

Climate change

What Africa's drought responses teach us about climate change hotspots

The world may still argue about whether or not climate change is for real. But in vast expanses of arid southern Africa, the daily struggle to cope with a changed climate is well underway. The lessons being learnt here on a small scale could prove vital in the fight for human survival, writes Gina Ziervogel.



The impact of drought has been felt acutely this season over southern Africa, as El Niño hit hard. Perhaps this is what we might expect under future climate change conditions and so we had better learn how to prepare for it: more frequent years that record less rainfall than usual, along with the associated crippling impact on livelihoods and the economy.

This is particularly the case in semi-arid regions of Africa and Asia. These climate change hotspots are highly dynamic systems that already experience harsh climates, adverse environmental change and a relative lack of natural resources. People here are often further marginalised by high levels of poverty, inequality and rapidly changing socio-economic, governance and development contexts.

This requires an effective response. In northern Namibia and eastern Botswana, research is already underway into what's currently working and not working in relation to managing climate impacts. A major regional project is seeking ways to

reduce vulnerability and develop longer-term climate adaptation responses.

Minimising vulnerability

The Adaptation at Scale in Semi-Arid Regions (ASSAR) project aims to redress the lack of information about the best ways to minimise vulnerability and develop adaptation responses. In addition, it aims to produce future-focused and societally-relevant knowledge of pathways to well-being.

One of the initial steps has been to undertake vulnerability and risk assessment workshops. The case study sites are in northern Namibia's Omusati region and eastern Botswana's Bobonong district. These workshops differ from many vulnerability assessments that often focus either on the village scale or on a resource-based sector.

The workshops bring together people from all walks of life. These include village leaders, non-governmental organisations

and government officials, among others. This group is called the Knowledge Group. Issues and hazards of most concern are identified through prior interviews and then refined by this group. During a two-day workshop, the Knowledge Group unpacks how the most important issues impact different livelihood groups in the area and the best responses.

During workshops in Botswana last year, and in Namibia earlier this year, drought was found to be one of the three most important issues facing both regions. One of the exercises was to develop an impact chain to assess possible positive and the negative future impact of drought.

Groups mapped how drought affects the biophysical system – farming, water and natural resources, for example – and then how this will further impact on families' lives, economic activities and broader political and institutional environments.

How drought affects Namibia

In Namibia, the indirect impact of drought on livelihoods that were identified included:

- Reduced crop yields from crop failure leading to loss of income and inadequate food supply in households. This has an impact on health.
- Reductions in water available to wildlife, leading to loss of wildlife. This affects the number of tourists and earnings from tourism.
- Reduced fodder production, heat stress and outbreaks of diseases affecting livestock health and mortality rates. This reduced milk and meat production leads to loss of income.
- Livestock mortality had an impact on cultural practices. The death of livestock often leads to loss of status, prestige and participation in social networks. Livestock deaths limit the ability of people to participate in social and cultural events, such as wedding ceremonies.

All of the above lead to lower household incomes, which increases hunger. Malnutrition of school children leads to poor health and an increased number of school dropouts. Limited household food availability can also increase participation in risky behaviour, such as theft and transactional sex in exchange for food or cash. This then leads to an overall increase in household social conflicts.

Impact of drought in Botswana

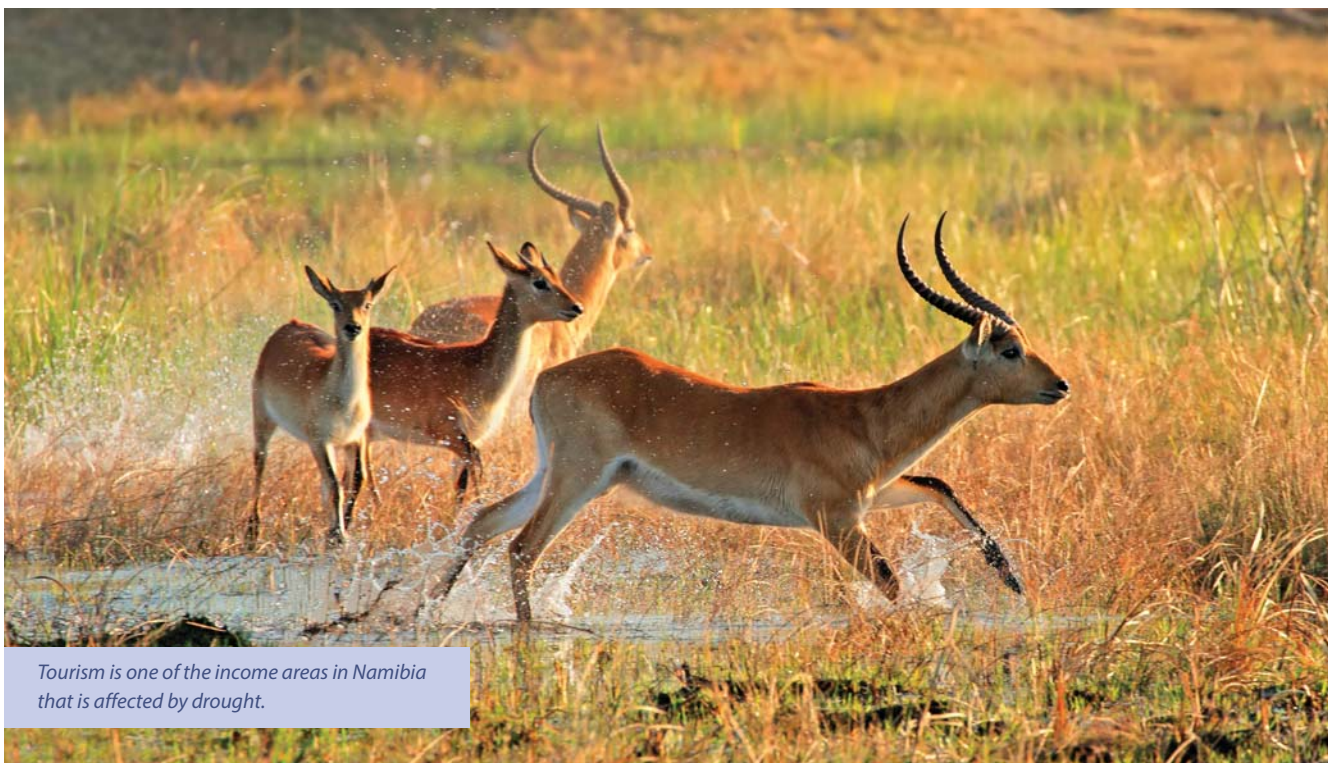
In Botswana, there were some similarities and some additional points that were raised related to the impact of drought: Rainfall patterns had not been consistent for the past 15 years and the frequency and impact of drought had increased.

