The Problem

One in eight people on the planet go hungry for extended periods every year. Most are farmers and their children. The causes of hunger are well understood and predictable. Repeated cycles of hunger, and its nutritional impacts, cause large-scale disruptions. For example: 315,000 women die each year in childbirth due to low iron levels. The impacts of hunger are long-lasting and can even be multi-generational.

When addressing hunger and malnutrition, climate matters. Given that 80 percent of the world's agriculture is rainfed, it is very vulnerable to climate fluctuations. Man-made climate change poses an additional challenge to countries and communities that cannot cope even with the climate they have today.

Understanding existing national policies and practices is also essential. In order to create the availability and use of the best possible climate information at relevant time scales to support decision making, we first need to understand the decision options and processes—including farming practices, political landscapes, national markets and trade policies, responsible institutions' technical capacity, as well as the relationships between institutions.

Our Solution

Columbia's intellectual leadership applied to programs of global impact. "ACToday" aims to enhance the availability and effectiveness of climate information in national policy, planning, management, and other decision-making processes. Its goals are to improve food security, nutrition, environmental sustainability and economic outcomes in developing countries.

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Columbia is a recognized leader, offering access to such disciplines as climate, anthropology, nutrition, economics and human behavior. Columbia experts participating in this project will also bring in their own networks of international collaborators.

A focus on science that informs and affects planning and decision making in a real-world setting. Through our partner networks, we plan to use our innovations in climate information, targeted through social science, economics, health, agriculture and other research, to improve local decisions. In collaboration with our national and international partners, we will aim to improve the performance of the entire food system, for example maximizing production and reducing losses to more precisely predict and manage flood and drought risk, enabling better financial practices, and pinpointing needed relief efforts better and earlier when hunger does occur.

Six countries to start: Ethiopia, Senegal, Colombia, Guatemala, Bangladesh and Vietnam. We selected these countries based on discussions with our external international partners, giving higher priority to countries where two or more programs overlap. The list of countries will expand as the project is implemented.
Addressing data challenges will be a critical first step to success. Many countries have significant gaps in their historical weather and climate records. Sometimes extensive data exists but it is unavailable to use because it is not digitized, or because of national data sharing policies. Historical climate data help us understand natural climate cycles and their effect on food systems, human health and water supplies. High-quality climate data allow us to see how climate varies in one place season-to-season, and over years and decades, and how common severe droughts and other events have been. If observational records are incomplete, climate forecasts and projections are likely to be less skillful. The IRI is overcoming such challenges in Africa, for example, through an initiative called ENACTS [http://iri.columbia.edu/enacts].

We work with national meteorological services to create new, quality-controlled data sets and improve their access and use. This provides the foundation to do the sector work proposed by ACToday, and it brings in partners we have already engaged.

Twenty years of delivering climate services. The IRI stands out in its ability to provide decision makers with relevant, high-skill climate information on shorter and longer time scales, through the generation, translation, transfer and use of climate knowledge. Our forecasts are used regularly by organizations such as the Red Cross, World Food Program, Food and Agriculture Organization, World Bank’s Global Facility for Disaster Reduction & Recovery and the World Health Organization. Over the past 20 years, IRI has earned a reputation as a reliable and trusted partner in dozens of countries. ACToday will employ IRI’s expertise in communication, capacity building and training to ensure in-country partners will be able to produce, distribute and use the climate information and decision-support systems after the project ends. The project can attain even broader impact through the expertise from others at Columbia University.

Built-in impact evaluation. To determine how beneficial the decision-support tools and products developed through this project are, we will design an impact evaluation that sets out metrics of success ahead of the project and monitors them throughout. These aspects will benefit from Columbia’s leading expertise in multidisciplinary research and engagement, including climate science, agriculture, economics and nutrition.

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