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Sector Roles in United States Food Waste Reduction: Identifying Gaps in Food Waste Management and Advancing Collaborative Solutions

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Sector Roles in United States Food Waste Reduction:

Identifying Gaps in Food Waste Management and Advancing Collaborative Solutions

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UC San Diego



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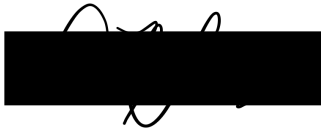
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Project Abstract

The United States is a major emitter of greenhouse gas emissions which contribute to climate change. Food surplus and waste sent to landfills contributes to these emissions through methane and nitrous oxide emissions. Preventing food waste at the source and redistributing edible food surplus to feed people rather than sending it to the landfill has the potential to significantly reduce both greenhouse gas emissions and food insecurity throughout the United States.

This capstone explores why managing food surplus and waste demands more complex infrastructure and coordination than other waste streams and examines the factors contributing to gaps in food waste management. It explores the effectiveness of local and state governments' initiatives in reducing food waste and highlights the role of the private sector and nonprofit organizations in advancing food waste prevention and food recovery efforts in the United States. To address these questions, I utilized both qualitative and quantitative methods through interviews, comparative policy analysis, comprehensive literature review, data analysis, and hands-on experience.

This project found that food surplus and waste management require more complex infrastructure and involve more actors than other forms of waste. To reduce food in landfills and re-circulate the surplus to humans, there must be greater interaction among the government, non-profit organizations, and the private sector. Organic waste bans and edible food recovery mandates at the state level are drawing attention to the problem and advancing solutions. However, successful implementation depends on infrastructure and local partnerships, such as non-profit organizations, to support the legislation through education and technical assistance. Non-profit organizations play a critical role in bridging gaps by facilitating food recovery and distributions, while the private sector actors can

effectively change behaviors around food surplus and waste through economic incentives.

To foster a more circular food system and accelerate progress, the United States must strengthen coordination across sectors to effectively prevent food waste and re-distribute food surplus. While reducing food surplus and waste is a critical climate mitigation solution, scaling these solutions will require significant funding and investment to meet the national goal to halve food waste by 2030.

Introduction

The United States has an inefficient food system as about 31% of food produced is wasted (ReFED, 2025). This food waste and loss has substantial environmental consequences and exacerbates food insecurity across the United States. The USDA estimates that each year food loss and waste in the US emits 170 million metric tons of carbon dioxide equivalent (USDA, 2022). This is comparable to 32.6 million cars worth of greenhouse gas emissions or the annual emissions of 42 coal-fired power plants (Leroma, 2025). With 25% of US landfills occupied by wasted food, a 50% reduction in food waste has massive implications for reducing greenhouse gas emissions (Roe, 2022). Preventing food from entering landfill is a “critical strategy to protect our climate and to ensure that this valuable resource is directed to better use” (Hoover, 2024).

In 2023, there were 73.9 million tons of surplus food generated in the United States. This surplus has an economic value of \$328 billion and is equivalent to 120 billion meals (ReFED, 2025). Rather than feeding people or animals, 85% of surplus food ends up in waste destinations, contributing to greenhouse gas emissions (ReFED, 2025). In 2023, this surplus food contributed to 2.7 million methane emissions and 230 million total greenhouse gas emissions (ReFED, 2025).

In this paper, I will be using the terms surplus food and food waste as defined by ReFED—a national food waste non-profit organization. Surplus food refers to all food that goes unsold or unused by a business or that goes uneaten at home (ReFed, 2025). Food waste refers to uneaten food and inedible parts which go straight to landfill, incineration, or down the drain (ReFed, 2025).

The aim for this project is to understand the role of different sectors in reducing food waste to meet the USDA and EPA’s goal of cutting food waste in half by 2030. While state-wide food waste policies have advanced the dialogue around

food waste reduction and raised awareness, there are major gaps, preventing the U.S. from reaching its goal. This project examines the demonstrated success and pitfalls of the state and local government in reducing food waste. By identifying the gaps in these policies, I aim to understand the ways in which non-profit organizations and the private-sector are currently working alongside these state policies through prevention, distribution, and recycling strategies to effectively manage food surplus and reduce food waste. I hope this research will provide actionable insights for ways state and local governments, non-profit organizations, and private-sector companies can work together to halve food waste in the US by 2030.

Background

Federal Context

In September 2015, the United States Department of Agriculture (USDA) and United States Environmental Protection Agency (EPA) implemented a national food loss and waste reduction goal to address climate change, increase food security and economic efficiency, and conserve energy and other resources (EPA). This goal seeks to cut food loss and waste by 50% by 2030 (EPA). Using 2016 as the baseline data there was 328 pounds of food waste per person on average sent to the landfill (EPA). Cutting this in half by 2030 requires a reduction to 164 pounds of food waste per person in the landfill. However, as of 2019, there was almost a 7% increase in food waste per person at 349 pounds (EPA).

State Context

In response to this lofty 2030 food-waste reduction goal, state governments-primarily responsible for waste management through public infrastructure and basic services- have taken responsibility by implementing policies to manage this food surplus and waste from ending up in landfills to reduce methane emissions. However, research published in the *Journal of Science* demonstrates that government initiatives through state food waste bans have not been effective everywhere (Anglou et al., 2024). Policies alone are not enough for proper food surplus and waste management. Food surplus and waste requires a more integrative management approach utilizing state-wide policies, the private sector, and non-profit organizations. While there are several states who have recently implemented policies, this paper investigates Massachusetts and California's policies as they are both achieving success in reducing food waste with the help of other sectors.

In 2014, Massachusetts Department of Environmental Protection (MassDEP) banned the disposal of commercial organic waste by businesses and institutions that generate one ton or more a week (MassDEP). Eight years later, MassDEP tightened these restrictions by increasing the threshold, banning waste disposal of organics to a half-ton or more weekly (MassDEP). In 2016, California passed a Short-Lived Climate Pollutant Reduction Strategy (SB 1383) to reduce methane emissions from organic waste in landfills (CalRecycle). California State Bill 1383 utilized two methods to lower emissions: organic waste diversion and food-rescue. To divert organic waste out of landfills, the legislation required a reduction of organic materials deposited into landfill by 50% by 2020 and 75% by 2025 (CalRecycle). By mandating every jurisdiction to provide organic waste collection services to all residents and businesses, this bill aims to reduce organic waste disposal by more than 20 million tons annually by 2025 (CalRecycle, 2025). In addition to food waste diversion, SB 1383 mandates that California recovers and redistributes at least 20% of edible food, that would otherwise be thrown away, to feed people (CalRecycle, 2025). Since January 2024, all regulated food businesses are required to partner with rescue agencies to recover all surplus edible food and maintain food donation records (CalRecycle, 2025).

Local Context

San Diego County is the main focus of local government initiatives for this paper because of my existing knowledge on California SB 1383 legislation and through access data through my partnership with Solana Center for Environmental Innovation. The City of San Diego views participation in SB 1383 as vital to San Diego's future (City of San Diego). It is estimated that San Diego County throws away an estimated 500,000 tons of food waste each year, which generates over 270,000 metric tons of greenhouse gases when sent to landfill (Toth, 2021). Additionally, according to the San Diego Hunger Coalition, one in four San Diego

Residents is food insecure (San Diego Hunger Coalition, 2024). In alignment with SB 1383, the City of San Diego has established a zero waste plan to divert 100% of waste to landfills by 2040 (Environmental Services Department, 2015). While the City of San Diego has set ambitious targets, it is the work of many stakeholders that are driving its success.

Methodology

I employed a mixed-methods approach—using both qualitative and quantitative methods to gather information and explore the role of different sectors in the United States in reducing food waste (Kuhn, 2024). My methodology combined exploratory and semi-structured interviews, comparative policy analysis, comprehensive literature review, hands-on experience, and data analysis in collaboration with Solana Center for Environmental Innovation—an environmental non-profit organization on a mission to empower innovative solutions to climate change through education, community engagement, and research. Since the passing of California State Bill 1383, Solana Center has been contracted by San Diego County cities to implement and enforce SB1383 through education, inspections, and outreach to food generating business and food recovery organizations. This approach allowed me to capture a range of perspectives from policy experts, nonprofit leaders, successful business people, while also working with data.

Exploratory interviews with six people in my direct network of food systems and climate policy—two in the private sector, three in the non-profit sector, and one in local government—helped hone my project objective. I chose these several individuals because they all hold many years of experience working within food systems, which provided me with general insights into the successes and pitfalls of food waste reduction efforts throughout the country. These interviews guided me towards my research questions.

