Preparedness pays off in Mozambique

The response to the 2000 floods in Mozambique – the worst for over a century – was in many ways a great success. For international observers, the disaster was epitomized by the iconic television image of the helicopter rescue of a mother who gave birth to a baby daughter while sheltering in a tree. Less reported were the 45,000 lives saved – the vast majority of them plucked out of the swirling waters by regional rather than international rescuers.

A year later, another wave of devastating floods hit a different part of Mozambique. Again, local teams, operating mainly by boat, rescued over 7,000 survivors. In each year, for every person who died, over 60 were saved. While media images of helicopters rescuing poor Africans gave the impression that international aid agencies saved the day, the real story is very different. Despite being one of the world's poorest countries, Mozambique was better prepared than many had feared. And, although international help was crucial, it succeeded because agencies let Mozambicans lead.

This chapter analyses both floods to identify which were the key factors in terms of disaster preparedness that ensured successful responses. What worked, what didn't and why? Following the 2000 floods, was reconstruction money invested in disaster preparedness? Were lessons learned during 2000 applied in response to the 2001 floods? What remains to be done to enhance disaster preparedness after the experience of two consecutive years of flooding? Recent experience in Mozambique would suggest that investing in disaster preparedness pays dividends in terms of lives saved. Yet the reality is that concrete progress in reducing the risks posed by disasters is being undermined by the cuts in public spending which Mozambique is being asked to make in order to integrate into the global economy.

Record floods

In mid-January 2000, heavy rains fell earlier than usual, flooding rivers in southern Mozambique. The floods were not unusual, and were handled by local authorities. However, when, in mid-February, tropical cyclone Connie dumped record amounts of rain on the capital Maputo and the nation's southern watersheds, a full rescue effort began. Water in the Limpopo River was as high as in 1977 (the worst flood in living memory). The Mozambican navy, the Maputo fire brigade and the Malawian and South African air forces moved in to rescue stranded people. Hundreds of Red Cross volunteers took up their posts as tens of thousands of people fled the floods.

Photo opposite page: Devastating floods hit Mozambique in 2000 and 2001 Local boat owners, together with the Mozambican military and the Mozambique Red Cross rescued 65 per cent of the 53,000 people saved

Christopher Black/ Interntional Federation, Mozambique 2001

A few weeks later, another cyclone dropped more rain across the region. This third flood exceeded all expectations. At Xai-Xai on the Limpopo, water was three metres higher than any flood in the past 150 years. An area nearly the size of Belgium and the Netherlands combined was submerged. The Limpopo valley is flat, and people who fled to high ground assuming they would be safe soon found their small hills under water. A combination of helicopters from neighbouring nations and hundreds of small, local boats plucked people off rooftops and out of trees. Although 700 died, more than 45,000 people were rescued in the first three months of 2000. TV crews, already in Mozambique because of the February flood, filmed dramatic rescues – including that of baby Rosita Pedro, born in the tree where her mother sheltered.

In response to live pictures of rescues taking place, there was a huge outpouring of international aid – over US$ 100 million from individuals alone. At the peak of the response, there were 56 aircraft being flown by aid agencies and foreign air forces. In all, half a million people were forced from their homes and spread out over 200 locations, from small huddles on hilltops to resettlement centres accommodating entire towns. Relief efforts were hampered by another cyclone in mid-March. Even by May 2000 not everyone had made it home.

The following year, heavy rains deluged the region once again – this time hitting central Mozambique hard. The Zambeze River basin flooded from mid-February until mid-May, its waters peaking at 2.6 metres above flood level. Whereas the 2000 floods swelled rivers which had no major dams, in 2001 the two big dams on the Zambeze River coordinated their discharges so that the flood level stayed relatively stable. The government reported 113 killed in 2001's floods and 7,133 people rescued – most of those were saved by boats (see Figure 3.1). The disaster was less media-genic and, perhaps as a result, attracted less international aid and attention (see Box 3.1).

The relatively low death tolls and high numbers of people rescued during each flood suggest that disaster preparedness made a considerable difference to the quality of the response. So, which elements of preparedness worked well, which worked less well – and which steps could be taken to ensure more thorough preparedness in future?

