JOHNS HOPKINS
CENTER for A LIVABLE FUTURE

FOOD SYSTEM RESEARCH AND PROJECT IDEAS FOR STUDENTS

COMPILED BY THE JOHNS HOPKINS CENTER FOR A LIVABLE FUTURE FOR AY2024-25

This document summarizes a select set of research and practice projects at the Center for a Livable Future (CLF). The aim is to provide a resource to help facilitate engagement of JHU students in current CLF projects that may align with program requirements such as MPH capstones, MHS essays, and doctoral dissertations. The project examples provided are illustrative and meant to inform or inspire new ideas. Through conversations with CLF staff, students can identify and refine projects. Students interested in these topics and exploring involvement in a CLF project should contact Phil McNab (pmcnab1@jhu.edu).

Animal Agriculture, Community Health, and Environmental Justice

Animal agriculture is a core focus of CLF's research and practice activities. The Center conducts and supports research done in partnership with a range of organizations with the goal of advancing environmental justice and building a scientific evidence base about the planetary and public health implications of animal agriculture. The Center also provides technical assistance and informational resources to organizations working to address these issues. In addition to discovering and characterizing public health challenges, CLF promotes alternatives to the industrial model of animal agriculture. As such, this area of work is wide-ranging, and students may contribute in many ways.

Examples from Previous Students

- **The livestock veterinarian shortage: Implications for food safety and security**
- The case for regenerative agriculture: Economic evidence and underlying barriers to implementation for US producers

Student Project Ideas

- Map the growth of CAFOs (concentrated animal feeding operations) in a particular region over time. Analyze the change in size of the facilities and estimate the change in waste generated by them. Discuss the policy environment that facilitated the growth and/or the impact on surrounding communities.

- Focusing on a community that has seen an actual or potential influx of CAFOs, use available data sources (e.g., newspaper articles, stakeholder interviews) to analyze how the community has responded and been affected.

- Analyze NGO reports and/or media coverage of the California and Massachusetts farmed animal welfare legislation in terms of how the upstream or downstream public impacts are discussed (or not).

The Center seeks to advance solutions to the negative impacts of industrial animal agriculture on public health. The Center relies on scientific evidence and public opinion polling to inform food systems-related policies at the local, state, and federal level. Our work in this area seeks to advance food production methods that support the health of people and the planet, end injustices experienced by communities and workers, promote equity and transparency in food systems, and align food production with consumption of healthy and sustainable diets. Through the **Food Policy Networks** project, the Center builds the capacity of food policy councils and similar community-driven collaborations to support local and state policies that promote alternatives to the industrial model of food and animal agriculture. We do this through research on food policy councils and by providing technical assistance and resources to support their effort in building equitable and resilient food systems.

Examples from Previous Students

- Swine production line speeds and worker wellbeing: A Health in All Policies approach to the 2019 New Swine Inspection System (NSIS)—white paper in progress
- The public health implications of a federal policy push to build methane digesters across the United States
- Advocating for food systems change: Lessons learned from food policy councils
- **Veggie Rx in the Farm Bill**

Student Project Ideas

- Analyze impacts of food procurement policies prioritizing purchasing based on values including climate mitigation, fair markets for producers, equity and inclusion, worker well-being, resource conservation, and animal welfare.
- Explore knowledge gaps regarding occupational health and safety in the food supply chain, particularly in settings such as CAFOs, slaughterhouses and methane digester facilities. A project could also focus on fisheries and aquaculture facilities (cross-referenced in Aquatic Food Production and Consumption).
- Analyze the network of organizations and partnerships, from local to national, that work to address industrial animal agriculture.
- Explore the membership of food policy councils that work on food and animal agriculture issues. What organizations do they represent? Why do they participate in a FPC? What value does their organization gain from participation in a FPC? What impact does participation from the organization have on the FPC or members of the FPC?
- Assess the processes for decision-making and accountability in the governance documents or bylaws of food policy councils and their impact on equity, engagement, and the policy work of FPCs.
- Contribute to literature review on food insecurity as a social determinant of occupational injury and illness, including exploring policy approaches.

- Examine the local and state level policies to support alternative production practices that food policy councils are advocating for, such as regenerative agriculture, and identify other policy opportunities to support alternative production practices.

Aquatic Food Production and Consumption

The Center's work on aquatic food systems and public health aims to provide the evidence and insight needed to inform policies, programs, and interventions that advance sustainable aquatic food practices. Projects underway include conducting research on aquatic food waste; delivering input on the 2025 round of the Dietary Guidelines for Americans specific to aquatic food recommendations; defining a path forward for sustainable, just, resilient, and equitable aquatic food systems; and translating evidence into public comments, fact sheets, videos, and educational materials.

