



Mozambique: Disaster Risk Reduction as the Basis for Climate Change Adaptation – A Multi-Level Project of German-Mozambican Development Cooperation

The challenge

Mozambique is highly vulnerable to natural hazards. Detailed analysis carried out by the national Government of Mozambique shows that the frequency and magnitude of natural hazards, such as floods, cyclones and droughts, have steadily increased over the last 50 years, and that they will increase further due to the effects of climate change. Widespread poverty and the lack of resources for managing or reducing the risk of disaster effectively have left many communities in a state of great vulnerability.

In addition, more than 60 % of Mozambique's population lives in coastal areas which are highly prone to cyclones and storms and climate-change induced sea-level rise. In rural areas, climate change will further exacerbate the risk of drought. Even today, in some regions there is already as much as a 75 % risk of crop losses. Because of the low literacy rates and the lack of modern media, scientific knowledge about climate change and its consequences remains rare in the rural areas.

The approach

Following the devastating floods of 2000 and 2001, which affected more than four million people, the first disaster risk reduction (DRR) projects were designed. The national disaster strategy shifted from reaction to prevention. 'Mais vale prevenir do que remediar' (it's better to be safe than sorry) is both the slogan and the working concept of the National Disaster Management Institute (INGC).

Project name:	Institutionalising Disaster Prevention in Mozambique (PRO GRC II)
Commissioned by:	German Federal Ministry for Economic Cooperation and Development (BMZ)
Project region:	The Save, Buzi and Zambezi river basins in central Mozambique, the provinces of Sofala and Inhambane, and the national government
Lead executing agency:	National Disaster Management Institute (INGC - Instituto Nacional da Gestão de Calamidades) with advisory services provided by IP-Consult and Ambero (consultants working on behalf of German development cooperation, with co-financing from the Munich Re Foundation)
Overall term:	January 2010 to December 2012

INGC is currently developing a detailed catalogue of concrete climate change adaptation measures. This will outline new areas of activity, such as setting up flood early warning systems. Such systems are particularly targeted at urban coastal areas, as the rising sea level is likely to increase damages and losses. Besides this, the introduction of adapted agricultural practices in rural areas is considered an important step in reducing climate-related disaster risks.

The project

Since 2002, the INGC has successfully established basic DRR structures at national, provincial, district and community levels. It has done so with the support of German development cooperation and with co-financing from the Munich Re Foundation. Having begun as a reconstruction project in response to the floods of 2000 and 2001, the project now supports a range of DRR measures which take climate change adaptation needs increasingly into account. Since 2009, the issues of climate change have been fully integrated into the project design.

The main objective of the current project phase is to include the need for climate change adaptation into the *Plano Director* – the strategic ten-year plan of INGC. Wherever possible, climate change adaptation measures are now linked to DRR activities, with project activities mainly focused on:

- i) the reduction of vulnerability to drought;
- ii) capacity development of local DRR committees;
- iii) decentralised district planning, and the integration of DRR and climate change adaptation measures in local development budgets; and
- iv) the development of guidelines for the integration of DRR and climate change measures into the activities of the Ministry of Agriculture and the Ministry of Planning and Development.

Since 2010, the project has also been providing advisory services for urban climate change adaptation. One example of adaptation to sea level rise and increased rainfall that affect an urban area is the development and introduction of an urban early warning system in the city of Beira.

As most of the vulnerable population lives in low-lying areas, it is considered essential to involve urban communities by introducing people-centred warning systems and carrying out participatory risk mapping. Such activities also serve as a good entry point for sensitising communities on the impacts of climate change.

Results – What has been achieved so far?

The reduced impact of extreme floods demonstrates the success of the project. Thanks to effective early warning and the strong support of the local DRR committees, some 36,000 people were evacuated and led to safe ground during the floods of 2011. In 2010, flood-affected communities organised their evacuation without any external help. During the rainy period in 2008 and 2009, 115,000 people were evacuated. Today, about 600 local DRR committees exist, which sensitise and inform their communities about disaster mitigation and preparedness measures. At the same time, the INGC is providing the DRR committees with more and more information about climate change and adaptation measures.



With the help of local disaster prevention committees, communities were evacuated safely before heavy flooding of the Limpopo River in 2011.

The United Nations Development Programme has acknowledged the results achieved by the German–Mozambican project. It has now included similar approaches in its own programme ‘Strengthening Local Risk Management and Mainstreaming Disaster Reduction’ (2008), which has a budget of USD 2.88 million.

