

Examining the Agents of Change in Restaurant Waste Management

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Abstract

This paper uses informational interviews, policy review, and concept maps to illustrate the relationships between actors in the food service and waste diversion industries in Portland, Oregon. These relationships represent the strengths and weaknesses of current food donation and composting programs, and therefore suggest ways in which improvements could be made to waste diversion programs in Portland and elsewhere. Imperfect information between actors, scheduling conflicts, and high costs (monetary and opportunity) of implementing composting systems proved to be the most commonly cited barriers to participation in composting. Large operations that participated cited high employee turnover rates, lacking a motivated “point-person,” and scheduling variance to be the primary barriers to successful donation programs. Restructuring the network of utility companies, government outreach programs, and donation agencies could potentially solve many of these issues in Portland. Other cities could learn from Portland by streamlining their waste diversion programs at the start by encouraging utility companies to operate both donation and composting programs, and encouraging them to begin them all at the same time.

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Introduction

America has enjoyed a profuse food supply for over a century, though uneven distribution has perpetuated hunger and food insecurity. During the Great Depression, many of Roosevelt's advisors and other leaders favored a federal job guarantee over direct handouts, which resulted in the dumping of many surplus foods.¹ At one point, six million pigs were slaughtered by government employees and were buried or dumped into the Mississippi river.² This prevented the surplus from saturating the market with pork so cheap its sale could ravage price stability.³ Eventually, the protests of undernourished Americans led to the creation of some surplus redistribution programs during the 1930s.⁴ However, the issue of uneven distribution is still rampant today.⁵ In 2012, approximately 14.5% of American households were considered food insecure.⁶ Globally, the average level of food inadequacy is 31%.⁷ Though American food insecurity is not a trivial problem, food is abundant in America relative to many parts of the world.

Throughout the last half of the 20th century, food continued to become more convenient and accessible.⁸ Fad diets began to saturate popular culture, as slenderness paradoxically became the ideal body type.⁹ Harvey Levenstein appropriately referred to the phenomenon of "a people surrounded by abundance who are unable to enjoy it" as the "Paradox of Plenty."¹⁰ This paradox has many dimensions. For one, food insecurity persists in America while nearly half the food produced is thrown away. According to

¹ Levenstein, Harvey A. *Paradox of plenty: a social history of eating in modern America*. Berkeley, CA:

² Ibid.

³ Ibid.

⁴ Ibid.

⁵ USDA. "Household Food Security in the United States in 2012." Accessed February 13, 2014.

<http://www.ers.usda.gov/publications/err-economic-research-report/err155.aspx#Uv0tSkJdX08>.

⁶ USDA. "Household Food Security in the United States in 2012." Accessed February 13, 2014.

<http://www.ers.usda.gov/publications/err-economic-research-report/err155.aspx#Uv0tSkJdX08>.

⁷ Food and Agriculture Organization. "Food Security Indicators." *Statistics*, 2014.

<http://www.fao.org/economic/ess/ess-fs/ess-fadata/en/#.U2nbtq1dXDc>.

⁸ Levenstein, Harvey A. *Paradox of plenty: a social history of eating in modern America*. Berkeley, CA: University of California Press, 2003: 242.

⁹ Levenstein, Harvey A. *Paradox of plenty: a social history of eating in modern America*. Berkeley, CA: University of California Press, 2003: 242.

¹⁰ Levenstein, 255.

the USDA, about 14.5% of Americans were considered “food insecure” in 2012.¹¹ Many sources claim that up to 50% of food produced ends up being thrown away without ever being eaten, but an exact quantity is almost impossible to estimate.¹² Regardless of estimating error, a great amount of food is wasted at all points of the food supply chain.

As food waste becomes more prevalent, many different types of stakeholders throughout the food industry develop techniques for reusing and disposing of food waste. Some of these stakeholders are looking to help solve broader environmental issues, like reducing the unnecessary depletion of resources (food, water, transportation, fossil fuels). Others, like charity organizations, may set up food donation programs in order to minimize social injustices.

This study addresses systems of food waste diversion in Portland, Oregon, and which actors and techniques are required to improve the efficiency of these systems. First, I review the history of environmental movements and changing theories of economics that led up to modern environmentalism in a postindustrial society. I explain the state of food waste and disposal in restaurants today, then move on to my methodology. A background of statistical and quantitative information conveys the amount of food that is being thrown away, composted, or donated, in Portland. I then relate the narratives I constructed from informational interviews, and discuss the results that I found relevant to the questions I asked. In conclusion, I synthesize the results of my research, and explain how this research connects to the broader issue of waste management, on both temporal and spatial scales.

In this paper, I find that the barriers that prevent food from being donated and composted in Portland include preexisting suppositions about food safety, variation in the scale of bureaucratic structures, and logistical hurdles (such as timing of pickup or high employee turnover rates). Streamlining waste diversion and building a stronger network among actors in various sectors could increase the amount of food that is donated and composted both in Portland, and in other cities that wish to implement similar programs.

¹¹ USDA. “Household Food Security in the United States in 2012.”

¹² Kantor, Linda. “Estimating and Addressing America’s Food Losses” (n.d.).
<http://www1.calrecycle.ca.gov/ReduceWaste/Food/FoodLosses.pdf>.

Conspicuously Consuming

In the mid-twentieth century, just after WWII, Keynesian economics was widely adopted as the standard economic model used by the U.S. and other developed nations. One of the primary deviations from classical economics that Keynes proposed was that excessive saving prevented economic growth, and in the most extreme cases, could lead to recessions or depressions.¹³ The shock following the stock market crash in 1929 catalyzed efforts to promote spending over saving. According to a 2012 *Gastronomica* article, Richardson Wright suggested the following in the magazine *House & Garden* in 1930:

“Saving and thrift would be the worst sort of citizenship today...to maintain prosperity we must keep the machines working, for when machines are functioning men can labor and earn wages. The good citizen does not repair the old; he buys anew.”¹⁴

Consumption and spending were then prescribed as the most effective and least risky economic policies. Though Keynesian economics have fluctuated in popularity over the past fifty years, consumption and spending are still recommended by many politicians and economists in order to promote economic growth and development. The stimulus package issued in response to the 2008 recession is a good recent example of an overarching policy that encouraged spending.¹⁵ While the Economic Stimulus Act of 2008 did not specify that the money must be spent directly or immediately (rather than used to pay off debt or save for the future), the stimulus included tax rebates for businesses and individuals.¹⁶ Yet the focus on spending and consumption in America transcends the limits of government economic policy. Since the 20th century, a culture of consumption has been cultivated.

¹³ Keynes, John Maynard. *General Theory Of Employment , Interest And Money*. Atlantic Publishers & Dist, 2006.

¹⁴ Lindeman, Scarlett. “Trash Eaters.” *Gastronomica: The Journal of Food and Culture* 12, no. 1 (May 1, 2012): 75–82.

¹⁵ “Economic Stimulus Act of 2008 (2008H.R. 5140).” *GovTrack.us*. Accessed February 23, 2014. <https://www.govtrack.us/congress/bills/110/hr5140>.

