

Helping communities adapt to Climate Change

Approaches to drought and flood in North-Central Namibia

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In the community of Onesi in Omusati region in north-central Namibia along its border with Angola, farmers and residents know only too well the catastrophic effects of alternating drought and flood.

Much of Namibia's rural population ekes out a meagre existence on marginally fertile soil, almost wholly dependent on the arrival of rain at the right times. Even small changes in temperature, evaporation and the scale and timing of rainfall can have a devastating effect. In the Omusati region local crops and livelihoods centre around millet and maize, with farmers starting to grow Mahangu millet and other food crops including ground nuts, wheat and sorghum.

The villagers also harvest the mopane worm and rear livestock (mainly beef cattle, sheep and goats) and donkeys help with the ploughing of the land. However, the agricultural output in Namibia, and especially in this Northern region, is seriously and increasingly impaired due to adverse climatic and soil factors.

During the past five years the people of Onesi, along with many of the neighbouring communities, have suffered recurring drought, floods, locusts, insects and outbreaks of various pests. Many of these communities have little access to utilities and services such as water, health and transport services and this makes them more vulnerable to these events.

Floods... impact on all services, including electricity transmission

Floods have become an almost annual occurrence in Namibia and cause major problems in the densely populated areas. Buildings are often situated in or near the floodplains, meaning that when floods hit, homes and businesses are destroyed. Roads also often suffer, cutting off homes and services such as schools and healthcare facilities. As flooding becomes more frequent and more intense due to climate change, it is likely that these impacts will increase causing greater damage to buildings, road and rail infrastructures, dams and water pipes, electricity transmission, communications, sewerage and drainage systems.

Most recently, in February 2016, Onesi once again experienced flooding. The floods displaced about 250 people who relocated to higher ground. About 86 homesteads were extensively damaged, while several schools and churches were deluged by the heavy rains

and mahangu fields submerged, leaving the affected villagers without food and shelter. Most of the relocated people were mothers with babies, schoolchildren and people with disabilities in the Onesi and Ruacana constituencies of the Omusati Region.

At a workshop in Outapi in March we heard many first-hand accounts of how this affects individuals in the community. Beata, an elderly potter and basket-maker in Onesi, gave us her account of the effects of drought on her business, livelihood and her life, vividly bringing home the problems the community faces on a regular basis. Beata's 'underground house' that she uses for the production of her clay pots has been flooded five times in recent years.

As a result of this, she has moved her pottery house and hopes it will not flood this year.

From one extreme to another

At the other end of the scale are the problems with drought – dry spells in 2013 and 2014 were longer and more severe than in the past and many livestock and crops failed. Over the two-year period, the weak or absent rains left at least 500 000 people needing emergency food aid – and many are questioning whether global warming and climate change will bring an even hotter and drier future. Periods of drought are equally disruptive to power supply as the problems of floods. When rainfall is low the level of the Kunene river drops and generation in the country's hydropower plant at Ruacana is reduced. The power plant supplies most of Namibia's domestically-produced energy and about half of the country's electricity supply.

Recent reports from the Government in Namibia have highlighted that the past 40 years have shown increased temperatures, with an increasing number of days recording a high of over 35°C, and the trend is expected to continue.

At the same time fewer consecutive wet days have been observed, in other words - there have been longer dry spells. On the other hand, there may be an increase in rainfall in the future, which may sound positive, except that the rain itself is likely to become more intense and of short duration, which may in turn exacerbate the risk of flooding, especially if it falls on dry ground.



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The hydropower plant at Ruacana supplies most of Namibia's domestically-produced energy and about half of the country's electricity supply.

Adapting to new climate conditions – a knowledge-sharing approach

Acutely aware that they must find long-term solutions to these climate change induced events, the farmers and inhabitants of Onesi, like many of their compatriots, are keen to work with experts and develop new approaches to enable them to adapt to their situation.

On 8 and 9 March 2016 researchers from the ASSAR (Adaptation at Scale in Semi-Arid Regions) research project, working with the local community, held a Vulnerability and Risk Assessment (VRA) workshop at Outapi Town Lodge in Outapi, Omusati Region Namibia.