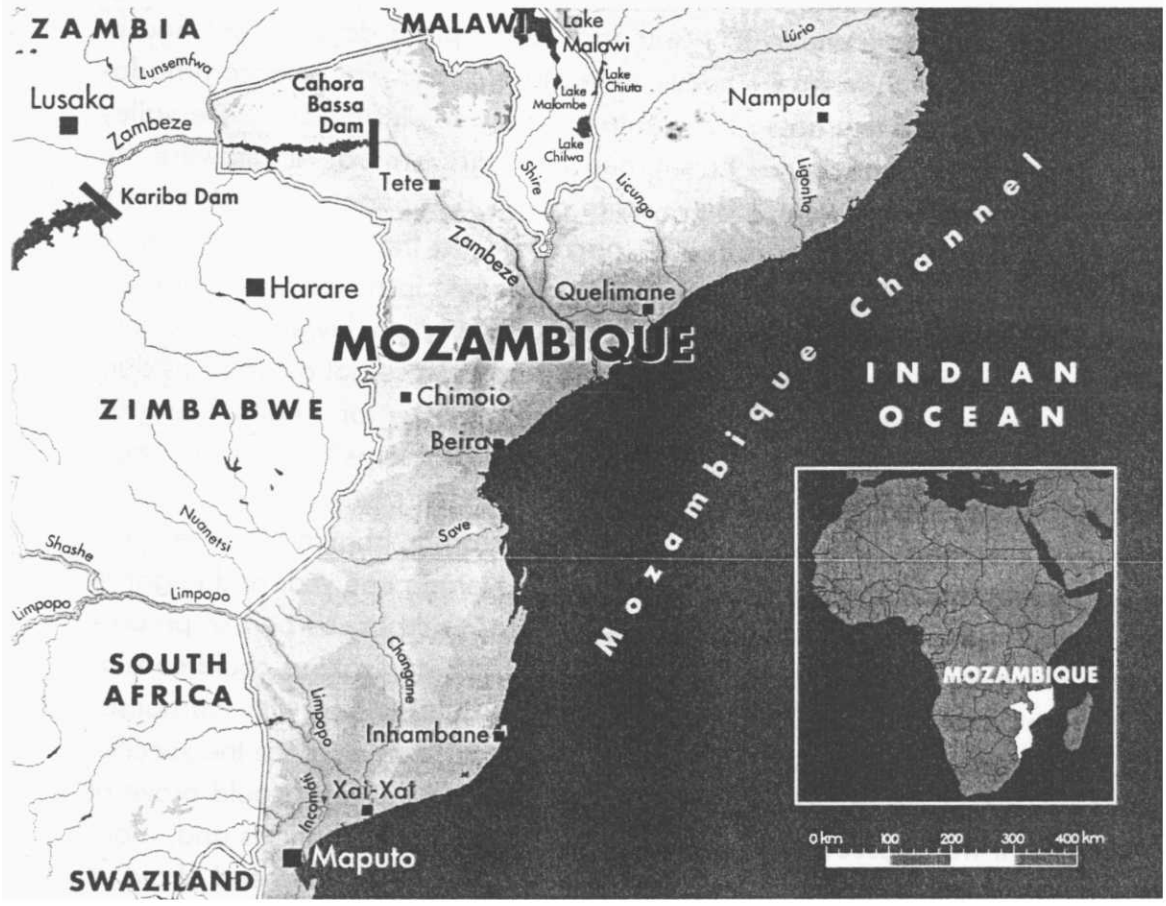
Early warning and evacuation

The naïve answer to flood threats is that people should live on higher ground. And after the 2000 floods, 43,400 families were resettled, according to the government. But flood plains provide fertile farmland and most farmers want to work on it and live near it. So people will have to continue living with floods (and droughts). That means prediction, early warning and evacuation systems are essential – as well as community awareness-raising to ensure that these systems work in practice.

Up to five months before each of the floods, African meteorologists predicted above average rains for southern Mozambique (in 2000) and for central areas (in 2001). Their work was based on computer models, plus analysis of La Niña and the sunspot cycle. Yet it remains an inexact art. Rainfall predictions cover a broad area, typically one-third of Mozambique, but floods and droughts are often in much smaller zones. Thus medium-term warnings, two or three months in advance, can be given, but significantly often, they will be wrong. In 1998, for example, the Mozambican meteorology office predicted a drought based on the anticipated effect of El Niño – yet rainfall was normal. So when, in September 1999, they warned people to prepare for a flood "like the one in 1977", not everyone believed them.

Short-term warnings, days or hours in advance, can be given for floods because there is some rainfall and river-level monitoring, supported by limited computer models. In March 2000, there was advance scientific warning of the magnitude of the third Limpopo flood crest. But Mozambican officials were extremely reluctant to warn the public of a flood worse than any seen by their parents or grandparents – even many officials did not believe it was possible.