¹⁶ *Ibid.*

In the mid-twentieth century, men were expected to work very hard in order to generate a decent income for their families to spend.¹⁷ At home, women were expected to consume by shopping, and keeping up with the latest trends became a priority in many American households.¹⁸ In other words, most American families were constantly striving to “keep up with the Joneses,” and working hard to buy the next fad product.¹⁹

While individual households were working harder and consuming more, other economic processes were changing the way food was sold. Obsessions with purity and cleanliness were causing supermarkets and restaurants to be ever more vigilant in terms of food safety, food presentation, and good customer service.²⁰ In the 19th and 20th centuries outbreaks of food-borne illnesses and new scientific research were constantly changing the way people handled and consumed food.²¹ In the early 1900s, Mary Mallon, nicknamed Typhoid Mary spread typhoid fever to over 50 people.²² Mallon was a cook who carried typhoid pathogens but showed no symptoms, and therefore was a good example of how easily pathogens could be spread through food handling.²³ In the 1920s, the prevalence of pellagra escalated in the U.S., but was vanquished once its cause was discovered to be a niacin deficiency and diets improved after the Great Depression.²⁴ *E. coli* and Salmonella outbreaks in the late 20th century were examples of food scares that were limited to specific ingredients, such as eggs or beef.²⁵ These outbreaks, and the pathological studies that followed them led policy makers to define new rules for food service and nutrition, and encouraged food service workers to manage cleaner establishments, at the risk of being accused of spreading food borne illnesses.

¹⁷ Elaine Tyler May. *Homeward Bound American Families in the Cold War Era*. New York: Basic Books, 2008: 170.

¹⁸ Ibid.

¹⁹ Ibid.

²⁰ Levenstein, 50.

²¹ “Public Health Nutrition and Food Safety, 1900–1999.” *Nutrition Reviews* 57, no. 12 (December 1, 1999): 368–372. doi:10.1111/j.1753-4887.1999.tb06919.x.

²² “Typhoid Mary (historical Figure).” *Encyclopedia Britannica*. Accessed May 7, 2014. <http://www.britannica.com/EBchecked/topic/611790/Typhoid-Mary>.

²³ Ibid.

²⁴ “Public Health Nutrition and Food Safety, 1900–1999.” *Nutrition Reviews* 57, no. 12 (December 1, 1999): 368–372. doi:10.1111/j.1753-4887.1999.tb06919.x.

²⁵ Ibid.

In addition to health precautions, competitive tactics among grocery stores also led to greater levels of food waste. In his book, *Waste: Uncovering the Global Food Scandal*, Tristram Stewart recalled an interview he'd held with a manager of the British supermarket chain, Asda.²⁶ This manager reported that overstocking food is common in the grocery industry, even if it leads to more food wasted.²⁷ Overstocking ensures that shoppers will always be able to find what they want as long as the store carries the item, and also creates an illusion of "infinite abundance."²⁸ While overstocking may primarily occur in the supermarket industry, food service establishments also need to keep full stocks of the foods listed on their menus in order to satisfy customers.

The need for grocery stores and food service facilities to appear bountiful combined with more intensive safety standards lead to daily decisions to throw away more food in food service facilities. New food safety laws are constantly being developed with each new study or outbreak of a food-borne illness. Complying with food safety laws is important for food service facilities, both in order to avoid fines and avoid the spread of food-borne illnesses. Food borne illnesses are a horrible thing to be responsible for, and can also destroy a restaurant's reputation. Yet, there are many ways food service facilities can reuse the food that would otherwise be sent to a landfill. In the words of Claire Cummings, the Bon Appetit Waste Sustainability Specialist whom I interviewed for this paper, "when in doubt, figure it out!" This is her clever twist of reformulating the popular food safety mantra, "when in doubt, throw it out," to encourage food recovery and alternative disposal programs for food waste. To those working in the waste diversion industry, attempting to "figure it out" is the objective of daily work. The next section connects this objective to the broader goals of environmentalism.

The Times They Are a-Changin'

The scale of both problems and solutions is important to consider in a variety of contexts beyond climate change. Some of the most dominant environmental policies in

²⁶ Tristram Stuart. *Waste : uncovering the global food scandal*. 1st American ed.. New York: WWNorton & Co, 2009.: 27.

²⁷ Ibid.

²⁸ Ibid.

the past few decades have targeted residential households, attempting to encourage (or in some cases coerce) individuals into changing their habits. In an essay on the “individualization of responsibility,”²⁹ Michael Maniates discussed efforts to change the choices and habits of individual consumers. Maniates uses the example of the book *The Lorax* by Dr. Seuss to recognize how individual environmental action has been justified as an enlightening, fulfilling, and entirely plausible solution to environmental problems.³⁰ While this may be true in some cases, it can also restrict our collective “environmental imagination,” and can impede progress that could be made by thinking on an “institutional” scale, according to Maniates.³¹ Why are Maniates’ theories important? Because economic and political forums can be useful mediums of change, environmental or otherwise. In waste management, many cities (including Portland) target individual households when implementing composting programs.

To diverge from an emphasis on individual responsibility requires advocating for other approaches to environmental problems. Maniates advocated for better use of political and economic forums to inspire change, but a more recent post-environmental theory endorses technological growth and development. This theory trusts that future civilizations will use technological innovation to work through environmental problems. This postmodern view critiqued the well-known 1972 book, *Limits to Growth*, which used early computer modeling to illustrate the future of food production, pollution, and resource depletion relative to population growth and industrialization. One model demonstrated how societies would collapse when the global population exceeded carrying capacity. In the years after *Limits to Growth* was published, optimistic environmentalists critiqued this theory, instead supporting the idea that innovation could prevent collapse.³² While no one can be sure of the future, Ellis, Shellenberger, Nordhaus, Latour, and others have since supplemented the theoretical argument in support of technological development, thus creating the broader concept of “post-environmentalism.”

²⁹ Maniates, Michael F. “Individualization: Plant a Tree, Buy a Bike, Save the World?” *Global Environmental Politics* 1, no. 3 (2001): 32.

³⁰ Ibid., 33.

³¹ Ibid.

³² Pirages, Dennis, and Ken Cousins. *From resource scarcity to ecological security : exploring new limits to growth*. Cambridge, Mass.: MIT Press, 2005.

Entering an age of “post-environmentalism,” many scholars agree we should no longer be approaching environmental issues as a matter of “protecting nature” or “saving the earth,” because humans have never been separate from what we consider to be “nature.” In his essay, *The Planet of No Return*, Erle Ellis describes how early humans altered their environment more than any other creature on the planet at that time.³³ Indeed, extreme alteration of their environment was one of the characteristics that distinguished early humans from other species, despite their relatively small population.³⁴ As we’ve developed civilizations, our impact has become larger and larger, until it has become impossible to identify a part of the earth that humans have *not* had any influence on (think along the lines of global climate change). Michael Shellenberger and William Nordhaus argue in their essay, *Evolve*, that humans have had such an indisputable impact that to solely promote conservation or return to ways of the past rather than continue to develop technology and infrastructure would be abandoning the processes that we are responsible for starting.³⁵ In many biological and socially constructed systems, humans have catalyzed processes that, if abandoned, would be far more destructive than if we continued to maintain and develop them. To support this argument, Shellenberger and Nordhaus give the example of cattle ranching, which currently occupies vast expanses of land, and can involve extremely inhumane processes of feeding, transportation, and slaughter.³⁶ Perhaps someday, the authors argue, raising lab meat will be viewed as less repulsive, more humane, and eventually more cost effective than ranching.³⁷ In waste management, innovative technologies could include faster, safer, and more efficient methods of landfill breakdown or reprocessing.