The aim of the workshop was to discuss the problems faced and to facilitate discussion, knowledge-sharing and examine approaches to combat the effects of drought and floods in the community, both in terms of alternative livelihoods, and in developing adaptation measures for the existing agricultural livelihoods.

The workshop brought together a diverse group of stakeholders to discuss how hazards such as drought, flood and high temperatures affect the Onesi constituency. Amongst the group were representatives from the Onesi community, the Traditional Authority, the Red Cross, the Ministry of Environment and Tourism, SCORE project, the Constituency Development Committee, Onesi Constituency Office, Olushandja Horticulture Association, the Ministry of Youth, Sports and Culture, Ministry of Agriculture, Water and Forestry, and the Omusati Regional Council. The attendees represented a wide range of different community livelihoods – crops, livestock, wild food harvesting and handcrafts.

The Onesi farmers that were present hoped to receive information to help them gain a better understanding of climate change and what people in other communities and countries are doing to cope with droughts and floods. They stressed how useful knowledge-sharing is in learning new methods that have worked in other regions – some of the Onesi farmers had travelled to Zimbabwe to learn more about commercialising the harvesting of Mopane worms.

Whilst drought, flood and high temperatures were identified as the most important issues for the communities, other factors highlighted included theft of stock and the fact that, when there was rain in the area, people from surrounding areas would arrive looking for food. So there would be cases of people from Angola or surrounding

regions such as Oshana and Oshakati arriving with their children and wanting to be accommodated and fed by extended families and friends.

The workshop highlighted many of the long-term knock-on effects of floods and drought – both cause soil erosion and loss of soil fertility which results in poor harvests, poor grazing and loss of livestock. This in turn can lead to malnutrition, and other effects on the social and economic aspects of daily life, including the migration of men and young people to urban areas to find alternative livelihoods. The changes in climate also alter the region's biodiversity with a loss of wildlife and birds and also aquatic life. Flooding also displaces people and threatens their safety in the short term, destroys or damages infrastructure such as roads and buildings and can bring water-borne diseases that cause additional health issues.

Water, power and working practices

The Outapi workshop identified a number of responses to these wide-ranging issues, including existing responses that can be strengthened and new measures that could be trialled. Whilst the Government and regional authorities have done much to provide flood and drought relief, it is the long-term measures of adaptation implemented by communities like Onesi that will make the difference and the residents are themselves very aware of this. They are already looking at adaptation measures such as growing drought-resistant crops and timing planting to fit with expected rainfall patterns. Livestock farmers also are aware that they must manage their herds to reduce numbers when drought is expected in order to preserve a few animals to breed from at other times.

With flooding also a major issue for the community, farmers are also looking at crops that are resistant to floods, such as rice. At the same time households are relocating to areas above flood levels, and calling on the authorities not to allocate land for building that is in the flood plain land.

In terms of more long-term infrastructure approaches, one measure being discussed is the building of earth dams to combat water scarcity, harnessing the times of high rainfall and flooding to offset the periods of drought.

Residents see the potential both to protect people from flood but

also to store water for use for seasonal vegetable gardening such as tomatoes, onions and water melons, as well as providing water for crops and livestock.

Improved drought management strategies must also include enabling greater access to available water in the wider region. The regional drought management strategy already in place can be built upon and strengthened at multiple levels in the future. One of the key factors highlighted by farmers is the need to have greater access to climate information and weather forecasting, to help them adapt their agricultural practices to accommodate expected events of both flooding and drought. Onesi is still relatively remote with little access to newspapers and broadcast media such as radio and TV. Mobile telephony has reached the community and there is access to grid power in the centre of the village but network coverage is difficult and access to climate information and seasonal forecast updates therefore at best intermittent.