Examples from Previous Students

- **Renewable energy in fisheries and aquaculture: Case studies from the United States**
- An evaluation of opportunities for seaweed to improve human and environmental health

Student Project Ideas

- Analyze consumer guides on purchasing and eating aquatic foods; assess which guides mention public and environmental health, and identify gaps regarding public and environmental health.
- Examine trade policy, and/or tariffs and their effects on seafood markets and trade.
- Assess federal permitting, subsidies and funding for offshore aquaculture.
- Review recent developments in cell-culture and plant-based aquatic food products.
- Review recirculating aquaculture operations and assess for purported sustainability and public health benefits.
- Explore knowledge gaps regarding occupational health and safety in the fisheries and aquaculture food supply chain. A project could also focus on settings such as CAFOs, slaughterhouses and methane digester facilities (cross-referenced in Food Policy Solutions).
- Review the sustainability of menus within institutional feeding programs (schools, hospitals, prisons, etc.).

Sustainable Diets and Demand-side Solutions

What we eat and how these foods are produced have significant effects on human health and ecosystems, including climate, land, soil, air, water, and biodiversity. CLF explores these connections and provides evidence-based guidance for shifting toward dietary patterns that better align with individual and planetary health through programs such as Meatless Monday, as well as research, policy, science translation and communications. We also develop educational resources and training about the benefits of plant-forward diets and best practices for implementation.

Examples from Previous Students

- **Meatless Monday through the years: An analysis of 15 years of consumer surveys**

- Evaluating planetary and human health outcomes of Food Is Medicine programs within US health care

- Exploration of the nutrition landscape: Mapping protein's journey in low- and middle-income countries

- Uncovering the "how to" of sustainable diets in long term care facilities: A literature review of the barriers of and strategies for implementation while considering concerns for sarcopenia

Student Project Ideas

- Study after study confirms that reducing consumption of beef and other meats is critical for climate mitigation. There is also a growing body of intervention research testing approaches to advancing such shifts. However, thus far this evidence has done little to move the needle. Why? What else is needed? Conduct a literature review and critical analysis on the state of meat reduction in the U.S.

- Given the dynamic and evolving field of alt-proteins, how do we accurately assess food system, health and environmental impacts and guide policies, institutions, and individuals toward optimal protein choices? Conduct a literature review and propose a rubric or framework to evaluate alt proteins and emerging technologies against health, environment and other food system impacts.

- Evaluate meat consumption attitudes and behaviors and the availability and acceptability of alternatives among BIPOC and lower-income U.S. communities. Propose pathways to behavior change, such as education and training/skills development (e.g., cooking classes) and ways to improve food environments (e.g., accessibility, affordability) of healthy plant-based foods.

- How might consumer-focused interventions influence or be influenced by animal agriculture practices and policies? Develop a white paper framing a connection between different agricultural practices and healthy, sustainable consumption. If possible, estimate the impact of consumer-focused interventions on both production and consumption.

- Conduct an online survey of Meatless Monday's social media followers to understand, assess and communicate its impact on replication, scaling up and translation of meat reduction as a practice.

- Develop an approach to conducting a set of "diet-climate conversations" in which participants have the space to share openly about their experiences and attitudes related to these topics.

Food, Climate and Resilience

More than ever, the world needs global collaboration and local action to prevent the catastrophic impacts of climate change on food security and health. This includes both mitigation of and adaptation to climate change. CLF's research builds on the strong evidence that reducing the number of food animals and reducing food waste are critical actions needed to reduce greenhouse gas emissions. We also help food systems adapt to climate change and other threats by researching food system resilience, including strategies aimed at increasing food system resilience. We prioritize projects that address equity angles within these areas.

Examples from Previous Students

- **Antibiotic footprints of the food supply: Dietary shifts and co-benefits for climate change mitigation**
- **A comparative national-level analysis of government food system resilience activities**

Student Project Ideas

- Describe use of funds from ARPA, IRA, and/or climate-smart program within the US Department of Agriculture, in relation to food, climate, and meat production

- How is the term climate-smart agriculture being used in different settings (media, corporate, policy, advocacy), and what does it refer to in each instance?

- Contribute to research on policy factors that affect food system resilience at the community level.

- Write a set of historical case examples of disasters that disrupted food systems including gathering data on food system-related costs. Help develop guidance for local food policy staff and advocates in obtaining leadership buy-in to invest in food system resilience planning. Research approaches used in other efforts to garner leadership support for prevention activities.

- Contribute to or carve out pieces from ongoing research on food waste and food donation. Projects include understanding policy drivers of food surplus; working on qualitative data analyses and manuscripts related to retail food donation and other topics; and working on manuscripts regarding typologies of communities that might respond similarly to food waste interventions.