnerships between donors, district and provincial government, and MSD to install and maintain local weather stations and rain gauges. Support collaboration between MSD and district and provincial governments to contextualize forecasts. One way to do so is by supporting improved forecasting and early warning through providing feedback to the department about the accuracy of forecasts or the impacts caused by different weather events.
 - Work from the ground up to begin mainstreaming DRR into government programs
- and departments at the District level. Use successes at the District level to advocate for similar replication at higher levels.
 - Support DRR mainstreaming by creating a DRR community of practice in Zimbabwe to share lessons and successes. In particular, in the post-Idai reconstruction phase, the establishment and convening of a community of practice could provide a forum for sharing successes, connecting planned activities, leveraging the potential to build co-benefits into these activities, and overall to improve the efficacy and cost-efficiency of recovery activities.



Conclusion

Cyclone Idai is, unfortunately, unlikely to be an isolated, once in a lifetime event. Consequently, stakeholders, from the community to the global level, are acknowledging the urgent need to learn from the event and, based on these learnings, to implement new practices. Because of the size and shock of the Cyclone Idai impacts, there is enormous interest on the ground in Zimbabwe in identifying and adopting better practices.

In parallel, there are other recovery efforts underway that would benefit from and complement the work proposed in this brief. For example, the World Bank is beginning a 4-year, 72 million USD 'Zimbabwe Idai Recovery Project'. One of the components of the project is around strengthening climate information services and early warning, but this work is unlikely to extend further than the District level. The work proposed here could ensure that the World Bank and similar reconstruction efforts achieve the 'last mile' and maximize potential improvement for individual lives and livelihoods.

For further information on the work of Practical Action in Zimbabwe, please contact:

Kudzai.Marovanidze@practicalaction.org.zw

Mavis.Hakata@practicalaction.org.zw

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 Group- 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 Group, Practical Action, and ISET-International. — January 2020