

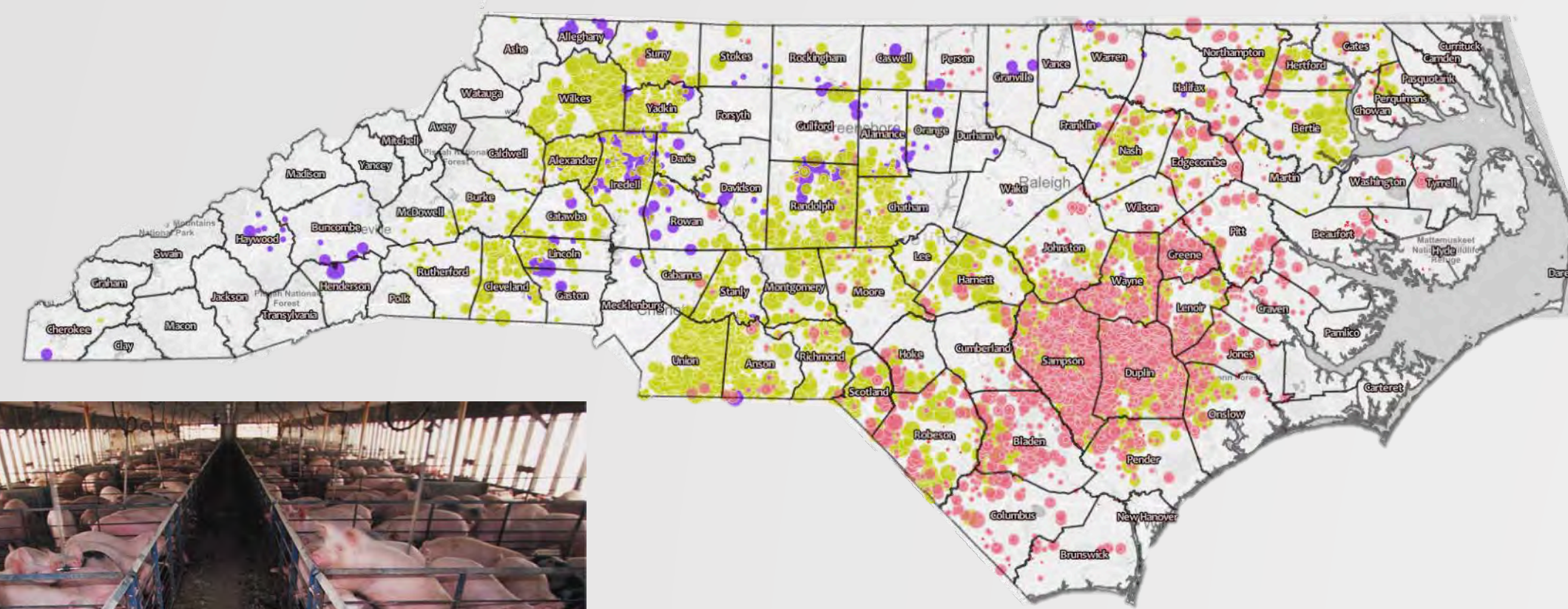
Animal Waste Management & Global Health

Anna Balas, John Benhart, Jennifer Callejas, Allison Carmody, Lauren DaSilva,
George Elliott, William Gerhard, Hanati Hailati, Daniel Inmacolato, Jennifer Lamy,
Ashton Merck, Christopher Molthrop, Tianshu Sun, Lindsey Zimmer;
Advised by Charles Adair, Michelle Nowlin, David Schwartz, Ori Sharon

Bass Connections
in Energy

Introduction

Concentrated Animal Feeding Operations (CAFOs) are an increasingly common model of meat production. The CAFO model uses land efficiently by growing animals in confined quarters to produce large quantities of meat and to meet the growing global demand. However, CAFOs concentrate animal waste that can lead to a range of global health threats including water quality impairment, air pollution, greenhouse gas emissions, environmental justice issues, and public health concerns.



Source: Environmental Working Group & Waterkeeper, 2016



Source: USDA NRCS, 2004.