This approach to environmentalism requires some level of agatheism, the belief that all things tend toward a common good. The “post environmental” theory presented in *Evolve* assumes faith in technology, human competence, and global stability. Shellenberger and Nordhaus wrote from a primarily American perspective, assuming that technological development was indeed a possible solution, though it isn’t in places

³³ Shellenberger, Michael, and Ted Nordhaus. *Love Your Monsters: Postenvironmentalism and the Anthropocene*. Breakthrough Institute, 2011: “The Planet of No Return.

³⁴ Shellenberger, *Evolve*, ch. 1.

³⁵ Shellenberger, *Evolve*, ch. 4

³⁶ *Ibid.*

³⁷ *Ibid.*

with limited infrastructure or other hindrances. This assumption limits a broad theory to a small portion of the developed world. Though advanced innovation is generally limited to the postmodern world, developing the technology now can make it cheaper and more accessible to others in the future and in different parts of the world. In the “Methodology” section I will further discuss why the city of Portland, Oregon is a particularly ideal site to experiment, innovate, and develop.

Food Waste in American Restaurants Today

The United States Department of Agriculture (USDA) has estimated how much Americans spend on food, divided into two categories: “food at home” and “food away from home.” According to the USDA definition, “food at home” includes food purchased from grocery stores, other stores, direct purchases from farmers, home delivery, and home production. Food purchased by restaurants is excluded from this estimation. The estimated amount spent on food away from home included food purchased from “eating and drinking places,” hotels and motels, retail stores, schools, recreational places, and other prepared food service establishments.

Figure 1 shows the relationship between the percentage of the food dollar spent on food prepared away from home and food consumed at home.

Though the lines meet at about 50% in 2012, it is important to note that this does not mean Americans are eating out as much as they are eating in. The graph represents the portion of the food dollar spent on each category, but the percentage spent on food away from home also includes labor costs, tips, and other expenses associated with operating a food service facility. Generally, these factors make

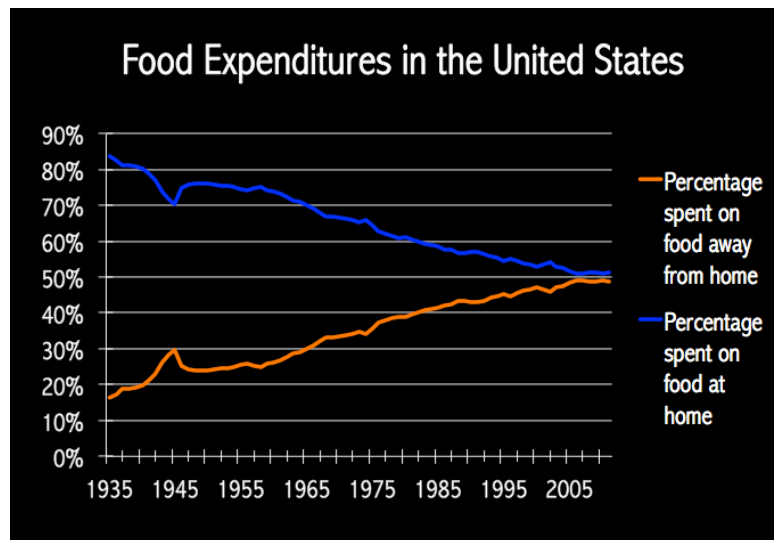


Figure 1: Percentage of total income Americans spent on food at home and food consumed away from home from 1935 to 2010. Data provided by USDA Economic Research Service.

dining out much more costly than eating in. However, some fast food restaurants have managed to lower prices so much that the cost of a fast food meal comes very close to what would be paid for food consumed at home.

The percentage of the food dollars Americans spend at restaurants compared to food they prepare and consume at home has increased at a fairly consistent rate over the past century. The first year for which the USDA measured expenditures on food prepared away from home was 1929. In that year, Americans spent 17% (about \$4,121,000) of their total food expenditures on food prepared away from home. In 2011, Americans spent 48% of their total food expenditures on food away from home.

In addition to spending a much greater portion of the food dollar on food away from home, more of the food consumed at home today is purchased from supermarkets than in 1939. In 1939 only 6% of food at home was purchased at a supermarket rather than purchased from small shops or produced at home. Today, supermarkets account for 61% of food purchased for home use.

This shift toward greater consumption of food away from home led to an increase in the actors and stakeholders involved in producing each unit of food. The close proximity of consumers to food and food service caught the attention of advocates of social and environmental justice because of the high amounts of surplus and waste generated within long commodity chains.³⁸ Furthermore, according to Tristram Stewart, high amounts of food waste in post-industrial countries intensify economic struggles and hunger in pre-industrial countries. Stewart stated, “If rich countries wasted less this could liberate agricultural land for other uses, including growing food that the world’s hungry could buy in the normal ways.”³⁹

Today, it is almost impossible to find a corporate food service facility that doesn’t have a “sustainability” section on its website. Often, these sections of websites will also include a section on social values and programs, including charities the corporation partners with. Corporations may adopt environmentally or socially responsible practices in response to persuasion or protests by non-governmental

³⁸ Maloni, Michael J., and Michael E. Brown. “Corporate Social Responsibility in the Supply Chain: An Application in the Food Industry.” *Journal of Business Ethics* 68, no. 1 (September 1, 2006): 1.

³⁹ Tristram Stuart, pg. xvii

organizations, non-profits, or other groups.⁴⁰ They may also find it beneficial to business to adopt some sort of social and environmental responsibility agenda, or may simply view this added responsibility as part of the cost of the business.⁴¹ Other food service facilities use sustainability and social responsibility as a way to appeal to customers, integrating them into the business model. These companies have used the topics of sustainability and social justice to fill a niche that had previously been occupied only by small and independent businesses. Various types of corporations, non-corporate companies, and independent restaurants may employ “value branding,” or appealing to a set of beliefs held by a certain niche of consumers.⁴²

Chipotle Mexican Grill and Bon Appetit Management Company are a couple examples of businesses that have filled such a niche. Bon Appetit Management Company (BAMCO) has developed the tagline, “food service for a sustainable future.” Though BAMCO operates over 500 food service facilities of varying types and scales, the company has focused heavily on promoting sustainability and social justice throughout the supply chain.⁴³ Chipotle has gone so far as to release a Netflix documentary, which details the successes of Chipotle, and how and why the restaurant chain came to adopt its current agenda. A series on Hulu called “Farmed and Dangerous” created by Chipotle appears to be less directly focused on the restaurant chain, and more on bringing awareness to the issues that lie within the food supply chain via an entertaining and fictional show, while creating publicity for the company.⁴⁴

⁴⁰ Ibid

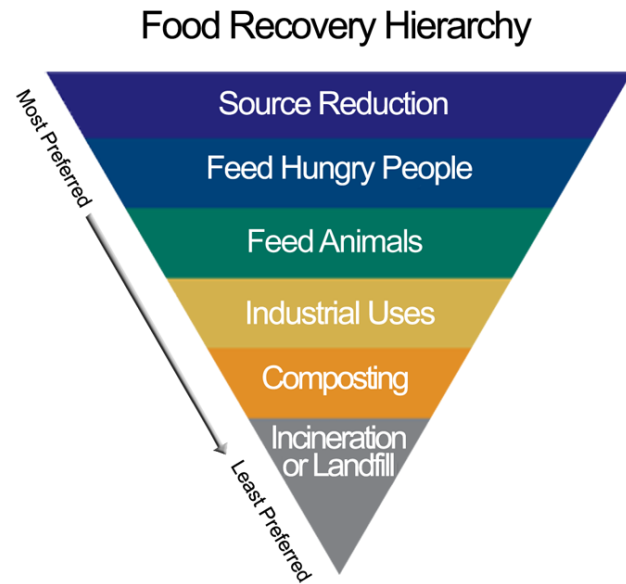
⁴¹ Ibid., 36.