While the art of prediction could be improved, there is a pressing need to ensure that all the links in the chain, from high-tech meteorology to low-tech warning and



Box 3.1 Media coverage – a double-edged sword

Spectacular images of heliborne rescues on live TV were beamed around the world during the floods of 2000. The subsequent influx of material and financial aid, culminating in pledges of US$ 470 million to reconstruct Mozambique, were at least partly due to this international media coverage.

During the 2001 floods, however, negative media coverage may have been partly responsible for a meaner international response. In 2001, floods hit the Zambeze valley – steeper-sided and less densely populated than the flat flood plain of the Limpopo which flooded in 2000. Along the Zambeze, many farmers live above – but farm fields below – the flood level. This led to the unexpected phenomenon of people declining to be rescued. Although their fields were under water, their houses were secure, they had brought their livestock near their homes and they had food stocks, so they chose to stay put.

The TV cameras came with the helicopters, but then went away when there were no dramatic rescues. On 17 March 2001, BBC correspondent David Shukman actually wrote in a leading European magazine that the unwillingness of people to be rescued meant it was "a bogus disaster" and Mozambique was "faking it".

Shukman also complained that "international teams had flown in to perform a high-profile rescue, but instead found themselves shuttling food around". However, the idea that international aircraft alone are responsible for disaster rescue is a media and aid-industry myth. Of the 53,000 people saved in 2000 and 2001, all but 4 per cent were rescued by Mozambicans and other African operators. And 63 per cent of survivors were saved by boats.

While the large number of international planes that came after the flood were often too late to rescue anyone from trees or rooftops, they nevertheless saved thousands of lives, precisely because they transported food to those who were stranded. "Shuttling food" may not be high profile, it does not make good TV and it doesn't create such a warm glow in the hearts of donors – but it is what's needed in a flood like this.

However, the result in 2001 was less TV coverage, less donor interest, and therefore fewer planes and less food. By late March, with the press long gone, people were running out of food – and the river was not falling. More than 500 people a day, on foot and in boats, were making their way to accommodation centres. The roads in the Zambeze valley had turned from dirt to mud. Airlifts were the only way to get food to people, but there were just 20 aircraft to do the job. By May, there were 220,000 people in 65 centres. With less foreign aid, and especially fewer planes, conditions in the centres were not as good as during 2000. The ministry of health reported "severe nutritional problems" in some centres, and there were reports of cholera.

What can be learned from this experience of positive media coverage one year and negative coverage the next? Perhaps, as part of preparing for disaster, aid organizations could consider building closer relationships with journalists. Explaining to the media in advance the specific, unique contexts of each disaster could prove of positive benefit to both aid agencies and, more importantly, those at the receiving end of aid. ■

evacuation, are maintained. Those at risk from floods – who may often be the poorest and least educated – need to be convinced by people in whom they trust that it is time to leave, before the floods sweep them and their possessions away.

President Joaquim Chissano told an international conference in October 2000 that "warnings must be clear and simple". Improved warning systems, perhaps involving local leaders with radios or mobile telephones, were discussed. Chissano suggested using primary-school teachers as flood monitors – to watch rivers and issue warnings to their communities. Then people could receive clearer warnings one or two hours before the water reached their doors. This idea would also be cost-effective since it builds on community resources (e.g., teachers) which already exist and which are more likely to be trusted by local people (see Box 3.2).

Following two years of floods, the government began distributing radios, bicycles and motorcycles in areas at risk in late January 2002. The distribution started in Nampula province, where higher than normal rainfall was forecast. The equipment was given to members of local communities involved in disaster management to help monitor the situation and improve the flow of information. The government also distributed 16,000 posters with advice on how to prepare for a disaster.

However, even if people believe the warnings, what will they do with them? Impoverished Mozambicans must make careful choices about when to abandon their possessions. If you leave your house too soon (or unnecessarily) your goods could all be stolen and you may return to nothing. In some places during the 2000 floods, eye witnesses reported that even police looted abandoned homes. Fear of this happening meant many of the poorest people waited until the very last minute to flee, usually when they saw or heard the water. In flat areas like the Limpopo, that didn't leave them much time. Many families were afraid to abandon cattle and goats, and a significant number of the 700 who died were probably family members left behind to tend animals. Three options could be considered to tackle this problem:

- places of safety for cattle and goods;
- clearly marked escape routes and safety zones; and
- legal powers which force people to leave.

In most areas, there will be a week or more's warning of a serious flood. If the government or municipality could organize emergency cattle pens on high ground, and somewhere secure to store valuables like radios and cooking pots, then people could move their most precious property in advance and would be less reluctant to leave their homes. One of the disaster preparedness priorities for villagers in Inhambane province is the construction of a community strong-house where they can safely store their belongings during floods. But for much of Mozambique, this is