

Mozambique: cyclone early warning system in practice

Background

Mozambique lies along the eastern side of southern Africa. Like its neighbours, the country experiences a complex mix of social trends and natural disasters that contribute to high levels of vulnerability that negatively impact its development. At independence in 1975, Mozambique was one of the world's poorest countries. The violent civil war that followed left much of the country's infrastructure in tatters and, although political stability since the peace agreement in 1992 and the first multi-party elections in 1994 has led to improvements in the country's growth rate, in 2006 Mozambique was still ranked 168th on the Human Development Index¹.

Natural disasters are a common phenomenon in the region. In 2000, the world's attention turned to Mozambique as severe floods hit the Limpopo basin. The primary cause of flooding in the country is heavy rainfall, poor management of upstream dams and

wetlands in other parts of southern Africa, and tropical cyclones. The country's coastline forms almost the entire western boundary of an extremely active tropical cyclone belt – the south-west Indian Ocean basin – which generates nearly 10 per cent of the world's cyclones annually. Tropical cyclones originating from this basin hit Mozambique once a year on average, while lower-magnitude tropical disturbances strike three or four times a year. However, droughts are historically more frequent than both floods and cyclones and impact on more people, with the most severe drought in recent memory occurring in 1991–1992.

As in other southern African countries, Mozambique has been hit hard by the HIV pandemic, with an HIV prevalence rate² of 16.1 per cent. Life expectancy at birth is 41.9 years.



Christopher Black/International Federation

Community-based disaster preparedness

In 2000 and 2001, severe floods struck large areas of Mozambique. The devastating impact of the flooding, and the relative lack of disaster preparedness among affected communities, provided the impetus and the opportunity for the Mozambique Red Cross Society to initiate a five-year community-based disaster preparedness programme in Inhambane and Zambezia provinces, with support from the Danish Red Cross. The programme was modelled on existing Red Cross Red Crescent community-based disaster preparedness programmes operating in the Philippines and Latin America. It was designed to increase capacity among the most vulnerable populations to cope with natural disasters, by strengthening the Mozambique Red Cross Society's capacity to facilitate community-based disaster preparedness activities and motivate local populations to take responsibility for securing their community against the damaging effects of natural disasters. The target beneficiaries were the members of 18 communities in Inhambane and Zambezia provinces – areas severely affected by the floods in 2000 and 2001 and that are prone to natural disasters³.

The basic strategy of the community-based disaster preparedness programme is for the Mozambique Red Cross Society to facilitate the creation of local disaster committees in each target community, trained and equipped to improve disaster response; this includes the establishment of community-based early warning systems. Each disaster committee has six members, elected and well respected by the community, and with clearly defined roles and responsibilities, as well as five community-based volunteers responsible for first aid, beneficiary identification and other activities in times of disaster. Normally, the local community leader is a member of the disaster committee, and, where possible, existing community groups are encouraged to take on the role of local disaster committee, to ensure the integration of the community-based disaster preparedness programme with other community-based activities.

Local disaster committees, with support from Mozambique Red Cross Society community volunteers, work with communities to map local resources and identify real and perceived risks and traditional coping mechanisms. The committees are responsible for alerting and preparing communities to face hazardous weather conditions through an early warning system. Radios⁴ distributed through committee members play a key role, ensuring access to the government cyclone early warning



Local disaster management committees use information materials provided by the Mozambique Red Cross to help prepare communities to approaching cyclones.

system⁵, established in November 2002, whereby radio broadcasts alert audiences to cyclones building up east of Mozambique. Committee members are also provided with information materials that describe the government-endorsed early warning system. The system uses a series of three colours to indicate the proximity of the cyclones: blue – approaching within 24–48 hours; yellow – within 24 hours; red – within 6 hours. Posters are available to advise committee members on how to effectively communicate weather alerts to the wider community. Emergency response kits, consisting of whistles, megaphones, life-jackets (in case of flooding) and other basic emergency response materials are positioned in communities and placed under the responsibility of the community leaders.

District branches of the Mozambique Red Cross Society act as a central support point for the early warning system, receiving weather alerts via HF radio and ensuring that community-based volunteers are informed and in contact with local disaster committees. The programme supports the government priority of setting up an early warning system and has established the Mozambique Red Cross Society as the first and main provider of community-based disaster management at the national level.

Putting the early warning system into practice

The early warning system was put to the test in February 2007, when Cyclone Favio, gusting winds of up to 270 kilometres an hour, hit the central and northern districts of Inhambane province in the south of Mozambique. Although direct external funding ended with the closure of the programme in early 2006, local disaster committees, with support from the Mozambique Red Cross Society, put into practice skills and techniques learnt through community-based disaster preparedness activities and played a crucial role in alerting communities to the cyclone.



The Mozambique Red Cross follows a government endorsed cyclone early warning system, which indicates the proximity of cyclones in three colour-coded stages.

In Pambara One and Pambara Two, two communities situated near the town of Vilankulo in Inhambane province, committee members explained how they heard the cyclone warning on the radio and developed a plan to alert the community. When sceptical members of the community did not believe the initial warnings about the approaching cyclone, and questioned the source of the weather forecast, local disaster committee members followed practical recommendations outlined in information materials provided through the community-based disaster preparedness programme.

The community was organized into groups of ten people and a committee member brought a radio to each group to listen to the official government alert. The committee repeated this activity for three consecutive days prior to the cyclone (following the cyclone alert colour code system), convincing the community of the approaching cyclone and advising the population to reinforce their houses and to keep their children safe at home.