⁴² “Chipotle’s Comedy Series Is a New Way to Brand, but Not All Are Amused.” Accessed February 19, 2014. http://www.denverpost.com/food/ci_25164115/chipotles-comedy-series-is-new-way-brand-but.

⁴³ “About Bon Appétit Management Company.” *Bon Appétit Management Co.* Accessed February 19, 2014. <http://www.bamco.com/about/>.

⁴⁴ “Farmed and Dangerous |.” *Farmed and Dangerous | Chipotle Original Series.* Accessed February 19, 2014. <http://farmedanddangerous.com>.

To help guide food waste diversion in homes, food service facilities, and distribution centers, the EPA created the food waste hierarchy (**figure 2** on page 14). By relying on this hierarchy, I can use a few examples to demonstrate how food waste can be reduced. For example, sending food to landfills has been completely banned in Japan and Korea because landfills take



up so much space for a very long time, while food can be turned to useable compost relatively quickly.⁴⁵ In areas where land is particularly precious,

Figure 2: Food Recovery Hierarchy used by the EPA to demonstrate waste diversion priorities

composting facilities can be very important. In other parts of the world, feeding food scraps to animals is a very common practice, especially where most households keep livestock on a small scale. This close relationship between owners and livestock is particularly conducive for feeding animals food scraps. In areas where the connection between livestock and human consumption is distant (like in highly developed urban areas), transporting food scraps to farms is more complicated and takes a copious amount of planning.

Sending food to landfills not only leads to food waste, but also wastes the resources and energy that went into producing it. More soil is depleted, more water is used, and the fossil fuels used throughout the food chain are diminished.⁴⁶ When citing reasons to limit waste going to landfills, policy makers and activists commonly reference the large amount of space they occupy. The gases released by landfills add another dimension to the issues surrounding excess food waste. “Dry tomb” is the common method of closing up a landfill in order to let the waste breakdown under layers

⁴⁵ Tristram Stuart, pg. xx.

⁴⁶ Eng, Christina. “Watching Our Waste Lines.” *Gastronomica: The Journal of Food and Culture* 11, no. 3 (August 1, 2011): 100–102.

of permeable and impermeable materials.⁴⁷ However, due to the anaerobic nature of this method, methane is released as a byproduct.⁴⁸ Properly rotated and oxygenated compost will produce CO₂, which contributes to climate change more than twenty times less than CH₄ (methane) according to the U.S. EPA.⁴⁹

To achieve waste management that reuses and recycles wherever possible is more complex than most government and business leaders tend to lead us to believe. The food waste hierarchy seems fairly straightforward: when we have food waste, it should be fed to hungry people, fed to hungry animals, used industrially, or if nothing else, composted. Of course, various obstacles throughout the food system prevent composting and food donation from transpiring. The remainder of this paper explores the barriers to implementing effective donation and composting systems, as reported by those working in various sectors related to food waste diversion in Portland.

Methodology

Study Area

As a “post-industrial” society, the U.S. economy relies more heavily on production in the form of services, rather than on the production of goods.⁵⁰ Though manufacturing is obsolescent, goods are still heavily consumed, creating great amounts of waste.⁵¹ Furthermore, as **figure 1** shows, more people are relying on the service industry for food service. U.S. cities are therefore an ideal environment to study restaurant food waste and diversion.

The entirety of this research is situated in Portland, Oregon, and the results will primarily reflect a small snapshot in time and space—a representation of the food waste

⁴⁷ U.S. Composting Council. “Keeping Organics Out of Landfills.” Accessed January 29, 2014. <http://compostingcouncil.org/admin/wp-content/uploads/2011/11/Keeping-Organics-Out-of-Landfills-Position-Paper.pdf>.

⁴⁸ Ibid.

⁴⁹ US EPA, Climate Change Division. “Methane Emissions.” Overviews & Factsheets., Accessed February 13, 2014. <http://epa.gov/climatechange/ghgemissions/gases/ch4.html>.

⁵⁰ “Postindustrial Society.” *Encyclopedia Britannica*. Accessed May 7, 2014. <http://www.britannica.com/EBchecked/topic/472201/postindustrial-society>.

⁵¹ Ibid.

systems that exist in Portland in 2014. That being said, many of the reflections shared by people in Portland likely represent experiences that people in other cities have had or will have in the future when implementing food donation and composting systems. Portland stands out from other U.S. cities for having a strong sustainability program in the city government with goals of social and cultural sustainability woven into environmental action plans, and vice versa. Rather than having two separate departments for urban planning and sustainability, Portland has wisely combined the two, obviously recognizing that one is not separate from the other.⁵² In a brief perusal of the city government websites of other mid-sized (population 100,000-1,000,000) U.S. cities (including San Francisco, Seattle, Minneapolis, Kansas City, Salt Lake City, Providence, Austin, Raleigh, and Topeka) I found that all, except for San Francisco, have a section of government entirely devoted to “sustainability” or “environment,” completely separate from any other department.

Though technology-based approaches may not be plausible in many parts of the world, the city of Portland acts as an ideal testing ground for technologies that can reduce and reuse food waste. In 2009, San Francisco became the first U.S. city to implement mandatory residential composting.⁵³ Portland implemented mandatory residential composting soon after, in 2011.⁵⁴ In Portland, residential compost bins have been distributed to every household, and there have been many efforts to educate residents about the types of materials that are compostable, recyclable, or neither. The program has had high rates of success on the residential level. Yet, the composting program is not required of businesses, and businesses have to take the initiative to implement composting programs.⁵⁵

⁵² “What We Do | The City of Portland, Oregon.” Government Page. *The City of Portland, Planning and Sustainability*, 2014. <https://www.portlandoregon.gov/bps/50531>.

⁵³ “Zero Waste FAQ.” *Sfenvironment.org - Our Home. Our City. Our Planet*. Accessed May 7, 2014. <http://www.sfenvironment.org/zero-waste/overview/zero-waste-faq>.

⁵⁴ Bureau of Planning and Sustainability. *New Curbside Collection Service--One Year Report*, December 5, 2012. <http://www.portlandoregon.gov/bps/article/423510>.

⁵⁵ Bureau of Planning and Sustainability. “How to Compost | Resource Guide | The City of Portland, Oregon,” 2014. <https://www.portlandoregon.gov/sustainabilityatwork/article/461308>.

Questions

The primary research question I address in this paper is: *How does the increasing institutionalization of eating impact the broader goals of sustainable and socially equitable waste management?* Two phrases in this question can be deconstructed to more appropriately explain the significance of the question.

- The “broader goals of sustainable and socially equitable waste management” are those currently being pursued by businesses, governments, and activists. The Food Recovery Hierarchy (**figure 2**) developed by the EPA recommends reducing first reducing the amount of waste that goes to landfills and reusing food whenever possible. The next step is to increase food donation programs (to feed humans or animals, or for other uses) and finally compost the food waste that cannot be donated. The challenge lies in implementing these steps in a way that is efficient, effective, and socially equitable.

