



Climate Change & Food Systems: Assessing Impacts and Opportunities

Why Apply a Food Systems Perspective to Climate Change?

While there is growing discussion and dialogue about climate change and *agriculture*, relatively little analysis and focus has been put on climate change and *food systems*. A narrower focus on climate change and agriculture, which is often associated with production, limits the ability to pursue a broad range of mitigation and adaptation strategies that support necessary system-level changes. Adopting a food systems perspective for climate change mitigation and adaptation will be critical to addressing GHG emissions and to achieving the Sustainable Development Goals (SDGs).

Food systems are complex, diverse, and provide many functions and assets. Food systems include all processes and infrastructure involved in feeding a population: growing, harvesting, processing, packaging, transporting, marketing, consumption, and disposal of food and food-related items. But, food systems consist of many additional elements and interact with other systems, including: biophysical and environmental systems; research, development and innovation; infrastructure; governance structures, policies, rules and regulations; economics; socio-cultural elements; power dynamics and equity issues; and demographics.

Productive and sustainable food systems have the potential to: address climate change; provide food and nutrition security for all; improve social, economic, physical and cultural well-being; provide secure livelihoods; contribute to greater social and economic equity; and enhance biophysical, environmental, economic and political systems for current and future generations.

The global response to climate change is critically important to food security. The UN Framework Convention on Climate Change (UNFCCC) seeks the stabilization of greenhouse gas concentrations in the atmosphere to “ensure[s] that food production is not threatened” (UNFCCC 1992, Article 2). Under the Paris Agreement, the vast majority of the world’s countries have included mitigation and adaptation measures related to the agriculture sectors (crops, livestock, forestry, fisheries and aquaculture) in their Nationally Determined Contributions (NDCs). The Food and Agriculture Organization of the UN (FAO) reports that 131 countries refer to agriculture as a “priority area” for climate change adaptation and 126 countries refer to agriculture with regard to climate change mitigation.

NDCs outline countries' climate change priorities for the post-2020 period and include not only targets, but also concrete strategies for addressing the causes of climate change and responding to its effects. Despite the difficult negotiations regarding agriculture sectors at the most recent UNFCCC Conference of Parties (COP), countries have made their agriculture sectors central to their response to climate change. However, countries' NDCs include varying levels of detail and are typically focused on specific sectors and elements of the food system (e.g., crop production), not on food systems as a whole.

Purpose of the Report

Food systems are inherently complex, ranging in scale from the local to global, interacting with other systems, and encompassing a vast process from agriculture production to food consumption, and every step in between. The complexity of this system lends itself to being analyzed piece-by-piece, which allows analysis of problems, opportunities, and resulting actions at a more manageable scale. However, this piecemeal approach can result in actions that ignore system-level effects. By taking a systems approach to exploring the relationship between food systems and climate change, we can begin to understand the linkages, feedback loops and interactions between the numerous dimensions of the system, increasing our understanding beyond simply the individual components.

In the Climate Change and Food System report, we seek to bring together existing information about climate change impacts and opportunities for climate adaptation and mitigation into a food systems framework. We review the linkages and interactions between food system components to identify interventions that could support transitions to green growth and sustainable food systems. The report's objectives are to:

- Review and synthesize key literature that examines the nexus of food, agriculture, and climate change.
- Provide a food systems perspective on climate change to enable decision makers to pursue broad opportunities for mitigation and adaptation actions that address agricultural production, aggregation, processing, transportation, consumption, health, equity, socio-economic issues, and many other food system elements.
- Describe connections between climate change and various food system elements as well as the feedback loops, synergies, and multiplier effects that could support or impede food system transformation.
- Document a range of possible interventions that – given certain key conditions – would help food systems adapt to changing climatic conditions and mitigate greenhouse gas emissions.

Opportunities for Action

The report is intended as a starting point for stakeholders at local, regional, national and international levels, including local and national governments, companies, farmers, consumers and many others to create dialogue, catalyze partnerships, share knowledge, and initiate understanding among diverse communities, sectors, and stakeholders about the role they each play and the actions that can be taken within the food system. We hope that the report will contribute to deeper understanding of food systems and climate change and catalyze actions that support: the emergence of improved governance systems for decision-making; evidence-generation; stakeholder interaction; and thoughtful management of interventions in these complex systems.

The report is a critical component in a Meridian Institute project to:

- Facilitate the development a globally recognized, trusted, meta-narrative about the complex relationships between climate change and food systems;
- Ensure the meta-narrative addresses the important relationship between food systems and national and global efforts to mitigate climate change in order to avoid catastrophic global temperatures and to create an environment in which food systems can be resilient and adapt; and
- Engage diverse audiences, thought-leaders, and communication channels for input to the report and to help disseminate its findings.

The project is managed and implemented by Meridian Institute—a not-for-profit organization with a mission to help people solve complex and controversial problems, make informed decisions and implement solutions that improve lives, the economy, and the environment. Meridian has convened an Author Team to develop the report and established an Advisory Committee to guide the process, provide strategic advice, and offer technical input (*See Appendix for Author Team and Advisory Committee members*).

Appendix: Author Team and Advisory Committee Members

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