Additionally, I conducted data collection through ten semi-structured interviews with representatives from non-profit organizations and for-profit companies to identify their role in preventing or recycling food surplus. I began by researching national non-profit organizations that are key stakeholders in food reduction strategies such as ReFED, National Resources Defense Council (NRDC),

and World Wildlife Fund (WWF) to understand where the gaps exist in current food initiatives. Additionally, I researched the primary state agencies within California and Massachusetts responsible for managing waste–Massachusetts Department of Environmental Protection (MassDEP) and the California Department of Resource Recycling and Recovery (CalRecycle)– to familiarize myself with the current policy landscape. I chose to focus on California and Massachusetts policies because both states are achieving notable success in reducing food waste with vastly different strategies.

Exploratory Interviews	Semi-Structured Interviews
Editor: BioCycle Magazine	Director of Food Loss & Waste: World Wildlife Fund
Co-Founder & COO: National Food Waste Company	Deputy Director: Massachusetts Department of Environmental Protection (MassDEP)
Executive Director: Solana Center for Environmental Innovation	Program Director: Project Green Fork
Environmental Solutions Team Member a: Solana Center for Environmental Innovation	Resource Specialist: Natural Resource Defense Council (NRDC)
Environmental Solutions Team Member b: Solana Center for Environmental Innovation	Chief Growth Officer: Center for EcoTechnology
Hamilton, Massachusetts Waste Program Volunteer	Product Director: Toast.org
	Clinical Fellow at Harvard Food Law and Policy Clinic
	Co-Founder and COO: Goodie Bag

	Director of Innovation: ReFED
	Customer Success Manager: Leanpath

I utilized Solana Center’s network to get connected to individuals working for these organizations. In addition, I sent emails and linkedin messages to people in these companies working on food policy or food-based initiatives. Due to my policy focus on California and Massachusetts, most of the stakeholders I interviewed were based in those states. After several semi-structured interviews, I utilized snowball sampling methodology to be connected to other stakeholder groups in the food waste space. For all of these semi-structured interviews I kept the questions similar as I wanted to observe consistent themes (see Appendix A for sample questions). With consent, I recorded these interviews and transcribed them to compare and contrast and identify trends. I grouped similar responses to my questions into overarching themes. Based on the identified trends, I developed in-depth case studies of select stakeholders whose role in preventing food waste or recycling food surplus exemplified these themes.

I conducted a comparative policy analysis to examine food waste policies in the state of California and Massachusetts to evaluate their effectiveness and implementation processes. This analysis drew upon policy documents, scientific journals, and semi-structured interviews with experts to assess the differences in policy design, mechanisms for implementation, and outcomes.

To understand the connection between food waste and climate change, the policy landscape surrounding food surplus and waste, and the key stakeholders involved in initiatives, I conducted a comprehensive literature review. This included an analysis of policy reports, policy toolkits, food waste reports, peer-reviewed journal articles, and newspaper articles. The insights collected from these sources provided me with a deeper understanding of the current food management system

and its impact on climate as well as leading examples of successful food surplus and waste reduction strategies.

To gain hands-on experience in food recovery operations, I had the opportunity to volunteer with Food Link—a food recovery organization working to create a more equitable food system throughout Boston by rescuing and distributing food to under-resourced communities and advocating for systems change (Food Link). Volunteering with Food Link deepened my understanding of both the critical gaps that food recovery organizations address and the complex logistics involved in food recovery and distribution.

Lastly, I utilized business inspection data provided by Solana Center for Environmental Innovation to assess the effectiveness of California's SB 1383 implementation at a local level and to further examine the role of non-profit organizations. Over the last few years, Solana Center has completed over 650 interactions with grocery stores, wholesales, and restaurants across cities in San Diego County. I extracted and compiled data from the interaction notes to analyze the impact of these interactions on greater compliance with SB 1383. I compared the percentage of food generators with donation programs in place with food recovery organizations before and after multiple interactions with Solana Center. The purpose of this data collection was to observe a potential increase in established donation contracts over time to highlight the impact of Solana Center's assistance in increased compliance with SB 1383.

Summary of Research Methodology

Research Questions	Methodology
How is waste usually managed and how do government, non-profit organizations, and the private sectors interact to provide these services? How does food surplus and waste alter these processes?	• Exploratory and semi-structured interviews • Comprehensive literature review on waste management practices
What are successful examples of state government initiatives to reduce food waste and why are they finding success? What can states and local governments achieve in reducing food waste?	• Exploratory and semi-structured interviews • Massachusetts and California comparative policy analysis
How does the private sector fit into reducing food waste considering that waste is usually managed by local governments?	• Exploratory and semi-structured interviews • Comprehensive literature review • Private-sector company case studies
In what ways can non-profit organizations support the reduction of food waste?	• Exploratory and semi-structured interviews • Comprehensive literature review • Non-profit organizations case studies • Data analysis with Solana Center for Environmental Innovation • Hands-on experience with Food Recovery Organization at Food Link

Results

Food Waste Management Systems Across Different Sectors

Waste management is usually handled by the government as it is part of public infrastructure for basic services. Products such as plastic milk jugs and aluminum cans are successfully managed by local and state governments. For example, plastic milk jugs are typically picked up from businesses and residential areas by a hauler and transported to a recycling facility where they are separated from other types of plastic. Plastic jugs that are recyclable are processed into pellets and small flakes to then be repurposed to make new products (Loll Designs, 2015). Plastic jugs that are non-recyclable are sent to a landfill.

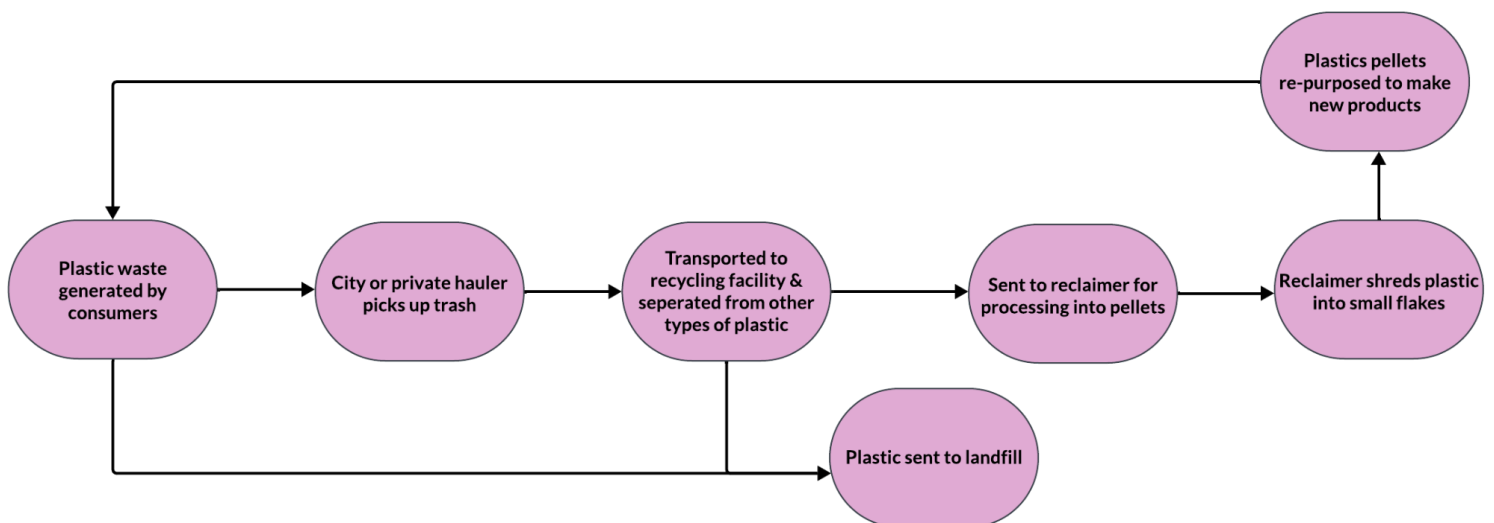


Figure 1: Waste Management of Plastic Jugs

Aluminum cans undergo a similar recycling process. A hauler picks up aluminum cans from business and residential recycling and transports them to a material recovery facility where cans are sorted from other recyclables (The Aluminum Association). Cans are compressed into large bales and transported to be

cleaned and re-purposed into new products. If disposed of properly, aluminum can be recycled over and over again in a “closed loop” recycling process (The Aluminum Association).