- The “increasing institutionalization of eating” refers to the culture of eating out of the home that has become much more common in America today than at any other point in history (see graph on page 8). Due to this relatively recent change in the culture of eating, I decided to focus on food service facilities, rather than individual households.

In order to determine how waste was disposed of at restaurants, which people were most instrumental in establishing alternative programs, and what obstacles prevented the implementation of alternative programs, I asked several more researchable questions:

- *What challenges do Portland restaurants face when implementing composting, recycling, and food donation programs?*
- *To what extent do each of the following catalyze the implementation of alternative food waste diversion programs: consumer interest; personal values of employees and managers; government policies and regulations?*
- *In what ways are such programs incentivizing socially just and environmentally efficient waste management in Portland?*

By using these questions to guide my research, I revealed particularly prominent or unexpected forces that influence the decisions of restaurant owners and employees regarding food waste diversion. In doing so, I identified the relationships between government, businesses, and other agencies that have been particularly effective (or particularly unsuccessful) at establishing and maintaining strong alternative waste management programs.

Interviews and Personal Accounts

The bulk of my research was accomplished by conducting informal interviews and phone conversations or email correspondence with people involved in a variety of sectors related to food waste diversion. These stakeholders included:

- Employees of city government outreach programs
- Employees in academic or other outreach programs
- Restaurant employees
- Non-profit and non-governmental waste diversion programs

Though I intended to incorporate a wide variety of perspectives, I was not able to contact a few important actors due to time constraints and scheduling conflicts.

However, it is important to note that many of those I interviewed work with those I was unable to interview, and therefore could explain the roles of the stakeholders I was unable to interview. While secondhand perspectives are less ideal, they still offered more clarity to the project overall. The stakeholders I was unable to interview included:

- For-profit businesses working to divert waste
- Restaurant owners or CEO's
- Waste collection operations
- Those receiving donated food (including people who are food insecure, farmers, and biofuel manufacturers)

I used primarily interviews rather than surveys to reduce the risk of limiting information to *only* the topics that I felt were relevant at the time of writing the survey. Interviews instead allowed conversations to be guided more by the interviewees themselves, which created an environment in which a conversation could take many

directions, spanning a wider variety of topics. I asked a few broad guiding questions of the people I interviewed who are working in waste diversion, though they varied a bit according to whom I was speaking to. In general, my guiding questions included the following:

- *What are some of the challenges you have faced when working in the field of waste diversion (food donation or composting)?*
- *What are some goals you have to improve this program?*
- *What groups or people have been easiest or most difficult to work with, and why?*

The conversations inevitably diverged in all directions from these broad questions, and topics were often conditional on the most recent setbacks or successes each interviewee had experienced. I used a snowball method of selecting people to interview—I started with one person, Claire Cummings, the Bon Appetit Waste Sustainability Specialist, who connected me to several other people in the city, who then introduced me to several other people, and so on. When interviewees stopped suggesting new people to contact, I considered my work in that sector complete.

I also corresponded with several people solely via email or phone. These correspondences were primarily to answer minor questions. However, independent restaurant owners proved most easy to contact via email, so I compiled a list of independent Portland restaurants that had email addresses included on their webpages. I sent brief email questionnaires to fifteen “general inquiry” email addresses.

Analysis

Overview and background statistics

The most recent evaluation of waste collection in the Portland metro area (2009) reported that food waste accounted for 23% of the total waste collected from commercial sites, while food waste collected from residential areas accounted for 26%

of the total waste stream.⁵⁶ Residential areas produced a total of 23,549 tons of food, while commercial sites generated 20,152 tons. This shows that in 2009, residential areas were still producing a greater amount of food waste than commercial sites, but the difference between the two was only 3,397 tons. Beginning in 2005, the numbers begin to stabilize, with about 50% of food purchases going to food consumed at home, and the other 50% being spent on food consumed away from home. This could be due to a number of factors, including campaigns that encourage taking more control over one's diet, such as Michelle Obama's "Let's Move" campaign,⁵⁷ or Jaime Oliver's "Food Revolution."⁵⁸

⁵⁶ Department of Environmental Quality. *2009-2010 Waste Composition Study*, n.d.
<http://www.deq.state.or.us/lq/pubs/docs/sw/WasteComp2009TableA2.pdf>.

⁵⁷ "Healthy Families | Let's Move!" Government Page. Accessed March 6, 2014.
<http://www.letsmove.gov/healthy-families>.

⁵⁸ "Jamie Oliver's Food Revolution | Jamie Oliver (US)." *Jamie Oliver*. Accessed March 6, 2014.
<http://www.jamieoliver.com/us/foundation/jamies-food-revolution/home>.

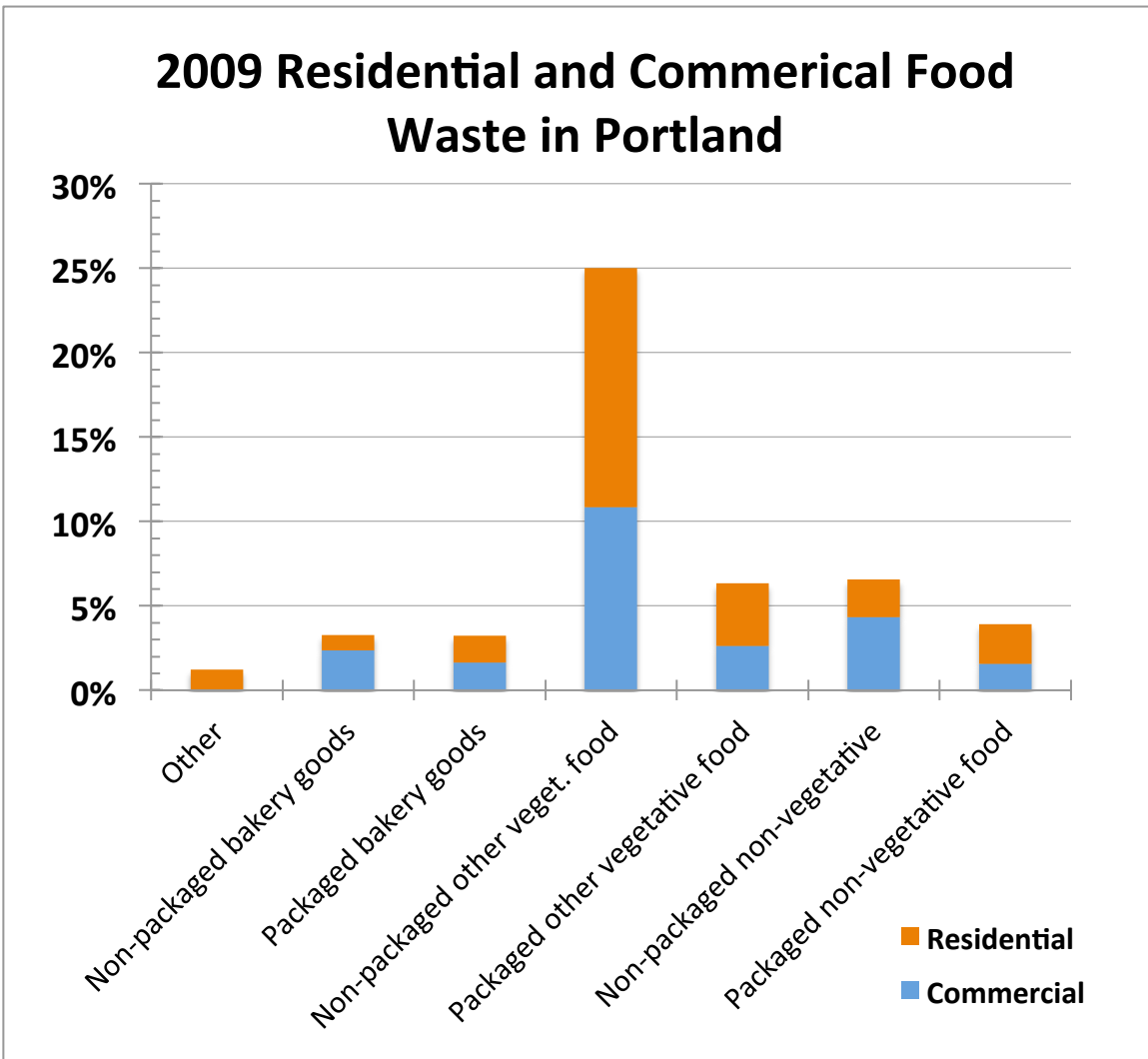


Figure 3: Percentages of residential and commercial food waste by category, from a 2009 DEQ report.