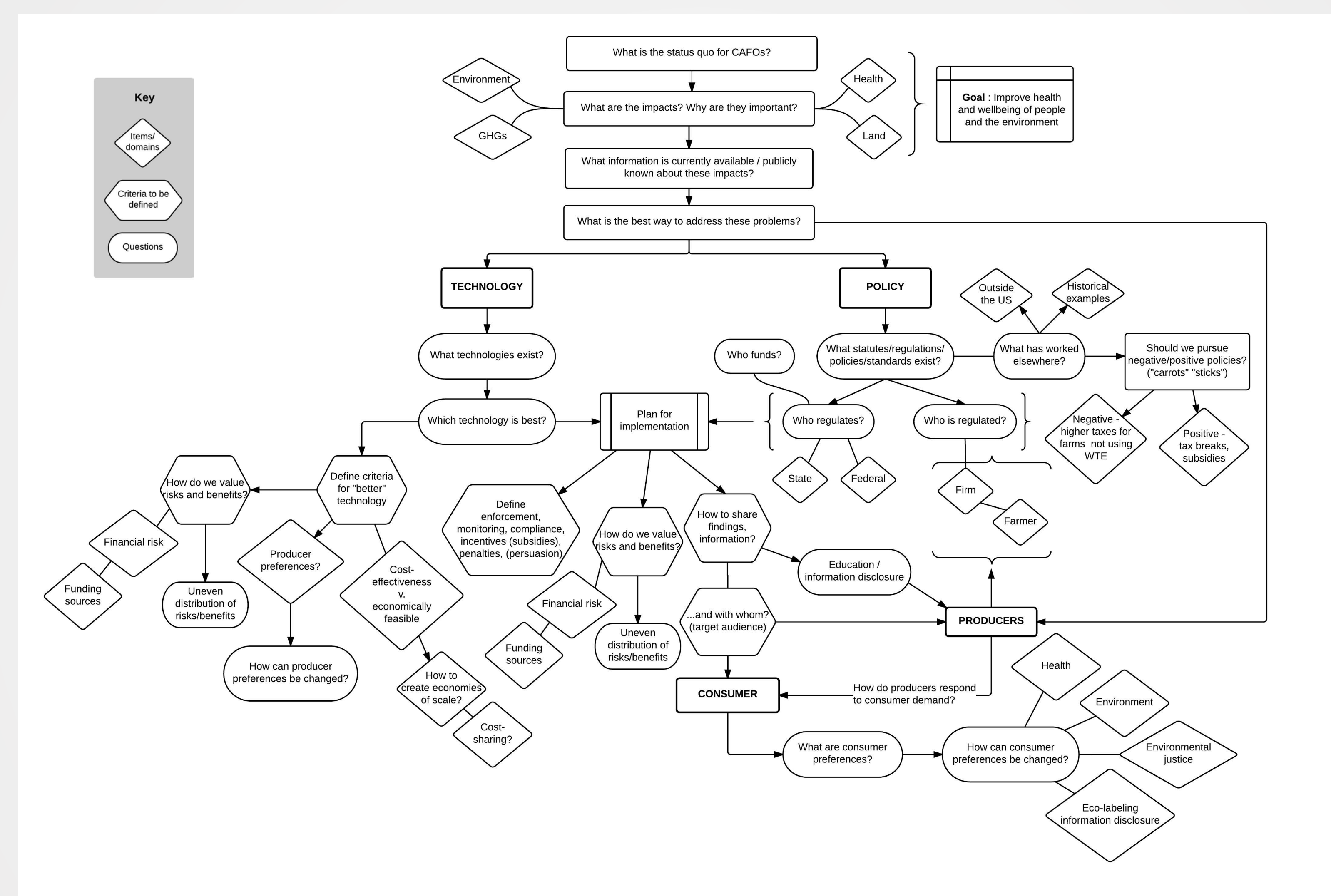
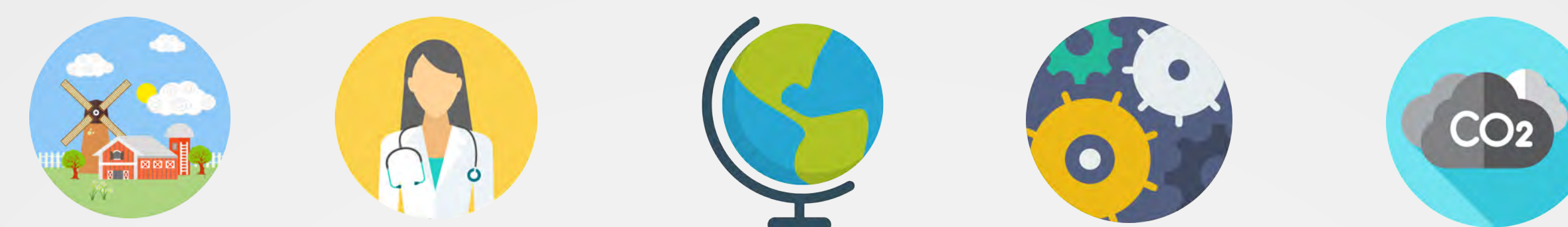
Objective