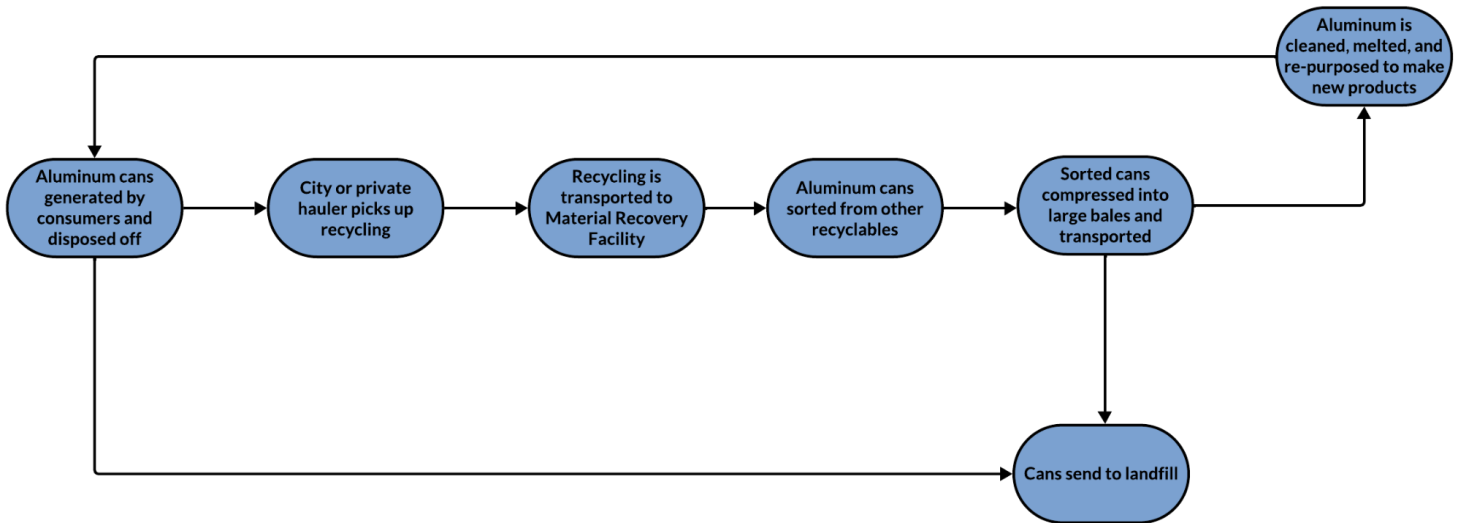


Figure 2: Waste Management of Aluminum Cans

Across cities and states, the roles and responsibilities of haulers are already well-defined for plastics and aluminum recycling. This organization, along with sufficient and established infrastructure, allows for clear coordination between public agencies and private haulers to effectively manage waste. However, surplus food and food waste is a much more complicated waste stream than plastic jugs and aluminum cans. Surplus food and waste requires different types of infrastructure and support from many actors. Food waste requires a more integrative approach utilizing state-wide policies, the private sector, and non-profit organizations.

Because every city has different waste management haulers and infrastructure, I will utilize Encinitas—a city in San Diego County that contracts with Solana Center— as an example to illustrate waste management of food. The city of

Encinitas has different methods of food waste and surplus management (see figure 3). Surplus food that is edible can be redistributed to feed people through a food recovery organization like Feeding San Diego. These organizations work with food generators to pick up edible surplus food and redistribute it to people. Another potential stream of surplus food or food scraps can be sent to farms as animal feed. Lastly, food that cannot be repurposed for humans or animals, is collected by the city's waste hauler. EDCO—a waste collection and recycling company— is the franchised hauler for organic waste in Encinitas. Once residents and businesses dispose of surplus food or organic waste in their green bins, EDCO picks up this waste and transports it to its own anaerobic digestion facility in Escondido, where it is broken down and converted into renewable natural gas and fertilizer (ABC 10 News, 2024). However, if the organic waste is disposed of improperly in a trash bin it will be taken to the Miramar landfill. While this system has some circularity to it, a majority of organic waste still ends up in landfills. By utilizing edible food recovery, composting, anaerobic digestion, and animal feed, none of this surplus food should end up in the landfill to release methane. For organic waste management to be a fully circular system it requires interaction among the government, non-profit organizations, and the private sector.

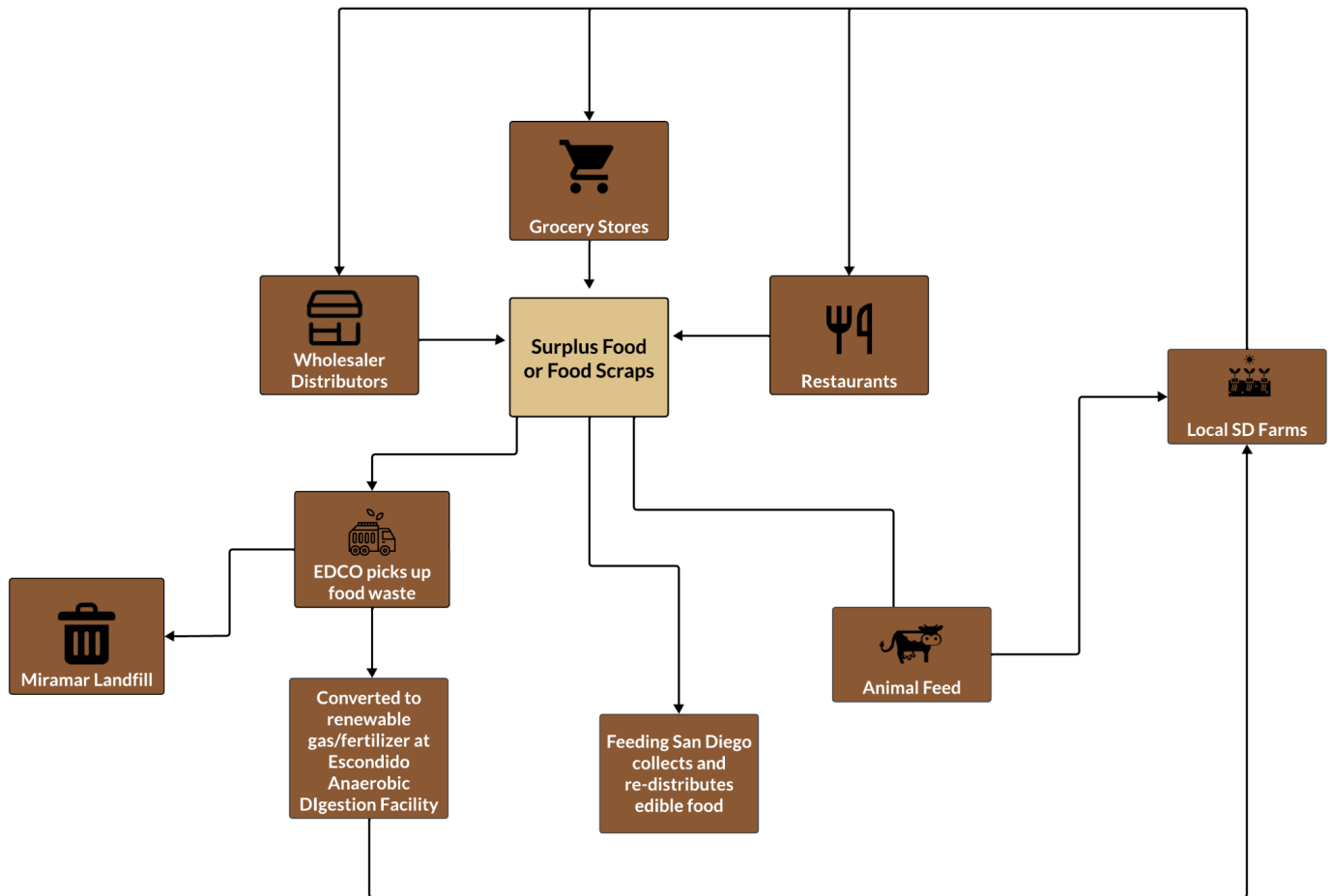


Figure 3: City of Encinitas System of Organic Waste Management

State and Local Government Leadership in Reducing Food Waste through Policy

Through organic waste bans and edible food recovery mandates, state governments have passed laws and regulatory requirements that “restrict the amount of food waste that can be disposed of in landfills or incinerators and/or require that food waste generators divert organic waste” (Zero Waste Coalition,

2023). These policies are effective in moving the needle and drawing attention to the problems of waste, while reducing greenhouse gas emission (Zero Waste Coalition, 2023). Because waste management is regulated by individual states, organic waste bans are an important tool for state-policymakers. A state has the individual “authority to create its own regulations regarding waste disposal, recycling programs, landfill management, and hazardous waste handling, creating a diverse regulatory landscape across the United States” (SBN Team). Consequently, state waste management laws are critical in shaping sustainable food waste management practices (SBN Team). According to several interviewees, prior to legislation, there was minimal investment or awareness in food waste reduction as a climate solution. Policy has the ability to set the tone and send signals to the marketplace.