One concern among people involved in implementing composting or food donation programs is the amount of packaging on compostable food. Removing packaging is time consuming, but must be done in order for food waste to break down into usable fertilizer. The same report on waste produced in Portland in 2009 showed that most of the food waste in the city was unpackaged (**figure 3**).

Since Portland implemented the composting program in 2012, the amount of waste going to the landfill has been reduced by 44%. Non-compostable and non-recyclable waste from Portland is transported by truck or train to Arlington, Oregon, about 140 miles. Compost and recycling, however, are transported to areas within the Portland metro area. Most compost is trucked about 20 miles west of the Portland city center to North Plains, while most recycling travels a similar distance to Oregon City.⁵⁹

⁶⁰ Individual residences and apartment buildings in Portland are all provided with compost and recycling bins, which are picked up every week. However, composting was not automatically set up for businesses. Businesses must contact their waste management company and set up a composting system. The company will then provide the business with large and small composting containers. The City of Portland does offer free training for employees to teach about which types of food and other materials may be composted. There is also a variety of informational stickers, posters and pamphlets on composting offered for free by the city.

Food donation programs in Portland are funded by a variety of groups. The Oregon Food Bank, which operates under the umbrella of Feeding America, collects the bulk of its donated food from local and national corporate distributors and producers. Feeding

America is able to operate

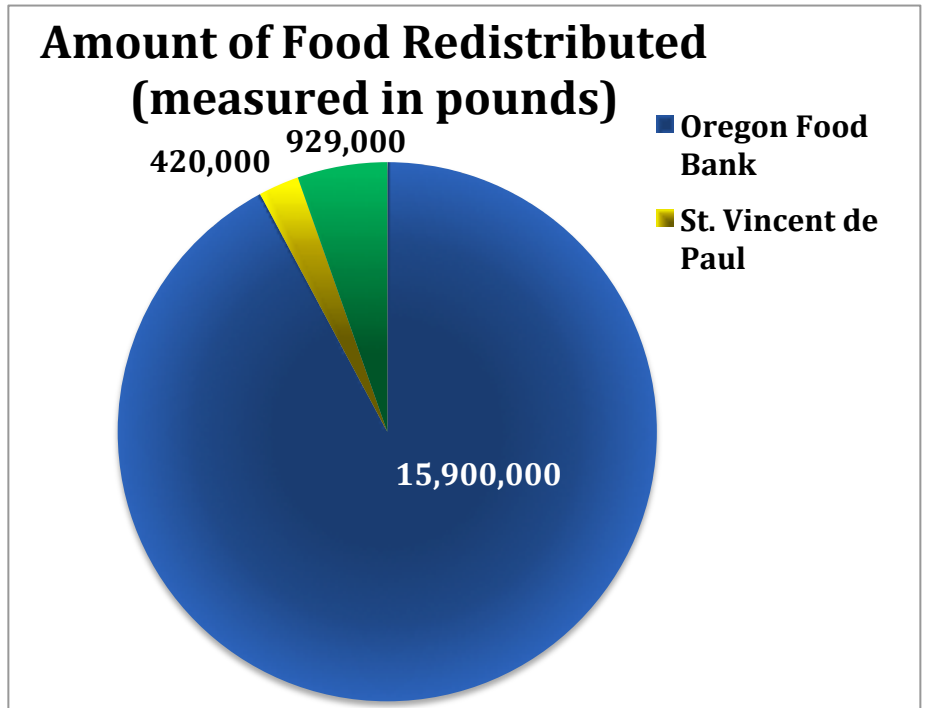


Figure 4: Total amount of food given to people who are hungry or food insecure each year by three of the largest food donation agencies in Portland.

⁵⁹ “The Muck, Raked: What Really Happens to the Food Scraps You Leave Out on the Curb.” Accessed January 15, 2014. http://www.wweek.com/portland/article-19427-the_muck_raked.html.

⁶⁰ “Metro: Future of Metro South Station,” 2014. <http://www.oregonmetro.gov/index.cfm/go/by.web/id=42173>.

on such a grand scale due to its size and prominence. Its board of directors is primarily made up of corporate executives, who are able to help forge and maintain strong relationships between large corporate donors and food bank beneficiaries.⁶¹ Churches and other religious groups are often responsible for the creation of food donation programs. One example of how churches are involved in food donation is the Interfaith Food and Farm Partnership, a sector of the Ecumenical Ministries of Oregon (EMO). The EMO is an organization made up of various Christian congregations that oversee a variety of projects that take place in the Portland area. The EMO's Interfaith Network for Earth Concerns (INEC) began promoting community food security in the faith community in 1994, linking anti-hunger work with economic justice and environmental sustainability.

The most wide-reaching example of this in Portland is St. Vincent de Paul, which began as a Catholic charity program in 1833.⁶² In Portland, many independent activist and charity groups have formed to collect and redistribute food for social and/or environmental reasons. Groups such as Food Not Bombs and the Portland Fruit Tree Project use methods of food collection that span everything from harvesting produce from public spaces to the more conventional methods of fostering relationships with restaurants to collect surplus or expired food.^{63, 64} From the information I gathered in my interviews (see below), Urban Gleaners is probably the most well-known example of a small independent food redistribution program in Portland.

The Bill Emerson Good Samaritan Act:

According to Claire Cummings, the Waste Sustainability Specialist for Bon Appetit Management Company, food safety is the top concern of chefs and managers when asked to participate in donation programs. Many people in food service believe that donating food can easily violate food service laws. Fears of accidentally harming others and then being held liable are common concerns throughout the industry.

⁶¹ "About Us: Hunger-Relief Organization." *Feeding America*. Accessed March 9, 2014.

<http://feedingamerica.org/how-we-fight-hunger/about-us.aspx>.

⁶² Society of St. Vincent de Paul, Portland Council. "History of St. Vincent De Paul," 2013.

<http://www.svdppdx.com/wordpress/about-us/our-history/>.

⁶³ "FREQUENTLY ASKED QUESTIONS." *Food Not Bombs*. Accessed March 10, 2014.

<http://www.foodnotbombs.net/faq.html>.

⁶⁴ "Portland Fruit Tree Project - Home." Accessed March 10, 2014. <http://portlandfruit.org/>.