Mozambique Red Cross Society volunteers were also active, visiting local schools and communities before the cyclone hit to warn parents and teachers to keep their children at home. HF radios provided to each Mozambique Red Cross Society district branch through the community-based disaster preparedness programme ensured communication and coordination between Mozambique Red Cross Society staff and volunteers and was a significant improvement on previous disaster preparedness and response operations, where communication was unreliable.

André Domingos, Disaster Preparedness Response Technician at the Inhambane branch of the Mozambique Red Cross Society, commented on the positive impact of the community-based disaster preparedness programme in the aftermath of the cyclone: “The success of this programme has been the relatively few number of injured people. This cyclone was strong and many houses were destroyed, but in terms of human damage it was not serious. The alert

system worked, and the previous experience of communities encouraged them to stay safe.”

The benefits of the community-based disaster preparedness programme were clearly felt at the community level, where local disaster committee members recalled the floods of 2000–2001 and compared the experience this year. “In 2000, the water just started rising. We panicked, we didn’t know what was happening, we just grabbed our children and ran. People lost everything,” explained Anita Manissela, a member of the local disaster committee in Pambara Two. “This year, 2007, we knew what was going to happen, so we felt much safer. We were able to prepare and make sure our families were safe.”

Community-based disaster preparedness training for local disaster committees and volunteers also ensured an effective response by the Mozambique Red Cross Society in the aftermath of the cyclone. Local disaster committee members assisted the Mozambique Red Cross Society to review cyclone damage and conduct a needs assessment. Affected families received non-food relief items distributed by Mozambique Red Cross Society volunteers, with support from Red Cross Red Crescent and external partners.

Lessons learnt⁶

- Crude comparisons of community disaster preparedness levels before and after the implementation of the community-based disaster preparedness programme indicate the programme’s positive impact in increasing community capacity to cope with disaster.
- Disaster committee members themselves recognized the importance of their role in helping communities to prepare for and mitigate the risk to human life and material possessions.
- The early warning system ensured that communities targeted through the community-based disaster preparedness programme knew about the cyclone three days in advance.
- In areas where the community-based disaster preparedness programme was implemented, Mozambique Red Cross Society volunteers found communities prepared to face Cyclone Favio. Elsewhere, communities were less aware of the potential risks, while children were still at school despite the risk of damage to the building and separation from their parents.
- Local disaster committees successfully used methodologies recommended through community-based disaster preparedness training activities to

convince community members of the impending cyclone, and to advise communities on how to minimize the negative effects of the disaster.

- Strong community ownership of the programme ensured its sustainability. The community-based disaster preparedness programme empowered local disaster committees to take responsibility for their own safety as well as that of the community in times of disaster, regardless of the presence of the Mozambique Red Cross Society. This ownership was clearly demonstrated by community-based disaster preparedness initiatives in the face of Cyclone Favio.
- Equipment and training provided through the programme (for example, the provision of HF radios, and the training of community-based volunteers) strengthened the capacity of the Mozambique Red Cross Society to effectively prepare for and respond to disasters.
- Radio broadcasts play an important role in raising community awareness of approaching cyclones. Community reluctance to observe cyclone warning alerts disseminated by the Mozambique Red Cross Society may be partly due to previous situations where cyclone warnings were disseminated but where cyclones did not strike communities as expected.

The way forward

- The community based approach to disaster preparedness has proved effective and sustainable in reducing vulnerability to natural hazards, as demonstrated in the response to Cyclone Favio.
- The five-year community-based disaster preparedness programme was based on a previous disaster risk reduction project in Sofala province (funded by GTZ), and two pilots in Inhambane and Zambezia provinces (funded by the Danish Red Cross and the International Federation respectively). A three-year programme based on the recommendations and lessons learnt from these previous programmes is currently being implemented in three provinces with support from the British Red Cross and the UK's Department for International Development (DFID).
- The Mozambique Red Cross Society is seeking support to identify and review lessons learnt from the

DFID-funded project and to add value to the overall disaster management programme.

- In particular, the Mozambique Red Cross Society, in cooperation with the National Meteorology Institute, plans to conduct a real-time assessment of how communities understand the colour-coded cyclone early warning system, and to make changes to the way cyclone alerts are broadcast as required.
- The Mozambique Red Cross Society will continue to target vulnerable communities identified with assistance from the National Institute for Disaster Management, with a particular focus on areas where there is scope for integration with other core programmes of the Mozambique Red Cross Society (health, water and sanitation, HIV) that will reduce overall vulnerability at times of disaster and otherwise.
- Following the recent floods and cyclone, the Mozambique Red Cross Society has increased its profile at government level as a key provider of disaster preparedness and response at the national level. The National Society is seeking to strengthen the existing relationship with the National Institute for Disaster Management and other government agencies and to encourage further integration of the Mozambique Red Cross Society community-based disaster management approach into a national disaster management strategy.

1 *Human Development Report 2006*. Available at <http://hdr.undp.org/hdr2006>.

2 Adult HIV prevalence rate, aged 15–49 years. Source: *Human Development Report 2006*.

3 Official government contingency plans estimate that 365,000 people are at risk of cyclones and 240,000 of floods in Inhambane and Zambezia provinces. (Note: estimates do not indicate the number of people that face risk from both cyclones and flooding. Consequently, there is probably an overlap between the two groups.)

4 Donated by Vodafone/USAID Famine Early Warning Systems Network (www.fews.net).

5 The government of Mozambique's National Institute for Disaster Management (*Instituto Nacional de Gestão de Calamidades*) and the National Meteorology Institute (*Instituto Nacional de Meteorologia*) established the early warning system after the devastating floods of 2000 and 2001.

6 Lessons learnt were also captured through mid-term and final evaluations of the community-based disaster preparedness programme. Recommendations were incorporated into the revised community-based disaster preparedness programme that is now implemented in three provinces with DFID funding.

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