Massachusetts specifically has made significant progress in diverting food waste to reduce methane emissions with the implementation of its organic waste ban. In September 2024, researchers analyzed US state-wide food bans concluding that Massachusetts was alone in successfully reducing landfill waste. As a result of the ban, there has been an estimated 25.7% decrease in methane emissions per ton of disposal in Massachusetts in the last ten years—since the ban was implemented in 2014 (Anglou et al., 2024). Massachusetts early success has prompted researchers to study the ban as a framework for other states to follow. Why is it that Massachusetts is one of the few states seeing significant results, while many others have implemented similar waste bans?

According to a MassDEP official, the Massachusetts waste disposal ban set aggressive goals, invested in infrastructure, utilized simple parameters, and established extensive compliance measures. Through the 2030 Solid Waste Master Plan, MassDEP has established “aggressive waste reduction goals of reduced disposal statewide by 30 percent (from 5.7 million tons in 2018 to 4 million tons in 2030) over the next decade and a 90 percent reduction in disposal to 570,000 tons

by 2050” (MassDEP, 2024). These ambitious targets, laid out by the state, have created a clear sense of direction and highlighted the urgency for businesses, residents, and agencies to work together to make progress. The parameters of the ban were kept simple with minimal exemptions, so that generators did not have to stay up to date with continuous policy changes.

In addition, Massachusetts has invested significantly in infrastructure to support the program throughout the state. Investments have reached \$7.3 million for businesses and communities to support infrastructure and programs to make the policy a success (MassDEP, 2024). MassDEP ensured that food generators would comply with the ban by making it simple and affordable to compost waste rather than dispose of it in the trash through a robust network of composting infrastructure (Toussaint, 2024). With a large number of facilities and minimal distances between waste generators and nearby composting facilities, complying with this ban is manageable for businesses in the food industry. This investment in infrastructure has led to the co-benefits of economic opportunity and job creation. A 2019 study analyzing the economic impact of Massachusetts Commercial Food Waste Ban found that it created over 500 jobs, generating over \$46 million in labor income (ICF, 2016). Additionally, this economic activity generated over \$5 million in state and local tax revenue (ICF, 2016).

Lastly, Massachusetts found success through strict compliance measures. Since implementation, MassDEP has inspected more than 45,000 loads of trash and taken more than 140 enforcement actions against violators (MassDEP, 2024). Consequently, MassDEP’s compliance activity was more than 200 percent higher than the next highest states (MassDEP, 2024). This aggressive enforcement and thorough inspections has forced food generating businesses in Massachusetts into compliance.

California has taken significant steps towards reducing food waste through legislation that prioritizes food rescue. While California did not meet its 2020 goal

for food waste diversion from landfill, it is very close to meeting the food rescue and recovery goal by 2025. Currently, the state has reached 94% of its 2025 food recovery goal (CalRecycle, 2025). California SB 1383's focus on edible food recovery is important because it addresses both food waste and food insecurity. ReFED's surplus food data found that only 12% of the 14.5 million tons of food that could be donated actually does get donated (ReFED, 2025). In 2023, food donation only made up 2% of surplus food generated in 2023 (ReFED, 2025). Recovering food and feeding people is the best use of surplus food according to the food recovery hierarchy. In California, 1 in 5 people are food insecure (California Association of Food Banks, 2025). This edible food recovery mandate will help to address state-wide food insecurity, while diverting food out of landfills to reduce greenhouse gas emissions.

State-wide policies like Massachusetts organic waste ban and California's edible food recovery mandate are critical for increasing awareness around the environmental impact of wasted food. However, these policies leave major gaps when it comes to implementation. There is often a disconnect between the state's established goals and the implementation in cities by both individual businesses and consumers. State governments lack the resources to effectively provide education, assistance, monitoring, and enforcement of these policies throughout the different waste streams in the state. Instead, states provide funding to delegate the responsibility of food waste management to local jurisdictions, private anaerobic digesters, local composters, food recovery organizations, and non-profit organizations. For example, while SB 1383 is a state-wide law, it places the responsibility on local cities and counties to implement the "donation requirement, including educating generators about the requirement and facilitating connections between generators and food recovery organizations" (Zero Waste Coalition, 2023). For successful implementation, state policies must rely on the engagement of both the private and public sectors.

Private Sector Innovation and Partnerships in Food Waste Reduction

The private sector is crucial to managing and reducing food waste due to its economic incentive structure and unique flexibility. Interviewees highlighted that the private sector has the advantage of adaptability and quick iterations to meet the public's needs in ways the government cannot.

Many restaurants and grocery stores lack the infrastructure or resources necessary to comply with certain requirements within food waste policies. For example, in California's SB 1383, all food-generating businesses are required to have a contract with a food recovery organization to donate edible food. This requires the restaurant or grocery store to properly store, refrigerate, and package the edible food, while also keeping records of donations and coordinating with their food recovery partner. This process is an extra task as it requires employee labor, time, education, and storage space. Chain grocery stores and restaurants often have a greater capacity in the form of streamlined operations, extra staff, and access to trucks, all of which make it easier for them to donate food to food recovery organizations without incurring significant financial losses. Conversely, local, independent restaurants do not lend themselves well to donations as they lack infrastructure, trucks, and resources to deal with food waste properly and adhere to compliance.

Due to the added costs, smaller restaurants are not economically incentivized to spend extra resources and time to adhere to these laws which might drain resources and profit. The majority of restaurants operate on tight margins, so they will likely care more about their bottom-line than the environmental impact of reducing food waste. Many private sector companies have found that focusing on economic incentives, such as reducing procurement costs and increasing revenue from surplus sales, has proven to be the most effective way to encourage food

waste reduction. Placing a monetary value on an organization's wasted food can demonstrate the impact of food waste on profitability (Payne, 2022). Consequently, food generating businesses will be interested in implementing strategies to reduce their food waste in an effort to lower their costs. The private sector is important because it can fill this space to help food generating businesses reduce or redistribute waste in an economically efficient way. A COO at a National Food Waste Company stated that "You need for-profit companies because they bring solutions to the table that make money and get people interested, otherwise we will not move the needle. People do not care without the economic incentives. This is why the policies are struggling".

Toast is an incredible example of a for-profit company successfully assisting restaurants with food waste prevention strategies to reduce internal costs. Toast is a software company seeking to understand customers' diverse needs and goals (Toast Inc., 2025). Recently, Toast has developed a platform– The Changemaker Product Suite– for restaurants to reduce food waste, give back to the community, and cut down on plastic waste (Toast Inc., 2025). Restaurants can utilize any Toast POS device to log and categorize food waste throughout the day. Through the platform, restaurants can observe trends in the data to discern their top-wasted foods. Categorized data helps restaurants prevent food waste and reduce costs by adjusting vendor orders and planning smarter. By simplifying the data analysis process, restaurants can make informed decisions with minimal labor and resource costs. Currently, 5,000 out of 140,000 Toast users–food businesses–are utilizing the Changemaker Product Suite to reduce wasted food within their operations (Toast Inc., 2025).

While many participants care about the environment, a Toast employee has observed that that alone does not compel them to implement a solution as they simply do not have the time to manage programs that do not directly impact the bottom line (Toast Inc., 2025). Restaurants are aware of food waste, but do not know

where to start. Toast's easily implementable technology provides restaurants with the necessary tools to track and prevent food waste. Toast has found that "the benefit-to-cost ratio of food waste reduction efforts in the restaurant industry is compelling: for every dollar invested in food waste reduction, restaurants can realize approximately \$8 of cost savings" (ReFed, 2018).

An inspiring company focused on food redistribution efforts is Goodie Bag. Goodie Bag is a for-profit company that has created a marketplace for surplus food by connecting consumers to local shops with unsold food at discounted prices for pickup (Goodie Bag). Through a local approach, Goodie Bag aims to create a more sustainable and affordable food system. Its mission is centered on helping people, their partners, and the planet. Goodie Bag has three core beliefs: "People shouldn't have to choose between quality and affordable food, so we make it possible to have both. Our Partners are community centered local shops that never want their delicious food wasted and pour everything into their craft. Our Planet needs businesses to behave sustainably, so that the generations to come have the water, land, and food necessary to thrive. Our 'OG' goodie bags contain food that otherwise would have been wasted, therefore reducing food from landfills and avoiding the consequential greenhouse gas emissions" (Goodie Bag).

