The British Academy

Everyday Climate Change in Ghana

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Programme Highlight

The northern city of Tamale,[1] like the rest of Ghana, is getting hotter. In fact, its temperatures are rising faster than the global average, putting it among the front-line cities at risk from deadly heat. Tamale is also experiencing severe flooding. Both types of extreme weather conditions may be made worse by climate change.

Funded by the British Academy's *Cities and Infrastructure* Programme, researchers from Loughbrough University, the University of Ghana and the University for Development Studies in Tamale, led by Professor Katherine Gough,[2] are asking new questions. Never mind the temperatures recorded at the airport – what are the temperatures people actually experience in their homes and workplaces? And what is the impact of higher temperatures and flooding on people's livelihoods and well-being? No one knows the answer to these questions. Until now.

Visiting the four settlements in Tamale participating in this pioneering research with the project team, we make our way through unpaved streets compacted with red earth, past small mosques and traditional thatched circular huts being gradually replaced by oblong modern constructions with corrugated metal roofs. Many of the local people live in compounds housing numerous families where young children play during the day.

Everyday Life in the Heat

Despite rapidly rising temperature, women are going about their everyday lives, washing clothes and cooking as we visit. Some make food, others are set up with sewing machines as tailors, or as hairdressers in simple salons, or sell small provisions from table tops. Men work as blacksmiths, mechanics and carpenters. Everyone is busy making or repairing something that makes life work.

[1] Tamale has a population of just under a quarter of a million.
[2] '*Vulnerability to Extreme Weather Events in Cities: Implications for Infrastructure and Livelihoods*'. Team members include Eben Amankwaa, Samuel Codjoe, Paula Griffiths, Raymond Kasei, Sam Kayaga, Rob Wilby and Paul Yankson. My thanks to Katherine Gough and her UK and Ghana-based team for their generosity in sharing their research as its results are emerging with me.

Goats and chickens mingle with children playing. Cash is limited. As it is dry, growing crops for home consumption or sale is restricted to after the rainy-season. Obtaining water is a daily struggle. For many, it is fetched from standpipes and often paid for. This is women's work. Some taps are positioned at head height so that bowls and pots can be filled without being lifted onto the women's heads. When there is no water flowing from the taps, people resort to informal sources, such as wells and ground water supplies, that can be contaminated by effluent. Plastic waste litters the ground between dwellings. The lack of toilet facilities nearby results in inhabitants having to go 'free range', as one of the researchers described it. This suggests the urgency of providing basic waste disposal and sanitation infrastructure. And it is hot. Temperatures of 38 degrees Celsius are recorded in the shade and it is not even the hottest time of the year.

Measuring the Heat

In people's homes and workplaces, it is hotter still. We know this because the team is checking on the yellow 'tiny tags' they have placed in homes, workplaces and medical facilities, and from which local researchers download temperature data recorded at ten-minute intervals every six weeks. They know that the blacksmith works in temperatures that rise to 61 degrees Celsius; that the hairdresser works in temperatures in the high fifties, that everyone lives, and women cook, in stifling heat, that pregnant women line up outside of medical facilities without seating or shade, that very sick people lie sweltering in overheated hospital wards.

Variations in Heat and Construction

There are variations in room heat, and this tells the team about the importance of different kinds of construction and building materials – thatched roofs are cooler than metal roofs; ceilings of different kinds of material show heat variations and are generally cooler than homes with no ceilings; tiled and mud floors show differences in temperature; and trees close to homes generally reduce temperature. Their data maps onto a social archive of everyday life and suggests that there are small adjustments that people can make to lower the temperatures in which they live and work.

Raising Community Voices

The full benefits of this research will take time and painstaking public and political consultation to realise. But some of its impact is already apparent. A dissemination workshop in Tamale[3] in November 2018 was well-attended by the communities involved and by experts from key municipal services, like water and health. Participants were eager to engage with the research findings and the changes they point to. Women were particularly vocal on the issue of water and wanted to know more about how to deal with contamination. Instructions on how to live with contaminated water – a significant public health hazard – will soon be issued to each community. Other participants voiced concerns over ditches clogged with plastic – particularly problematic during flooding – and agreed to help clear them.

Upscaling and Making Changes

The workshop provided an influential forum in which people's voices could be heard and noted by those in authority. The challenge for the local team is how to upscale and reach other communities with their findings and suggested policy changes. Interviews with key team members were shown on local television and there are plans for radio broadcasts. Word travels fast.

[3] The parallel study in Accra held an equally successful dissemination workshop a few days later. Here flooding, as well as heat, is a major concern to communities and service providers alike.

Just installing a 'tiny tag' in someone's home or workplace raises questions about different kinds of adaptations they might undertake. As we walked around the communities, people were keen to engage the team in conversations about small changes they could make, on the benefits of trees and ceilings, on constructing a rudimentary chimney for the blacksmith. These are small but important changes in people's everyday lives and livelihoods.

Improving Resilience in Health Facilities

Two of the hospital superintendents in Tamale included in the study have already asked to be given the data and advised the team of the form in which they need it so that they can petition health authorities for changes that will reduce the impact of extreme heat and flooding on patients and staff alike. Women and children who are sick are the most vulnerable of all. The data sets that the team has built could eventually make it possible to give each facility and community heat and flash flood warnings alongside advice about how to respond to these alerts.

Capacity Building

The project team could not have done this research without the 'community champions' that each community appointed to be the liaison with the research team. The champions are vital channels to the community. They were given smartphones so that they could send photographs, data and information about extreme events to the researchers. They have in the process up-skilled themselves in the use of social media and feel empowered by the research and knowledge that they have gained. As some of them are district assembly members, they are in a position to influence what happens next and the project's legacies.

This project will yield multiple benefits for people living in low-income settlements throughout Ghanaian cities that at the moment are at the mercy of extreme weather events and climate change. People's livelihoods are severely disrupted by extreme heat and flash floods. For the poor in particular, these disruptions are particularly problematic. The eventual success of the project will be seen in the extent to which communities are empowered to act to protect lives, livelihoods and property.

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