

Stunted by climate

With expertise in geography and human health, Marta Jankowska and David López-Carr worked with a team of specialists in climate science, statistics, demography and policy to study climate change impacts on child malnutrition in Mali.

■ What was the impetus for this project? What was the main objective of the work at the beginning of the project?

The aim of the project was to examine potential climate drivers of child health and mortality in Africa. Data from the Demographic and Health Surveys (DHS) are widely used in research in public health, but rarely has there been integration with physical science projects. We decided to focus on child malnutrition because it is a complex problem, and climate change can influence malnutrition in complex ways. It can be chronic — a long-lasting condition reflected by child stunting — or short-term, when a sudden shock, such as a food-price increase, results in children being underweight or anaemic.

■ How did you go about finding suitable collaborators?

We proposed linking the DHS dataset with climate data to our climate science colleagues. As a result, a new collaboration between the Human-Environment Dynamics Lab and the Climate Hazards Group at the University of California, Santa Barbara was set up. An additional source of collaborators was the Joint Doctoral Programme in Geography between San Diego State University and the University of California, Santa Barbara. Finally, the National Academy of Sciences facilitated two of us meeting through the International Institute of Applied System Analysis in Vienna.

■ Did you encounter any difficulties in working with a team of experts with different research backgrounds?

There was a lot of discussion between team members about the process and

in terms of understanding our findings. We found it important to acknowledge what each discipline saw as an acceptable result, particularly in terms of the statistical analysis, as each field's criteria for interpreting the findings differed. We had to trust each other as experts in a specific field to reach an agreement. Once everything was written down, we were able to identify areas where further explanation was needed by having other colleagues read the work. Engaging in this learning process was actually a very exciting way to discover how people from other disciplines do research.

■ What was the highlight of working with an interdisciplinary team?

Once we agreed on the research goals, it was exciting to see how the project developed and how much we could trust each other. From our point of view, it was stimulating to learn about climate science and gain an appreciation for the theory and methods. On the flip side, our collaborating climate scientists can now look at the issues around population and human health with more interest and understanding.

■ Any surprises?

We were very surprised to find that the estimated arid climate trends in Mali had impacts on stunting even when controlling for the effects of livelihoods. We thought livelihoods would be the primary drivers of climate effects on malnutrition. This result encouraged us to continue this project with the aim of including more information about historical climate and impacts in Mali.

■ Did you learn any lessons about interdisciplinary collaboration from this project that would benefit others trying to do similar work?

Interdisciplinary research is not as difficult as it seems initially, especially when you trust the people you're working with as experts in their field. We succeeded in this project because we started small and focused on one country. Now that we have worked together and we have produced valuable results, we can move forward to expand the research. Finally, we believe it is important to value the role of young researchers as a source of enthusiasm and fresh ideas that connect various disciplines, and for their ability to quickly build bridges for collaborations.

■ Was it difficult to get financial support and what would you suggest to researchers looking for funding to carry out interdisciplinary work?

We all did this on our own time, not financed by any grants. It is difficult to get funded to do interdisciplinary research, especially if you are a new research team without any previous publications. Funding agencies traditionally require a high level of expertise in the field for which they make the money available, or a project that has a very large scope to justify the variety of specialists. We believed it was important to start small. We will try for funding in the future so that we can scale up the research.

■ Any final thoughts?

For something as complex as climate change and health, there is no way that researchers from one field of knowledge can know everything. Interdisciplinary research will become the main mode of doing research. Bringing together people who have overlapping but distinct skills and knowledge is one of the strongest tools for anticipating, measuring and responding to climatic change and its related effects.

INTERVIEW BY MONICA CONTESTABILE

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