Goodie Bag has created an app platform for local businesses to sell food that would either be donated or sent to the landfill. Customers with the app have access to pick up these surplus items—goodie bags—at a 50% discount. These small local businesses tend to have less resources—financial and labor—to redistribute wasted food to a food recovery organization. Instead, partnering with Goodie Bag allows restaurants to maintain a profit and avoid food waste at the same time. Currently, Goodie Bag is partnered with over 200 shops—and growing quickly. Consequently, according to the Goodie Bag, it has prevented over 45,000 goodie bags from being wasted, while feeding over 11,000 people.

The co-founder and COO at Goodie Bag highlighted the unique benefits of the private sector as it allows for quick adaptation and iteration for the needs of the public. The government and many non-profit organizations are unable to alter their approach as easily. Through many local partnerships, Goodie Bag has found that pushing economic incentives are more appealing than just the environmental benefits of preventing food waste. By partnering with Goodie Bag, these local shops are promoted on the app and have the opportunity to attract new customers. In addition to customer acquisition, shop owners salvage revenue on otherwise sunk costs of wasted surplus food.

Companies like Toast and Goodie Bag have unique business models to serve the needs of restaurants and grocery stores to assist with food waste reduction, prevention, and redistribution. Utilizing Toast's platform to reduce waste at the source and Goodie Bag's app to redistribute food through discounted prices, food generators are able to efficiently reduce food waste within their operations while benefiting economically. This provides restaurants with a necessary option for reducing food waste without jeopardizing their financial stability; a win-win for the business and the environment.

The Role of Non-Profit Organizations in Advancing Food Waste Reduction

Non-profit organizations are critical for educating food generating businesses on food waste prevention, providing technical assistance, and connecting food generating businesses to food recovery organizations. Education is critical to increasing awareness and drawing a link between food waste in the landfill, food insecurity, and climate change (Divert, 2024). Research on food waste bans done by the Harvard Food Law and Policy Clinic and Center for EcoTechnology concluded that "outreach and education are important tools to raise awareness of food waste reduction strategies and increase buy-in and compliance with an organic waste ban among both the general public and food

businesses” (Harvard Food Law and Policy Clinic and Center for EcoTechnology, 2019). Building awareness and providing education is important because some food generating businesses are either unaware of the ban or do not know the details, preventing them from compliance (Harvard Food Law and Policy Clinic and Center for EcoTechnology, 2019).

In addition, companies providing technical assistance help their clients increase policy compliance. With the recent passing of state-wide food bans, non-profit organizations are turning policy into implementation. Technical assistance provides one-on-one assistance to food generators, which plays an important role by “supporting organic waste bans by increasing awareness of these policies and helping generators, haulers, and processors prevent mistakes and realize benefits as they seek to comply” (Harvard Food Law and Policy Clinic and Center for EcoTechnology, 2019). Non-profit organizations can provide technical assistance to food generators to identify cost saving opportunities and match them with a food recovery organization that matches the business's specific needs.

The environmental non-profit organization, Solana Center for Environmental Innovation, is inspecting and educating food generating businesses and food recovery organizations in San Diego County. Through inspections and technical assistance, Solana Center is addressing barriers and ensuring compliance to SB1383 regulations. Solana Center has successfully implemented a matchmaking program to connect food generators and food recovery organizations that fulfill one another's needs. Prior to interventions from Solana Center, Hollandia Dairy was donating 2% of their potential surplus. Solana Center connected Hollandia Dairy with food recovery organizations—San Diego Food Bank and San Diego Rescue Mission— and provided education on the benefits of reducing surplus for cost saving mechanisms. Through these donations, Hollandia Dairy has significantly reduced the amount of dairy sent as animal feed or to landfill, which has reduced many costs and helped feed more people. Consequently, Hollandia Dairy has increased

donations from 5,000 pounds a year to 285,000 pounds a year. Another successful business interaction occurred with Frazier Farms. Upon initial inspection, Frazier Farms was only donating to a bakery until Solana Center connected them to Feeding San Diego. In 2024, Frazier Farms donated 34,540 pounds of food.

Through data from all of Solana Center's business interactions, I further explored the organization's impact. I observed an increase in programs in place between food generators and food recovery organizations that interacted with Solana Center. From 319 inspection reports starting in 2022, I observed that 52% of food generating businesses started with a program in place upon Solana Center's first business interactions (see figure 4). Since 2022, 118 businesses have received two or more interactions with Solana Center through annual inspections, education outreach, or technical assistance. As of May 2025, 69% of all businesses established a donation program in place after two or more interactions with Solana Center (see figure 4). While this service of connecting food generators to food recovery organizations is a niche area, it serves a significant purpose. It is evident that Solana Center's interactions with businesses are successful in establishing donation programs between food generators and food recovery organizations to ensure food is redistributed rather than wasted.

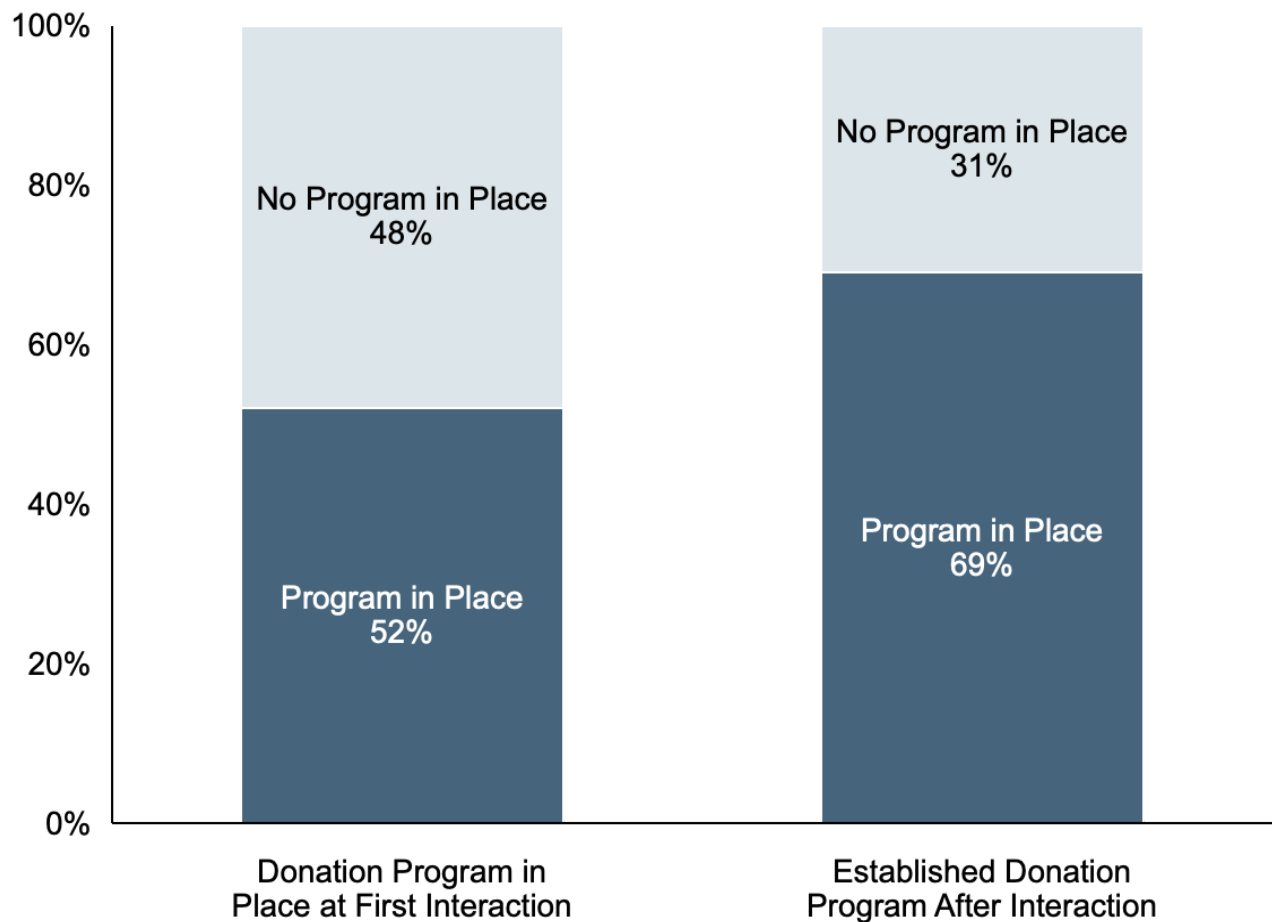


Figure 4: Business with Established Donation Program Before and After Interactions with Solana Center For Environmental Innovation

A Massachusetts-based organization, Center for EcoTechnology (CET) is an environmental non-profit that partners with food generators to implement food waste reduction strategies through donation, reduction, and diversion to comply with the organic waste ban. MassDEP funded a recycling assistance program—RecyclingWorks—to help businesses and institutions reduce waste and maximize recycling, reuse, and food recovery opportunities (RecyclingWorks). Center for EcoTechnology has managed this contract in Massachusetts for the last eight years.