In addition, more advice is needed on how to use seasonal climate forecast information, making community members more aware of existing opportunities and how to obtain assistance to implement some of these ideas, working with the Constituency Development Committee, the Settlement Development Committee and the Traditional Authority. Adapting to climate change is a partnership at local, regional and national levels

Conclusion

Adapting to climate change is a long-term, collaborative, iterative process. The ASSAR team continues to work with the people of Onesi and similar communities to help them make the changes necessary to respond to their changing climate and to share this information with other communities that can learn from the experiences of Onesi.

Further workshops later in the year will look at stories around possible futures and will include examining potential strategies that could be put in place. Plans are in discussion to set up a community exchange between some of the ASSAR study communities in Namibia, Botswana, Ghana, Mali, Ethiopia, Kenya and India. The aim is to enable community champions to spend some time in a community in another country and learn about their livelihoods and the adaptation measures they are implementing.

What is Vulnerability and Risk Assessment?

The Vulnerability and Risk Assessment (VRA) methodology, developed by Oxfam, aims to develop a common understanding among a wide range of stakeholders about the main hazards and issues affecting people in a social-ecological landscape. Building on this it aims to identify measures to reduce risk, enhance wellbeing and promote resilient development in that landscape. The methodology does so through a participatory process of identification and prioritisation of existing and future vulnerabilities, risks, capacities and ambitions.

The VRA methodology has been designed to be aware of historical and evolving power dynamics. For this purpose, a Knowledge Group that consists of local stakeholders from the local to regional level is central to the workshop and helps to drive the analysis.

The term 'vulnerability' in VRA includes an understanding of the hazards, but also the capacities of people and environment to respond, adapt and overcome these hazards. The VRA brings together actors across scales – community, local, municipal, district, sometimes national – to understand the links between these governance levels. It provides a space for stakeholders to proactively identify responses that build on the local realities and priorities. The VRA tries to encourage collaboration between stakeholders on the ground, rather than relying on external interventions.

About drylands and semi-arid regions

Semi-arid regions are climate change hotspots, areas deemed particularly vulnerable to climate change. Already climatically stressed with high temperatures, low rainfall and long dry seasons, the stressors are set to intensify as the climate changes. Understanding what the science tells us about the uniqueness of the challenges facing the semi-arid regions is key to effectively adapting.

About ASSAR

The international and interdisciplinary ASSAR team comprises a mix of research and practitioner organisations, and includes groups with global reach as well as those deeply embedded in their communities. The consortium is a partnership between five lead institutions (University of Cape Town, University of East Anglia, Indian Institute for Human Settlements, Oxfam and START) and 12 partner organisations, Addis Ababa University, African Wildlife Foundation, Universities of Botswana, Ghana and Namibia, Icrisat, Ashoka trust for Research in Ecology and the Environment, Indian Institute of Technology Madras, Watershed Organisation Trust, Reos Partners, Red Cross/Red Crescent Climate centre and the INTASAVE-CARIBSAVE Group.



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The international and interdisciplinary ASSAR team comprises a mix of research and practitioner organisations, and includes groups with global reach as well as those deeply embedded in their communities. Adaptation at Scale in Semi-Arid Regions or ASSAR is a five-year research project (2014 – 2018), funded by the Canadian International Development Research Centre (IDRC) and the UK Department for International Development (DFID). It aims to deepen understanding of climate vulnerability and adaptation in semi-arid regions and to inform and influence climate change adaptation practice and policy. It aims to embed proactive, widespread adaptation in development activities and to advance adaptive livelihoods for vulnerable groups in drylands by building capacity and closing knowledge gaps. The project is being implemented in four regions (Eastern, Southern and Western Africa and South Asia). In Southern Africa, the research is focused in Onesi constituency in Omusati region in Namibia and Botswana with a focus on the Bobirwa sub-district in the Limpopo Basin. More information about the project is available on the website (<http://www.assar.uct.ac.za/>) and a short video showing ASSAR's Theory of Change: Adapting to climate change in semi-arid Africa and Asia can be viewed here: <https://youtu.be/0sEqm7tq6D8>. Enquiries: Email sheila.lashford@intasave-caribsave.org