- Gain a cohesive picture of CAFOs in the U.S. and abroad
- Understand the environmental, health, social impacts
- Analyze viable alternative technologies and entire systems
- Identify pursuable initiatives for consumers and producers to affect changes in animal waste management

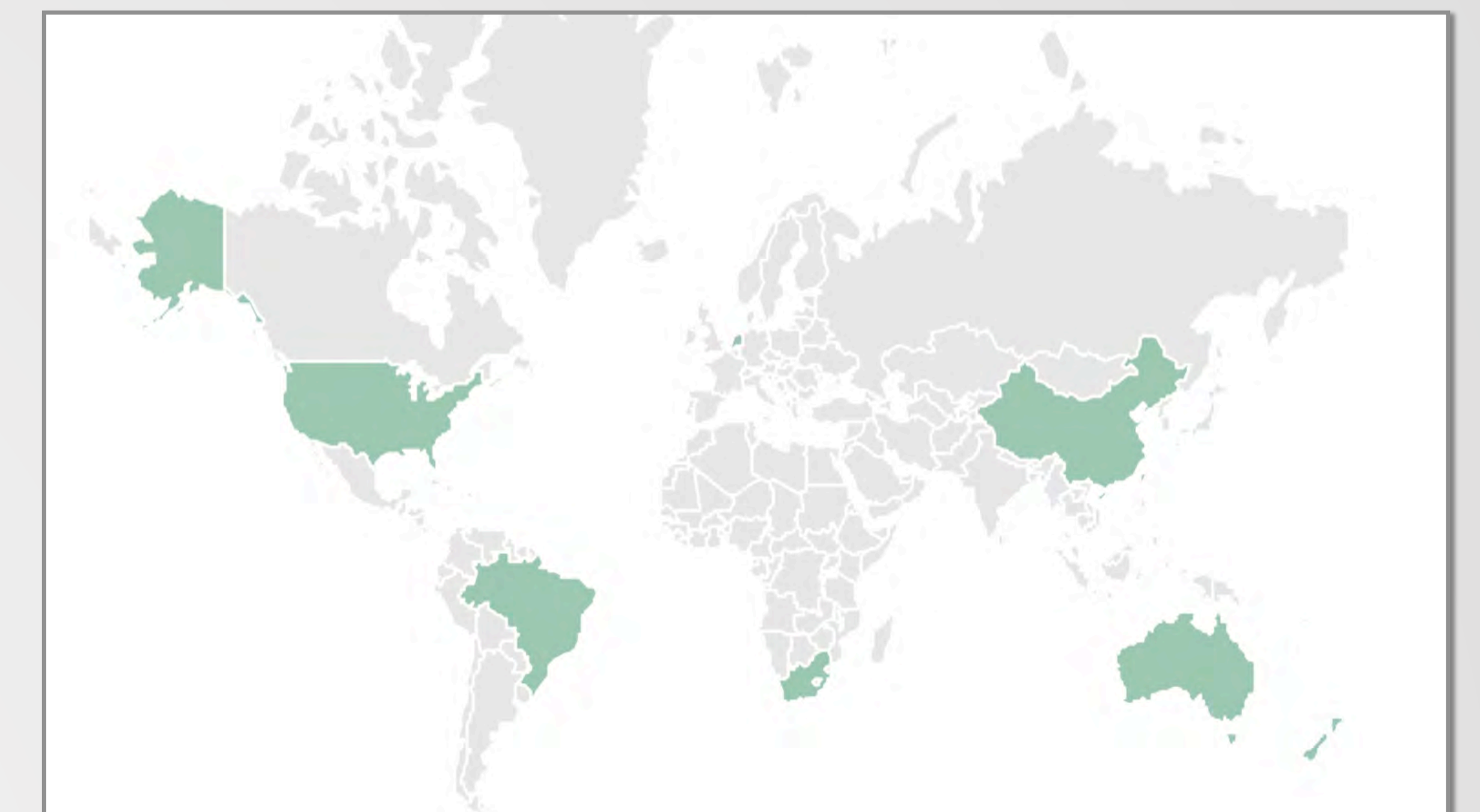


Methodology

The Team developed this framework to guide our research throughout the year. It begins with broad questions about CAFOs and their impacts; then breaks down into specific research questions aimed at finding the best way to reduce those impacts.