While the Massachusetts organic waste ban has been very important in setting the tone and sending signals to the marketplace, policy alone does not get the job done. CET has had a massive role in the success of the ban through education, outreach, and technical assistance. Because Massachusetts organic waste ban does not have a donation requirement for food generators, CET can provide assistance with solutions at all scales within the food waste hierarchy. This has also allowed CET to develop prevention strategies for businesses to reduce profit loss from wasted food rather than just focusing on food recovery organization partnerships. With great flexibility, CET can assist each food generator into compliance, while meeting their individual needs. CET has noted that local independent restaurants do not lend themselves well to donations, as they often lack access to infrastructure and transportation such as trucks to move the food. Food generators care about economic incentives, and with the flexibility of the law, CET can help these businesses reduce waste while also helping their bottom-line.

Through the RecyclingWorks contract, CET has been instrumental in increasing food generation compliance. In the most recent RecyclingWorks 2024 report, CET reported significant measurable impacts. In 2024, CET provided technical assistance to 199 businesses and further education through 31 speaking engagements (RecyclingWorks). As a result of this work, CET diverted 500 tons of organic material from disposal, and instead directed this material to compost, animal feed, or anaerobic digestion outlets (RecyclingWorks). Since the organic waste bans went into effect, Recycling Works found that food donation and rescue has increased twenty-two percent from 21,300 tons in 2014 to 25,900 tons in 2017 (Food Law and Policy Clinic and Center for EcoTechnology, 2019). Center for EcoTechnology has functioned as the primary entity for educating and assisting food generators within Massachusetts. With their contributions, the Massachusetts organic waste ban has found ample success in reducing organic waste and lowering

methane emissions, while increasing education, awareness and compliance with the law.

Solana Center for Environmental Innovation and Center for EcoTechnology are two of the many non-profit organizations working with state policies to reduce food waste. Furthermore, there are many non-profit organizations doing impactful work in states without a food waste ban. Project Green Fork is a non-profit organization located in Memphis, Tennessee aiming to create a sustainable food system for all residents of Memphis by minimizing food waste, fostering connections with local partners, and promoting environmentally conscious dining practices (Project Green Fork). While Tennessee does not have a state-wide food waste policy in place, Project Green Fork is working to move the needle without putting more pain on restaurants or manufacturers. The Program Director at Project Green Fork notes that as an NGO they are not up against any sort of red-tape and have the freedom to have open conversations with whoever they want. Project Green Fork has four main buckets of work: education, advocacy, food donation and restaurant certification/technical assistance. The organization is primarily focused on prepared foods as this is where they see the largest gaps. According to the Program Director's observations, food banks can manage shelf-stable foods well, but prepared food is where the largest gap is as food from restaurants, weddings, special events, and catering ultimately end up in the landfill.

Project Green Fork is educating groups that lack an understanding of the negative impact of throwing away food. Through education and technical assistance, Project Green Fork supports restaurants, caterers, and special events by connecting them with food rescue organizations and figuring out logistics. In addition, Project Green Fork has established a certification program. To become PGF certified, businesses must undergo an initial waste assessment conducted by Project Green Fork to generate recommendations for reduction and diversion goals (Project Green Fork). Next, Project Green Fork creates tailored food waste

reduction and diversion plans to determine what to do with surplus items (Project Green Fork). As PGF-certificated establishments, food generating businesses are reducing their environmental impact, maximizing operational efficiency, and are recognized by the community as a responsible and conscientious establishment (Project Green Fork). Without a formal state policy pushing food waste work, Project Green Fork has stepped up to transform the city of Memphis in reducing food waste. Project Green Fork is an inspiring example of leadership working to fill the gaps of absent policy mechanisms.

Through my experience volunteering with Food Link, I observed the importance of food recovery organizations in rescuing and re-distributing surplus foods. Unlike other forms of surplus or waste, food recovery involves careful coordination and safety measures. Food poundages must be tracked, and food needs to be stored properly, especially for perishable items to maintain food safety. Additionally, pickup and drop-off times must be carefully managed to prevent spoilage and ensure the maximum amount of food remains edible. I was able to ride along with a few other volunteers to collect surplus food from Whole Foods Market in Medford, Massachusetts. We sorted through the surplus food, which consisted of baked goods, produce, dairy products, and meat products. We sorted the food to ensure it was safe to redistribute and then re-packaged it into boxes. We packed the truck and drove to Mystic Community Market, a center that supplies free food to Medford residents to promote both nutrition and community, and then unloaded the boxes. (Mystic Community Market). Without Food Link, Mystic Community Market would not be able to acquire as much food to feed its residents. Food Link operates as a wholesale food bank connecting food from grocery stores, restaurants, schools, farms with a variety of food banks and food pantries. Food Link has many resources such as large trucks to transport food, a strong network of volunteers, a large fridge to maintain food quality, and a food safe kitchen to re-package foods prior to redistribution. These unique resources allow Food Link to

recover and re-distribute significant amounts of food. In 2024, Food Link rescued 1.6 million pounds from 116 food donors and distributed 1.34 million meals to 130 recipient agencies (Food Link).



Coordination Effort Case Study

In the United States, sectoral coordination efforts within the food system are already underway. The Zero Food Waste Coalition (ZFWC) is bringing stakeholders across the food system together to inform and influence policy at the federal, state, and local levels to accelerate progress and build momentum (Zero Food Waste Coalition). ZFWC is made up of four organizations that are leaders within food waste policy: Food Law and Policy Clinic, National Resource Defense Council, ReFED, and the World Wildlife Fund. In addition to these organizations, a coalition of private companies, local government bodies, and nonprofit organizations is actively coordinating efforts to cut U.S. food loss and waste in half by 2030 (Zero Waste Coalition). One of the goals of this coalition is to “amplify the visibility of and connections between a diverse set of food system

stakeholders and leaders working to reduce waste and recover food across the country through policy” (Zero Waste Coalition). The Zero Food Waste Coalition has recognized the importance of leveraging engagement across all sectors in reducing food waste.

Conclusion/Pathway Forward

It is evident that food waste and loss is complex and cannot be solved solely by local and state government interventions. Engagement and support from all sectors is necessary in creating a more circular food system to halve food waste and loss by 2030. Figure 5. demonstrates an idealized food surplus and waste management system that utilizes prevention and recycling methods from government policies and infrastructure, the private sector, and non-profit organizations. This system is entirely circular through the redistribution of food and the re-purposing of waste so that no food ends up in the landfill. Additionally, this system prioritizes prevention through education and technological advancements.