Implementing food donation programs can interrupt the flow of existing routines in restaurants, and can remove some control over safe food handling from restaurant employees. These qualms, however, can often be assuaged by introducing the Bill Emerson Good Samaritan Act of 1996, (commonly known simply as the Emerson Act) which was created to protect food vendors from liability when donating. The most important segment of Emerson Act may be the clause regarding “gross negligence.” The clause states that the person(s) or business(es) responsible for providing the donated food cannot be held liable if the donation was made in good faith and without “gross negligence,” defined as the knowledge that “the conduct was likely to be harmful to the health or well-being of another person.” The Emerson Act can protect a person or business from liability and therefore encourages benevolence, but the subjectivity of its wording still forces restaurant workers to be extremely cautious when handling food donations.

Whether or not restaurants are held legally responsible for mishaps in donation, a food poisoning scare can quickly damage the reputation of a restaurant. On a local level, rumors can spread among clientele. Larger chains and corporate restaurants easily attract the attention of national media, though larger businesses may be more resilient to charges of insufficient food handling.

Structure of Waste Management Utility Companies in Portland

Waste management in Portland is split into many different districts, each of which is covered by a different utility company. The map in **figure 5** (page 24) shows which utility companies manage neighborhoods near the center of the city. The same utility company can manage neighborhoods in many different parts of the city. Each utility company sets its own prices for garbage, recycling, and compost collection. The prices that waste management companies are charged when dropping off waste, recycling, and compost at their final processing repositories are much lower rates for compost than for garbage. However, the prices that waste utility companies charge their patrons for composting can be higher than the amount they charge for garbage. The reasons for this are due to the inconveniences to the waste management company of incorporating another form of waste collection into existing systems. Costs to utility

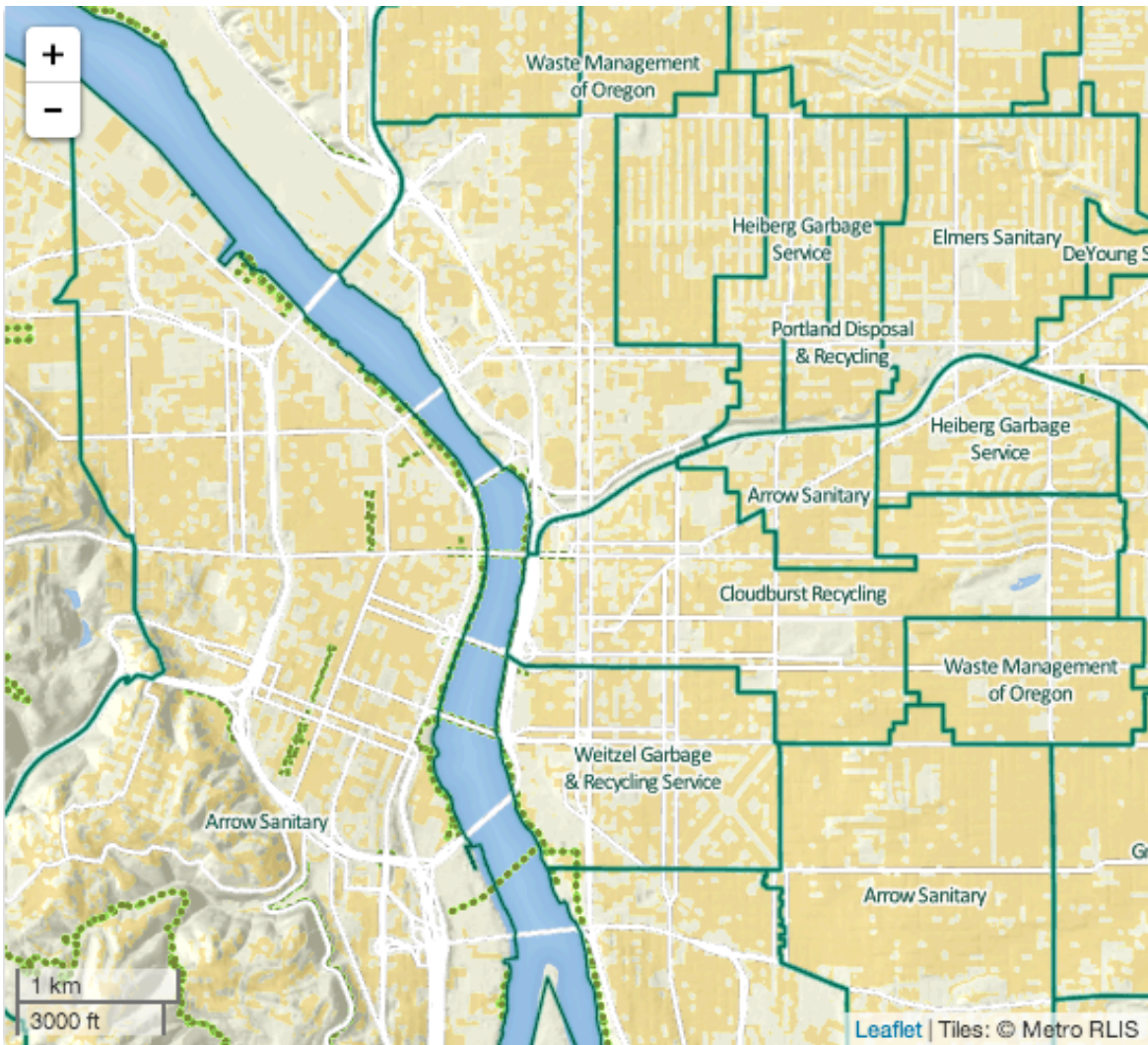


Figure 5: Snapshot of a map of waste management districts in Portland. The solid green lines represent boundaries between the domains of each waste management utility company.

companies can include capital investments (trucks, bins, etc.), opportunity costs related to scheduling, and increased employee training. While the City of Portland helped to implement the residential composting programs, utility companies that primarily serve businesses are less willing to effectuate such changes.

Composting Non-Food Waste

Since Portland began its composting program, businesses have been encouraged to participate. Compostable non-food waste, including cardboard, napkins, and compostable dinnerware, was allowed. According to Paul de Block, the Business Sustainability Advisor, the Bureau of Planning and Sustainability tries to persuade businesses to use compostable dinnerware to encourage greater participation in the

composting program. Though compostable dinnerware can be more expensive, a reputation of “sustainability” appeals to customers and can increase transaction numbers.

However, on March 28, 2014, food service businesses received a letter from Paul Ehinger, the Director of Solid Waste Operations at Metro. The letter stated that compostable non-food waste would no longer be accepted as compost.⁶⁵ Waxed and corrugated cardboard will no longer be accepted, effective November 1, 2014, while all other compostable non-food scraps will no longer be accepted after May 1, 2015.⁶⁶ This gives businesses more than a year to adapt to most of the changes. Residential composting guidelines will remain the same.⁶⁷

For many food service facilities, educating employees on where to dispose of certain items will be the only significant change. However, restaurants that were previously using compostable products may wish to return to cheaper non-compostable products, if the compostable products are no longer incorporated into the system.

Interviews and Anecdotes

Donation Agencies

Since 2008, the Portland organization **Urban Gleaners** has been picking up food from various sources and distributing it to partner organizations and schools, where after-school programs can redistribute the food to children. In the first few years of operation, the staff at Urban Gleaners focused on creating relationships with restaurants. The program now picks up food from a variety of farms, restaurants, grocery stores, caterers, and distributors. Most businesses that Urban Gleaners collects donations from are locally founded and independent, though a few, such as Dave’s Killer Bread, have expanded nationally or have been purchased by larger companies.⁶⁸ According to Ava Mikolavich, a program coordinator at Urban Gleaners, large supermarket chains prefer to donate bulk goods to the Oregon Food Bank, which works under the umbrella of Feeding America.