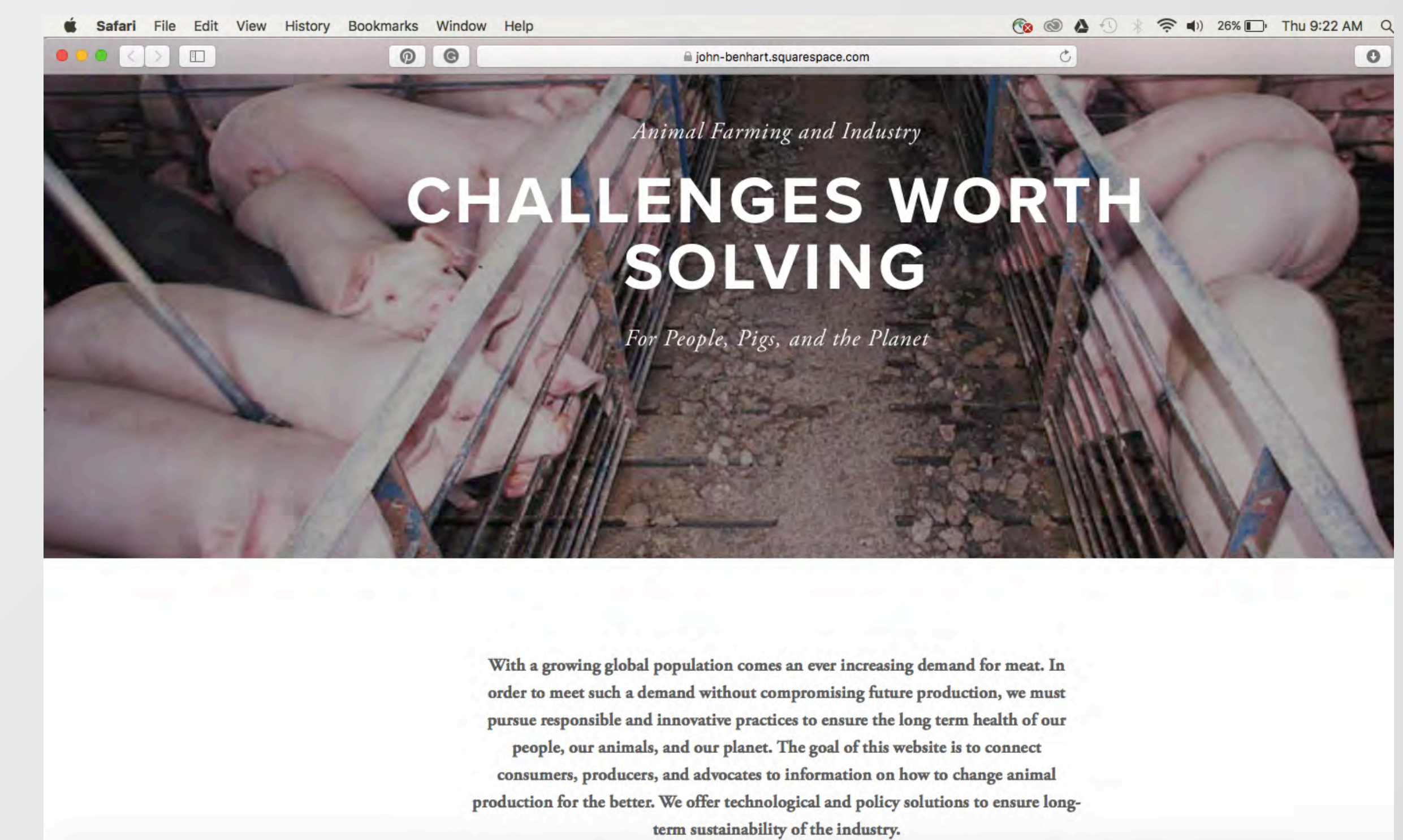
Spring Semester Results



Applying our framework globally, we investigated technology solutions, their underlying policies, and the significant influence of international trade dynamics. We focused on Australia, Brazil, China, Netherlands, New Zealand, and South Africa to explore what solutions abroad could be applied in the U.S.

Moving Our Work Forward

Through our research over the course of the semester, we have developed a website that will summarize and showcase all of the work that we have put into this semester:



This website is linked to our original wiki site to allow for easy updates to the website interface. Our aspiration is that through this online tool that we have created, we will be able to increase awareness of the problems with CAFOs in addition to popularizing solutions to solve these issues worldwide.

Fall Semester Results

Our first semester's research culminated in a memorandum: A Look At Concentrated Animal Feeding Operations in North Carolina: *The Problems with Animal Waste & A Framework to Solve Them*

The memorandum:

- Describes the status quo of CAFOs and CAFO impacts
- Explains key regulations and policies for animal waste
- Identifies potential technology solutions
- Develops criteria to evaluate technology solutions

Available at: <https://bassconnections.duke.edu/sites/default/files/documents/animal-waste-management-global-health-final-paper.pdf>



Source: USDA NRCS, 2004.

