

Understanding climate change and the cultural context

Article

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Understanding climate change and the cultural context

Universities across the Commonwealth are making a vital contribution to understanding and mitigating the impacts of climate change. These include the University of Reading, where former Commonwealth Scholar, **Andrew Ainslie** – now a lecturer himself – is part of a research group which includes current Commonwealth Scholars trying to understand how knowledge of climate change informs decision-making at a grassroots level.

All over Africa, smallholder farmers make a major contribution to food security, with a key role to play in economic growth and poverty reduction. Yet as the continent's youth population grows apace, a crucial question confronts agricultural development: how can smallholder farmers adapt to a changing climate?

While governments, donors, researchers, and NGOs all weigh in with studies, facts, and figures about how serious things are and how they might turn out, one player in this drama stands out among all the others: the African smallholder farmer – predominantly female, overwhelmingly rural, and battling to secure their livelihood.

Attention is increasingly centred on what will make smallholder farmers in Africa more resilient in the face of significant environmental, sociopolitical, and economic change. What information do they need in order to make the daily, weekly, and seasonal decisions to manage their limited resources and secure their livelihoods? And in this heady mix, what do they perceive 'climate change' to consist of?

Beyond technology

In the information age, there is no shortage of freshly-minted perspectives and technologies on offer to assist the farming community: sophisticated meteorological modelling, satellite imagery, index-based insurance products, daily market prices, precision agriculture and more, all directed at increasing productivity and driving efficiencies. These new sources of expert advice are on offer to rural farmers via text and email, radio and television, social media, and participatory action research. In other words, the support on offer has never been more wide-ranging. But does this necessarily translate into improvements in adaptive capacity and productivity?

If it were only an issue of more scientific information and more technology communicated more seamlessly, then surely the so-called 'technology transfer' model – so long the mainstay of agricultural extension services – would have cracked the case. But there are other issues we need to address: what are farmers' frames of reference? What sources of knowledge do they trust and why? How much of what they do and the technologies they adopt is based on knowledge derived from a local understanding of the world, shaped by a particular historical and cultural context?

As such, two particularly pertinent questions emerge: is it even possible for people to detect longer-term changes in climate, as opposed to more localised changes in weather? And does the widespread reporting of climate change influence people's perceptions? Several researchers at the University of Reading's School of Agriculture, Policy and Development – including three Commonwealth doctoral scholars – are seeking answers to these questions.

Changing rainfall in Cameroon

Commonwealth Scholar Louise Abongu conducted doctoral research in rural Cameroon, where as part of her objective to understand the vulnerability of crop farmers in rain-fed systems, she sought to elicit farmers' perceptions of climate change.

Louise found that farmers articulated their understanding of climate change by focusing on changing rainfall patterns. The first rains used to fall in early April, they explained, and would continue to fall steadily so that by 20 May (a national day), the millet would have reached knee-height. More recently, however, the start of the rainy season had shifted and was unpredictable. Dry spells frequently followed the first rains, hindering the sowing and early growth of crops.

Farmers reported that rainfall now differed in its intensity, frequency and duration, causing them to wonder when to plant their crops. They also averred that temperatures had increased over recent years, but they did not keep accurate records to evidence this assertion. Instead, they observed these changes by pointing to shifts in crop planting season, in crop yields, in decreasing soil moisture, and in exceptional events such as bridges being washed away during flash floods.

At village level, Louise found that the traditional leader was the person who most shaped the common narrative in the community, as he was the influential conduit for NGO projects and ideas coming into the village. Louise recorded instances of NGOs visiting the traditional leader with the message that 'climate change is caused by deforestation'. They asked him to take tree saplings from them and distribute among the community to be planted. Through interviews with contacts in NGOs and government district offices, she found that the narrative of 'the rains have changed and become less reliable' was widely recited and officially endorsed.

Crop choices in in north-western Ghana

Commonwealth Scholar George Dakurah undertook his doctoral research in north-western Ghana, exploring the drivers of decision-making in relation to crop choices and household food security.

His fascinating research into farmers' perceptions of change found that, as in Cameroon, farmers in Ghana are extremely attentive to changes in rainfall. They are in receipt of high quality information, via meetings and radio, on seasonal forecasts and the prices of crops. In response, they are adjusting their crop choices – typically by adopting faster maturing varieties, such as white maize.

But he also found that people have a particular need for certain crops – such as sorghum, which has ritual and medicinal uses – and a taste preference for millet that goes beyond meeting basic nutritional needs. Although better-adapted white maize – previously unknown in the region – has largely replaced sorghum and millet, (male) farmers pointed out that when a staple meal (known as *tuo-zaafi*) is made from white maize, the taste is inferior to millet. Women, however, prefer maize because significantly less labour is required to prepare it than is needed to thresh and winnow millet. Younger people, meanwhile, report disliking the taste and colour of sorghum.

What George's research makes clear is that farmers' decision-making is as much shaped by domestic food preferences and cultural needs, as it is by economic reasons and perceptions of climate variability.

Cultural beliefs and drought in Mozambique

A third doctoral student and Commonwealth Scholar, Daniela Salite, is studying the cultural beliefs that inform people's responses to drought conditions in the Gaza Province of southern Mozambique.

She found that farmers have a deep local knowledge about changes in seasonal weather that rests on close observation of a wide range of signs. These include changes in the natural environment, such wind direction; the state of trees and plants, especially the quantity and quality of fruits and flowers; and unusual behaviour of domestic livestock.

However, they are also informed by cultural beliefs regarding both the causes of drought and how to counteract it. In her interviews with farmers, for instance, Daniela was told that the ancestors could punish those whose behaviour displeased them by sending drought. For example, abortion is deemed unacceptable to the ancestors and a special ceremony is held when a young woman is suspected of having undergone an abortion, lest the ancestors punish the whole community. When one family reneged on their deceased relative's stated wish to have his dreadlocks cut off before he was buried, this was interpreted as a reason for the onset of a drought and drastic remedial action was taken as a result to posthumously honour his wish.

What Daniela's research suggests is that the rural Shangaan-speaking people of this region understand that the natural state is for drought and floods to sometimes strike, but their wish is to find an explanation for what causes these events to befall them specifically.

Some of those she interviewed recognised the connections between cutting down trees (which 'hold the rain') and the onset of droughts, floods and cyclones. But it can be difficult to untangle how much of this is based on indigenous knowledge and how much is an amalgam of scientific and local knowledge. What a final anecdote reveals, however, is how people can incorporate the two quite seamlessly: when asked what they understood by El Niño (a climate phenomenon that occurs when a vast pool in the Pacific Ocean becomes abnormally warm and causes droughts in southern Africa and elsewhere), they explained that El Niño was an animal in the sea which caused drought. 'Now that it is raining,' they asserted, 'the animal must be dead.'

Change and context

What all these experiences demonstrate is that smallholder farmers are working hard to secure their livelihoods in difficult circumstances, which frequently require back-breaking labour. Of anyone, they are surely geared towards maximising practical and economic efficiencies. But any efforts to support their 'adaptive capacity' and resilience in the face of considerable change, must take full account of their cultural frames of reference and their understanding of the world.

It must also take into account their aspirations and preferences, which are rooted in local, sociocultural circumstances, historical narratives, and political contexts. Knowledge of a changing climate, and the power to act on this knowledge, need to be woven into the very real preoccupations of millions of individual women and men bent on securing their futures.

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