



Alliance for Food and Climate Systems Transformation

A Systemic Problem

Food systems and climate change are inextricably linked. Agriculture and food production systems are increasingly at risk from climate-driven weather and environmental change, while intensive farming practices, deforestation, unsustainable diets, supply chains, and food waste all contribute to climate change.

Food systems must be dramatically and rapidly transformed to be climate resilient and sustainable. The UN Intergovernmental Panel on Climate Change warns that atmospheric warming of 2 degrees Celsius over pre-industrial levels could trigger a worldwide food crisis, and the negative effects of climate change on food production are already evident. Furthermore, a recent study published in *Science* suggests that emissions *from food systems alone* could push global temperatures past this point—even if energy-related emissions were zeroed out.

To meet the challenges facing our food systems, we need targeted research to identify, develop, and implement effective and scalable technologies, policies, and practices. However, research is often not effectively connected to food systems policy and decision making. This results from several factors, key among which are:

- **Research is often narrowly focused.** Food and climate systems are highly complex and interdependent, but research often occurs in disciplinary silos, where the pathways for pursuing systems-oriented research are slow and insufficiently coordinated.
- **Research is misaligned to stakeholder needs.** Research priorities are often inadequately informed by the needs of policy makers, decision makers, and communities most impacted by climate change.
- **Research is unactionable.** It can be difficult for stakeholders to apply research outcomes. Dissemination of results is typically focused on academic audiences, and stakeholders can have difficulty translating this research into policies, strategies, practices, or programs.

Our Solution: The Alliance for Food and Climate Systems Transformation

The *Alliance for Food and Climate Systems Transformation* will tackle these challenges by shortening the link between research and action and by deepening engagement with stakeholders on the ground. The aim of the Alliance is to strategically catalyze research that drives transformations across the food system.

The Alliance is a first-of-its-kind initiative. It brings together leading researchers and stakeholders across the globe to drive solutions-oriented, transdisciplinary convergence research. The Alliance maximizes collaboration across researchers, the private sector, NGOs, farming communities, and government to drive innovation and inform better decision making for resilient and sustainable food systems.

Global Collaboration to Speed Food and Climate Systems Solutions

Led by the Abdul Latif Jameel Water & Food Systems Lab (J-WAFS) at MIT, advised by a steering committee representing our 16 members across six continents, and with facilitation support from Meridian Institute, the Alliance is a global network of premier research institutions and affiliates. What sets it apart is its collaborative, transdisciplinary, cross-institutional approach, which uniquely covers the entire spectrum of the global food system.

The Alliance will collaborate with stakeholders as key partners in developing priorities for convergence research and aligning results with implementation. This uniquely positions the Alliance to drive impactful research in view of:

1) the vast range and depth of expertise in food and climate systems across its member institutions, 2) the integration of systems-oriented thinking across its transdisciplinary work, and 3) its ability to be responsive to public and private sector needs via ongoing stakeholder engagement.

The Work of the Alliance for Food and Climate Systems Transformation

- 1) **Maximize collaboration across researchers and food systems stakeholders:** Bring together research and stakeholder communities from the governmental, non-profit, farming, and private sectors to identify knowledge gaps, high priority research needs, and collaborative responses to them;
- 2) **Conduct convergence research:** Formulate and carry out actionable research that integrates knowledge, methods, and expertise across natural and social science disciplines;
- 3) **Synthesize research:** Assemble transdisciplinary teams to identify or synthesize areas of consensus on the state of the science to inform action by targeted decision-making audiences;
- 4) **Align data standards and food systems metrics:** Identify strategies to overcome existing barriers to data access, dissemination, and compatibility that hinder decision making, policy assessment, progress monitoring, and supporting research efforts;
- 5) **Develop promising, implementable solutions:** Catalyze concrete interventions for policy and investment decisions, technology development and scaling, consumer behavior, and supply chains.

The Opportunity

The Alliance offers stakeholders across the food system unique opportunities to build collaborative relationships with preeminent food and climate systems experts around the world. Leveraging the diverse expertise of its members, the Alliance can rapidly convene transdisciplinary teams to fill crucial knowledge gaps.

The Alliance allows stakeholders and funders to engage at the scale, geography, and scope that is most relevant to them, integrating global and local teams to achieve better outcomes. With MIT J-WAFS in the coordinating role, the Alliance provides an effective entry point to channel research funding and maximize synergies across funding sources. The range of expertise of our members presents opportunities for engagement between stakeholders, researchers, and funders across a range of sectors, whether agricultural companies developing climate-smart solutions, government agencies and global organizations seeking synthesized science to guide policy and programs, or insurance companies developing new financial products and strategies.

Next Steps

Throughout the summer of 2020, J-WAFS hosted a series of virtual “mini-dialogues” that brought together over 100 researchers and stakeholders to explore critical challenges in the food-climate systems nexus and opportunities for research to support action. These mini-dialogues clarified the needs and high-priority research topics for the Alliance. These initial areas of focus include building healthy soils for climate resilience and mitigation, reducing food loss and waste, and designing and assessing climate-smart food production systems. Additional priorities for actionable research include supply chains, decision support systems, food systems indicators and data collection, and nutrition and consumer behavior.

Initiated with startup support from MIT, the Alliance is now seeking seed funding to launch its inaugural research efforts and to support its core functions. This funding will help establish the Alliance as a leading driver of timely, relevant, and scalable solutions-oriented research at the nexus of food systems and climate change.

Alliance Members

- Massachusetts Institute of Technology
- Agricultural Model Intercomparison and Improvement Project (AgMIP)
- American University of Beirut
- Colorado State University
- Columbia University
- Ethiopian Institute of Agricultural Research
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- International Food Policy Research Institute (IFPRI)
- McGill University
- Tufts University
- University of Aberdeen
- University of California-Davis
- University of Pretoria
- University of South Australia
- University of Talca
- Wageningen University and Research

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