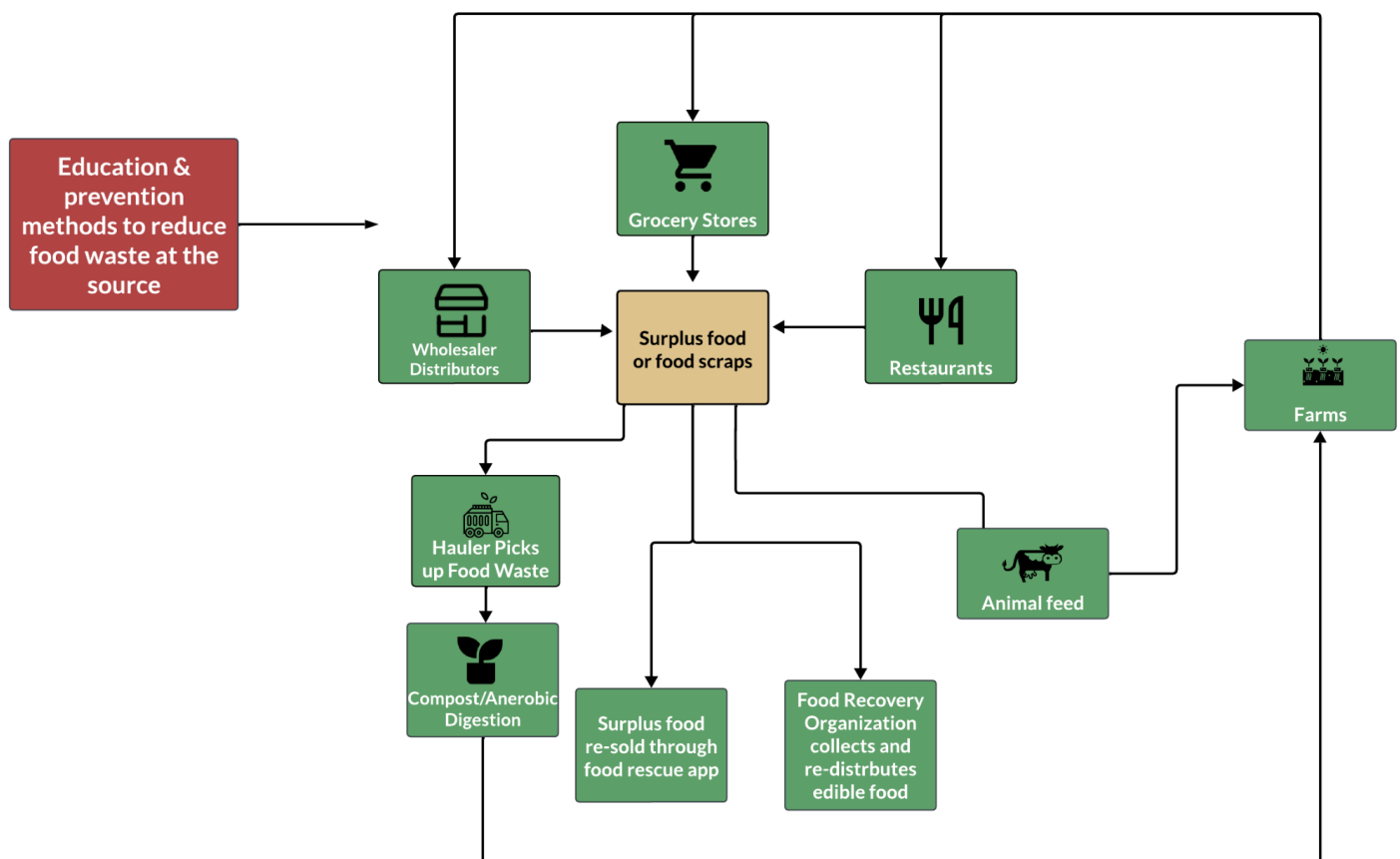


Figure 5: Optimal system of organic waste management

Achieving a fully circular food surplus and waste management system requires a combination of both prevention and recycling strategies to reduce food waste. Preventive strategies have greater long-term benefits in reducing greenhouse gas emissions by stopping waste at the source. Avoiding the production of unnecessary food reduces the inputs and environmental impacts associated with food waste and loss such as use of land, water, pesticides, fertilizer, and greenhouse gas emissions (EPA). However, prevention strategies require significant time and education for these behavioral changes to occur. Companies like Toast.org are using technology to curate data-driven insights that are vital in assisting businesses and restaurants in the prevention of food surplus and waste at the source. Furthermore, non-profit organizations—such as Solana Center for Environmental Innovation and Center for Eco-Technology— are providing important technical assistance for businesses and restaurants to prevent waste. Education, through data and technical assistance, is the best way to change behaviors so that we prevent food waste from occurring.

In conjunction with prevention strategies, recycling methods are necessary in closing the loop. Until there is comprehensive and widespread education, prevention strategies alone are not enough to achieve significant reductions in greenhouse gas emissions. Recycling solutions such as composting, edible food recovery, and anaerobic digestion must be scaled up to divert all food out of the landfill and avoid significant methane emissions. Companies like Goodie Bag employ recycling strategies by connecting consumers to restaurants with a surplus of edible food. Similarly, Solana Center and Center for Eco-Technology are connecting

food generating businesses with food recovery organizations, such as Food Link, to ensure that all surplus edible food is re-allocated rather than wasted. State-level food waste policies, such as California's SB 1383 and Massachusetts' organic waste ban, are driving the development of food waste redistribution and recycling strategies, helping to accelerate methane emission reductions.

While these food waste prevention and recycling strategies are finding success, they need to be scaled up urgently through federal government funding. The federal government needs to allocate greater funds and grants towards state and local governments to institute food waste bans. Financial backing is a game changer for making policies more effective, as it would allow for an advancement in infrastructure. In 2022, through the Inflation Reduction Act, President Biden provided five billion dollars in grants to reduce food waste (Sevilla, 2022). These grants could be used by state, local, and tribal governments to build the infrastructure needed to successfully implement food waste reduction programs (Sevilla, 2022). With proper infrastructure, states are able to implement state-level food waste policies effectively. Policy is an important lever if written properly and has the infrastructure necessary to support it. Many states and localities struggle to support their organic waste bans due to a lack of infrastructure, so grants are immensely important (Harvard Food Law and Policy Clinic and Center for EcoTechnology, 2019). For the successful implementation of policy, states can offer grants to food waste generators to support them in their compliance with reduction and proper management of food waste (Harvard Food Law and Policy Clinic and Center for EcoTechnology, 2019). Additionally, these grants can aid municipalities and food rescue organizations in developing composting systems, anaerobic digestion facilities, and food rescue infrastructure to advance food redistribution and recycling efforts. (Harvard Food Law and Policy Clinic and Center for EcoTechnology, 2019). Unfortunately, President Trump has not allocated

the government budget towards similar initiatives, which will slow the development of infrastructure for efficient food surplus and waste management.

Through significant federal funding and coordination efforts across state and local governments, the private sector, and non-profit organizations, the United States will be in a strong position to meet the 2030 goal of halving food waste. Project Drawdown—the leading resource for climate solutions— categorizes reducing food waste as a priority climate solution, as it holds potential for massive greenhouse reductions (Project Drawdown). Through a model framework, Project Drawdown estimates that if total global food loss and wastage is reduced 50 percent between 2020 and 2050, we can reduce 88.50 gigatons of carbon dioxide equivalent emissions (Project Drawdown). This critical climate solution needs to be prioritized through education, financial resources, and sectoral-collaboration. The United States has the opportunity and responsibility to be leaders across the world in scaling food waste reduction solutions.

Appendix

Appendix A: Sample Questions for Semi-Structured Interviews

1. How is waste management for food waste different from waste management such as plastic/recycling?
2. Why does food waste elicit a different form of waste management?
3. Where are the largest gaps in food waste solutions?
4. What gap is your organization filling?
5. Do you think state-government policies can be effective?
6. Do you believe that the most effective way to reduce food waste is through collaboration between state policies, NGO's, and the private sector?
7. What do you think the role of the private sector and nonprofit organizations should be going forward?
8. What is the role of mission-driven organizations in helping the US meet its goal?

Works Cited

- ABC 10 News. "San Diego's Organic Waste Recycling Program Shows Progress after First Full Year." YouTube, 30 Oct. 2024,
<https://www.youtube.com/watch?v=oM0bhY0-NtI>.
- Anglou, Fiorentia Zoi, et al. "Of the First Five US States with Food Waste Bans, Massachusetts Alone Has Reduced Landfill Waste." *Science*, vol. 385, no. 6714, Sept. 2024.
- California Association of Food Banks. "Hunger Data & Research." *California Association of Food Banks*, 2025,
<https://www.cafoodbanks.org/hunger-data-reports/#:~:text=California%20produces%20nearly%20half%20of,lead%20a%20healthy%2C%20active%20life>.
- CalRecycle. "California's Climate Progress on SB 1383." *CalRecycle Home Page*, 2025,
<https://calrecycle.ca.gov/organics/slcp/progress/>.
- . "California's Short-Lived Climate Pollutant Reduction Strategy." *CalRecycle Home Page*, 2025, <https://calrecycle.ca.gov/organics/slcp/>.
- . "Food Donors: Fight Hunger and Combat Climate Change." *CalRecycle Home Page*, 2025, <https://calrecycle.ca.gov/organics/slcp/foodrecovery/donors/>.
- . "SB 1383 Education and Outreach Resources." *CalRecycle Home Page*, 2025,
<https://calrecycle.ca.gov/organics/slcp/education/>.
- Chittenden Solid Waste District. "Keep Calm and Recycle On: Part 1, The Life of a Milk Jug." *Chittenden Solid Waste District*, 11 July 2023,
<https://cswd.net/information-library/keep-calm-and-recycle-on-part-1-the-life-of-a-milk-jug/>.
- City of San Diego. "New Organic Waste Recycling Program." *City of San Diego Official Website*, 2025,
<https://www.sandiego.gov/environmental-services/recycling/sb1383>.
- Designs, Loll. "From Milk Jug to Loll Chair: An inside Look at the Milk Jug Recycling Process." *Loll Designs*, 10 July 2015,
https://lolldesigns.com/blogs/news/milk-jug-loll-chair-inside-look-milk-jug-recycling-process?srltid=AfmBOopo47Hfis4lc8T0I1_ISiNoS2w2p4OepdN6Zmlr3KSdEEBe0bd6.
- Diamond, Stacey. "Advocating for Their Peers: Student-Driven Efforts to End Campus Food Insecurity." *UC San Diego Today*, 15 Apr. 2025,
<https://today.ucsd.edu/story/advocating-for-their-peers-student-driven-efforts-to-end-campus-food-insecurity#:~:text=There%20is%20a%20startling%20reality,students%20report%20facing%20food%20insecurity>.
- Divert. "Divert." *Divert*, 13 Aug. 2024,
<https://divertinc.com/new-tracker-highlights-state-by-state-opportunities-to-advance-food-waste-legislation/>.