Arable farmers, livestock keepers and phane (mopane worm) harvesters are most vulnerable to drought because a lack of water increases the likelihood that their crops will fail, animals will die and mopane worms will be in short supply.

Livestock farmers in the area are highly vulnerable to drought because they are not able to migrate with their animals in search of water. Those who have migrated have experienced livestock theft when they move closer to the border.

Traders were thought to be moderately affected to drought because some items are scarcer in a drought, but also because households have less income to spend.

Youth are particularly sensitive to drought. In some cases, youth who take out loans for an agriculture business cannot pay them back during a drought, resulting in further hardship. In some families, the assistance of youth is not needed in the fields or to harvest phone during drought, and so they are unoccupied and get into trouble.



Tourism is one of the income areas in Namibia that is affected by drought.



Livestock farmers in Botswana are severely affected by drought.

Unfortunately with climate change, drought is likely to become more frequent. It is critical to assess the viability of scaling up successful local solutions as well as identifying new solutions

When there is drought, the elderly have to use their old age grant for food instead of other vital supplies and services. This is made worse by their limited physical fitness.

The associated lack of food and income can have far reaching social consequences. These include people adopting risky behaviours, including drug and alcohol abuse, truancy, criminal activities, theft and corruption that lead to family breakdowns.

Solutions from local communities

One of the strengths of the workshops is that they help the Knowledge Group to identify solutions they think could be strengthened or implemented at the local or district level. So in Namibia, there was a discussion about promoting food banks to address food insecurity at the community level. As part of this, each household is encouraged to contribute 20 litres of mahangu (millet) that is stored by the traditional authority and used in time of distress.

In Botswana, a number of strategies were mentioned, such as irrigation using underground water, leaving phane worms on the ground to allow them to reproduce for the next season and using water harvesting more. There was also support for moving away from dependency on government projects.

In Namibia, regional actors talked about the impact of drought on their activities. Water in northern Namibia is transferred from Angola, first through an open canal and then through a piped reticulation system. When there is a drought there is greater demand for water, and people land up damaging the canal when getting water for their livestock. This reduces both the overall amount of water and reduces the water pressure.

The decrease in water pressure reduces the reliability of water

supply for the villages at the end of the pipeline. During droughts people move even further afield with their livestock for grazing and so require water in these far off areas too. These additional challenges not only compromise the water-supply system, but lead to increased maintenance and operational costs.

To help meet the water-supply demands, the Omusati Directorate of Rural Water and Sanitation requests resources from the national level to drill more boreholes, particularly in remote areas. NamWater also has plans to improve the quality and extent of pipes in the area over the coming five years.

The Department of Planning, in the Regional Council, is central to managing drought, even though this might not be obvious at first. It helps with sanitation, which is particularly important during disease outbreaks that commonly occur during drought. It also tankers water into villages when supply is low.

One of the department's responsibilities is for constructing clinics, hospitals and schools. Illustrating how drought can impact on these services, the director explained that the construction of a school in the region has been put on hold for two months in 2016 as there was not enough water for the building process. Examples like this show how education and other services can be impacted by drought directly.

It is clear that drought is already affecting many parts of the system in semi-arid regions. Unfortunately with climate change, drought is likely to become more frequent. It is critical to assess the viability of scaling up successful local solutions as well as identifying new solutions.

Importantly, this needs to be done by including local stakeholders, as well as local government and non-governmental organisations and connecting them to international funding organisations.

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