Specific achievements supported by the project:

1. A well-organised emergency and mitigation structure is in place, which is coordinated through national and local emergency centres. This is complemented by low-cost, people-centred early warning systems, in which the local DRR committees play a leading role.

The emergency and mitigation structure and the people-centred early warning systems were developed jointly with a number of Latin American countries that face similar risks and capacity challenges. This South-South cooperation was financed and organised as part of German development cooperation with Mozambique. As Latin America already has more advanced disaster risk reduction measures in place, good practices were borrowed from there and adapted to the local context for implementation in Mozambique. For instance, Honduras, Costa Rica and Guatemala all provided examples of successful, low-cost early warning systems which could be adapted for use in Mozambique.

Simple and effective: The Buzi Early Warning System

At the World Meteorological Organization's World Climate Conference (WCC 3) the Mozambican minister of transport, Paulo Zucula, spoke about the efficiency of local DRR committees and the people-centred warning systems in Búzi. The best practice model underlying the people-centred early warning systems in the Búzi river basin uses a simple approach: Local DRR committees are trained to monitor river levels and send data to the district capital Búzi, where it is analysed by the Technical Council for Disaster Risk Management – a body that represents different sectors, including agriculture, education, health and infrastructural planning. When water levels are critical, the Operative Emergency Centre is activated and local communities at risk are sent warnings by radio. In each local DRR committee, the member who is responsible for monitoring the radio passes information to those in charge of the early warning. Using SMS, megaphones, drums and local radio broadcasts, they spread the message within their community. This ensures that even illiterate members of the community are also informed on time. Having received prior training from the DRR committee, the community then knows how to respond. The members of the evacuation team use risk maps, which have been developed through a participatory process, to bring the community to safer ground.



A member of a local DRR committee responsible for data transfer by radio (early warning system in the Búzi river basin).

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To learn more:

www.wmo.int/wcc3/rec_videos_en_02.html

2. *Low-cost agricultural technologies have been introduced for water harvesting, and soil and water conservation in semi-arid environments.*

Much success has already been achieved through the introduction of new agricultural technologies adapted for use during dry periods. With support from the project, 88 demonstration fields were prepared and 500 smallholder farmers learned to use the new methods. Early results show that yields are at least doubled when compared to traditional cultivation methods. No fertilisers are used in these new agricultural techniques, and no expensive equipment is required.



A farmer shows the maize he produced using the old (right) and the new (left) technologies.

3. *Decentralised structures for DRR have been established, which take climate risks into account.*

Examples include financing for disaster risk reduction activities in local district budgets. National budget funds are now also channelled to DRR and climate change adaptation measures.

Why is the project so successful? – Key messages

The project strategy is to empower the Mozambican Government and civil society to cope with multiple current and future hazards.

1. Human resources development – strengthening the INGC and civil society

To improve their effectiveness, the local DRR committees are monitored using quality criteria developed in cooperation with the INGC. The people-centred early warning systems and the climate change adaptation measures in the Save, Búzi, Zambeze and Chire river basins represent a significant part of the overall project, and the creation of the flood warning systems is being co-funded by the Munich Re Foundation. UNDP is now introducing a similar early warning system for the Licungo River, drawing on best practices gained in the Búzi River Basin. The project is also helping communities to adapt more effectively to arid and semi-arid climates using new agricultural practices.



2. Organisational development – building DRR structures at all levels

Through its multi-level approach, the project is building up the capacities of decision-making councils at all levels. At the national level this involves the establishment of an emergency coordination structure, while at provincial and district levels, the project advises the technical councils on disaster risk management and carries out capacity building measures for the local DRR committees.

3. Network development – South-South cooperation

International expertise is shared through the South-South cooperation with Latin American countries and the triangular cooperation between Brazil, Mozambique and Germany. The objective is to provide better early warning services and climate forecasts, with which the anticipated risks can be taken into account. Automatic weather stations are being introduced to improve the early warning system. The weather stations will improve the measurement of key parameters used in climate forecasting.

4. Institutional development – making DRR everyone's business

With the support of the project a national DRR law is currently being developed which will take into consideration the impacts of climate change. At the national level, the project also supports the integration of DRR measures into the plans and programmes of different ministries. At provincial level, support is given for the elaboration of contingency planning. And in the districts, technical councils for DRR are learning how to include DRR and climate change adaptation activities in the district budget plans for the different sectors.

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