- EDCO. "Organic Recycling - Commercial - EDCO City of El Cajon." EDCO, 2025, <https://city-of-el-cajon.edcodisposal.com/commercial-waste-services/commercial/organic-recycling/>.
- Environmental Services Department. "City of San Diego Zero Waste Plan." City of San Diego, June 2015, <https://www.sandiego.gov/sites/default/files/legacy/mayor/pdf/2015/ZeroWastePlan.pdf>.
- EPA. *From Farm to Kitchen: The Environmental Impacts of U.S. Food Waste*. Nov. 2021.
- . "United States 2030 Food Loss and Waste Reduction Goal." US EPA, 14 Apr. 2016, <https://www.epa.gov/sustainable-management-food/united-states-2030-food-loss-and-waste-reduction-goal#goal>.
- Food Law and Policy Clinic and Center for EcoTechnology. *Bans and Beyond: Designing and Implementing Organic Waste Bans and Mandatory Organics Recycling Laws*. July 2019, https://chlp.org/wp-content/uploads/2013/12/Organic-Waste-Bans_FINAL-compressed.pdf.
- Food Link. "2024 Annual Report — Food Link." Food Link | Food Rescue & Distribution To Those In Need In Massachusetts, 2024, <https://www.foodlinkma.org/2024-annual-report>.
- FoodLink. "About Us — Food Link." Food Link | Food Rescue & Distribution To Those In Need In Massachusetts, 2025, <https://www.foodlinkma.org/about-us>.
- Goodie Bag. "About." Goodie Bag Food Co, 2025, <https://www.goodiebag.co/about>.
- Hoover, Darby. "How State Organic Waste Ban Policies Can Drive Food Waste Reduction." NRDC, 26 Sept. 2024, <https://www.nrdc.org/bio/darby-hoover/how-state-organic-waste-ban-policies-can-drive-food-waste-reduction>.
- ICF. "Massachusetts Commercial Food Waste Ban Economic Impact Analysis." ICF, Dec. 2016, <https://www.mass.gov/doc/massachusetts-commercial-food-waste-ban-economic-impact-analysis/download>.
- Inc., PINT. "Organic Recycling - Commercial - EDCO City of El Cajon." EDCO, 13 Sept. 2020, <https://city-of-el-cajon.edcodisposal.com/commercial-waste-services/commercial/organic-recycling/>.
- Kuhn, George. "What Is Mixed-Method Research? [+ Examples & Benefits]." Drive Research, 29 July 2024, <https://www.driveresearch.com/market-research-company-blog/what-is-mixed-mode-data-collection-marketing-research-firm-syracuse-ny/>.
- Leroma. "Leroma." *Food Waste as the Largest Driver of CO2 Emissions*, 2025, <https://leroma.de/en/page/id/food-waste.html>.
- Li, Ran, et al. "Household Food Waste Trending Upwards in the United States: Insights from a National Tracking Survey." *Journal of the Agricultural and*

- Applied Economics Association*, vol. 2, no. 2, Apr. 2023, pp. 306–17, doi:10.1002/jaa2.59.
- MassDEP. “Commercial Food Material Disposal Ban.” *Commonwealth of Massachusetts*, 2025, <https://www.mass.gov/guides/commercial-food-material-disposal-ban>.
- . “New Research Highlights Massachusetts as National Leader in Food Waste Reduction.” *Commonwealth of Massachusetts*, 12 Sept. 2024, <https://www.mass.gov/news/new-research-highlights-massachusetts-as-national-leader-in-food-waste-reduction>.
- Mystic Community Market. “Mystic Community Market.” *Mystic Valley YMCA*, 16 Oct. 2020, <https://mv-ymca.org/food-security/mystic-community-market>.
- Payne, Emily. “Stepping Up to the Plate: The Private Sector’s Role in Fighting Food Waste – Food Tank.” *Food Tank*, 15 June 2022, <https://foodtank.com/news/2022/06/stepping-up-to-the-plate-the-private-sectors-role-in-fighting-food-waste/>.
- Project Drawdown. “Reduced Food Waste.” *Project Drawdown*, 2025, <https://drawdown.org/solutions/reduced-food-waste>.
- Project Green Fork. “What Is Project Green Fork’s Mission?” *Project Green Fork*, 2025, <https://projectgreenfork.org/about/>.
- RecyclingWorks. “RecyclingWorks Is Recycling Assistance Program for Businesses.” *RecyclingWorks Massachusetts*, 1 Dec. 2011, <https://recyclingworksma.com/about-recyclingworks/>.
- ReFED. “Food Waste Data—Causes & Impacts.” *ReFED*, 2025, <https://refed.org/food-waste/the-problem/#:~:text=There%20is%20uncertainty%20about%20where,when%20it%27s%20not%20being%20measured>.
- . “Food Waste Problem.” *ReFED*, Feb. 2025, <https://refed.org/food-waste/the-problem/>.
- . *Restaurant Food Waste Action Guide*. 2018, https://refed.org/downloads/Restaurant_Guide_Web.pdf.
- Roe, Brian E. “Americans Throw out 32% of the Food They Buy. Here’s How to Avoid so Much Waste.” *Fast Company*, 20 Dec. 2022, <https://www.fastcompany.com/90825190/americans-throw-out-32-of-the-food-they-buy-heres-how-to-avoid-so-much-waste>.
- San Diego Hunger Coalition. “Hunger in San Diego – San Diego Hunger Coalition.” *San Diego Hunger Coalition*, 2024, <https://www.sandiegohungercoalition.org/research>.
- Sevilla, Nina. “Inflation Reduction Act Can Fund Food Waste Solutions.” *NRDC*, 24 Aug. 2022, <https://www.nrdc.org/bio/nina-sevilla/inflation-reduction-act-can-fund-food-waste-solutions>.
- The Aluminum Association. “Sustainability – Recycling.” *Aluminum Association*, 2025,

- <https://www.aluminum.org/Recycling#:~:text=Most%20of%20all%2C%20aluminum%20cans,carpet%20fiber%20or%20landfill%20liner>.
- The SBN Team. "What Are the Key Regulations Affecting Waste Management Today?" *Simple But Needed*, 11 Feb. 2025, <https://sbnsoftware.com/blog/what-are-the-key-regulations-affecting-waste-management-today/>.
- Toast, Inc. *Food Waste Management Insights*. Dec. 2022.
- Toast, Inc. "Toast Changemaker Suite: Give Back, Waste Less, Make an Impact." *YouTube*, 10 Feb. 2025, <https://www.youtube.com/watch?v=0-doFLop5NY>.
- Toast, inc. "Toast Inc." *Toast POS*, 2025, <https://pos.toasttab.com/about?srsltid=AfmBOoom66evuVdleUOCChq7mjT4BQkn7YyQv-MnI3OhOuukDu124tX>.
- Toth, Jessica. "San Diego County Wastes 500,000 Tons of Food Each Year. Here's a Better Solution." *San Diego Union-Tribune*, 17 Feb. 2021, <https://www.sandiegouniontribune.com/2021/02/17/san-diego-county-wastes-500000-tons-of-food-each-year-heres-a-better-solution/>.
- Toussaint, Kristin. "Why Food Waste Bans Have Totally Failed—except in Massachusetts." *Fast Company*, 12 Sept. 2024, <https://www.fastcompany.com/91188958/food-waste-bans-havent-been-effective-except-in-massachusetts>.
- USDA. "Food Waste and Its Links to Greenhouse Gases and Climate Change." *Home*, Jan. 2022, <https://www.usda.gov/about-usda/news/blog/2022/01/24/food-waste-and-its-links-greenhouse-gases-and-climate-change#:~:text=EPA%20estimate%20that%20each%20year,42%20coal%2Dfired%20power%20plants>.
- Zero Waste Coalition. "Achieving Zero Food Waste." *Zero Waste Coalition*, 2023, <https://cdn.sanity.io/files/34qvzoil/production/d6980dc7bfe6f6fb32579bc173957055a1c5841b.pdf>.
- . "The Challenge." *Zero Food Waste Coalition*, 2025, <https://zerofoodwastecoalition.org/>.