⁶⁵ Ehinger, Paul. “Metro Letter to Portland Area Businesses,” March 28, 2014.

<https://www.documentcloud.org/documents/1109225-metro-letter-to-portland-area-businesses.html>.

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ “Food Donors.” Accessed March 3, 2014. <http://urbangleaners.org/partners/food-donors>.

Mikolavich considered large-scale business (including chains and franchises) to be an obstacle to setting up donation programs because it often required contacting distant administrators. These business leaders were more difficult to contact than those located within the city, and were often more guarded regarding food safety laws than those overseeing smaller operations. However, large-scale food service facilities can be helpful for larger donation programs, like the Oregon Food Bank or St. Vincent de Paul. These larger donation organizations tend to have very strict food safety and food handling guidelines, and can tailor operations to fit a variety of schedules. They can manage very large amounts of surplus food, which may be more appealing to supermarkets or chain restaurants that may find themselves with large unexpected surpluses.

In addition to collecting food, Urban Gleaners also has forged relationships with farmers to divert waste for other uses, such as feeding animals. Originally, Urban Gleaners contacted a few farms in hopes of collecting some of their surplus food. Then, they were able to send some of the unusable food back to a pig farm, in order to feed the pigs food scraps unfit for human consumption. Staff at Urban Gleaners has also teamed up with biofuel producers while developing donation programs, to encourage restaurants that have leftover oil to donate it to biofuel production. Food that cannot be donated to humans, animals, or for other uses is then composted.

While the Oregon Food Bank already collected surplus food from many farms that Urban Gleaners contacted during its formation, the food bank prefers to pick up large amounts of the same types of food, leaving the smaller amounts for Urban Gleaners to pick up. In this way, Urban Gleaners found a medium-sized niche that had not already been filled by the larger food bank, or by smaller organizations that tended to have less consistent collection schedules, improper transportation, or insufficient staff.

St. Vincent de Paul operates on a slightly larger scale than Urban Gleaners, and has slightly different goals and methods of management. A designated paid truck driver follows a daily schedule to pick up food from each site from which St. Vincent de Paul receives donations. I interviewed program director Paul Kresik, who felt that setting up

relationships with chain restaurants in the Portland area was very effective. Kresik has had positive experiences in the past working with Olive Garden, Chipotle, Hopworks, and other national and local franchises. At these restaurants, Kresik only needed to convince a few leaders to participate in the donation program, which then led to much easier implementation at various franchises, as owners and managers then knew that their supervisors supported the program. However, Kresik also noted that in his recent interactions with Ikea, the “Risk Department” was preventing further progress though the local manager was excited about the possibility of starting a food donation program.

St. Vincent de Paul relies heavily on donations from grocery stores, cafeterias and larger restaurants. Kresik pointed out that the methods of food collection that St. Vincent de Paul and others use might change over the next couple decades. In the 20th century, most stores operated by ordering processed foods ahead of time and storing them in warehouses. As technology has developed, it has become easier for grocery stores to keep a tighter account of what and how much is being sold. This allows stores to reduce warehouse sizes and order food on an as-needed basis, without being concerned that supplies would be depleted too soon, a process of distribution known as “Direct Store Delivery” (DSD).⁶⁹ This method of distribution tends to be more efficient, delivering only the type and amount of food that is needed at the time.⁷⁰ The amount of surplus food decreases, reducing the amount of food that is donated.⁷¹ Though increasing efficiency and reducing the amount of waste a store generates decreases food waste, Kresik was concerned that DSD would decrease donations to St. Vincent de Paul, therefore reducing the amount of food the organization could give to people in need. If this happened, the organization would ultimately need to rely more heavily on donations from smaller food service facilities.

Business owners, managers, and employees

I contacted a variety of restaurants—one large franchise, some small or local chains and some independent restaurants. Subway currently has more franchises than

⁶⁹ Clarkston Consulting, Grocery Manufacturers Association, and AMR Research. *Powering Growth Through Direct Store Delivery*. Grocery Manufacturers Association, September 2008.
http://www.gmaonline.org/downloads/research-and-reports/DSD_Final_111108.pdf.

⁷⁰ Ibid.

⁷¹ Ibid.

any other restaurant in the world, making it a prime example of a chain restaurant. Of all the people I contacted and interviewed, managers and owners of chain restaurants were the hardest to contact, as they were often too busy to respond to phone calls, yet were moving between restaurants too frequently to track down in person. I also contacted a variety of independent restaurants in Portland, all by phone or email.

I talked to several **Subway** employees to gauge the waste diversion situation. All employees reported that all food was thrown away into the same bin. Given the difficulty of contacting managers and owners, waste diversion programs did not seem to be a priority in the Subway franchises I visited. However, one employee reported that he thought some Subway franchises in Portland did compost.

Independent restaurant owners and managers were also very busy, but many have email addresses that are used to respond to general inquiries, something that few large chain restaurants have. One of the respondents was **Hopworks**, an independent brewery and restaurant with two locations in east Portland. Hopworks donates to St. Vincent de Paul and composts food, which is integrated into its weekly waste collection. My contact, Nate Young, cited food safety as being the biggest concern in donation. For this reason, Hopworks tries to take extra precautions and only donate food that is sure to be edible for at least several days. As for composting, Young admitted that quite a lot of food and compostable containers probably don't make it to the compost receptacle. Trying to sort waste during busy hours and dinner rushes can slow down service, and is therefore not always a concern of employees. Most people who have worked in food service have experienced the pressure of a fast-paced, service oriented environment. This need for speed can interfere with broader goals of pursuing social or environmental progress.

Mother's Bistro, located downtown, reported a different system of waste diversion. Chef and owner Lisa Schroeder maintains that the restaurant uses all food in service, eliminating any food that could potentially be donated. Schroeder also reported that not all waste collectors have composting programs. This may be more common of waste collectors that manage waste in the densest areas of the city, primarily the city center.

John Conell-Maribona, the owner and chef at **Pambiche**, a Cuban restaurant in northeast Portland, stated that his restaurant composts, but does not have enough food to donate. Though composting is more expensive for the restaurant to participate in than general waste pick-up, Conell-Maribona believes that composting “simply makes sense.” All the oil used by Pambiche is reused to produce biofuels. The company that collects the oil pays Pambiche in exchange for saving and donating its used oil. Conell-Maribona reported that he hoped to donate food scraps to farms for livestock consumption, but did not know how to make the connection with a farm in need, and also felt that it would be more appropriate for a farm to contact the restaurant in order to implement this type of donation system.

Government agencies

There are several government agencies in Portland that are working to minimize food waste in landfills. The Bureau of Planning and Sustainability runs the “Portland Composts!” website, and organizes advising to help businesses work with waste management companies and donation agencies to divert food waste from landfills. The “Cut Through the FOG” program operated by the Environmental Services of the City of Portland is in the process of imposing a new tax on businesses disposal of fats, oils, and grease (FOG). Multnomah County and Metro also have sustainability departments that advocate for and assist with food diversion programs on a much smaller scale. I had conversations with Genevieve Joplin and Paul de Block about the Bureau of Planning and Sustainability’s efforts to provide assistance and outreach to businesses regarding food donation and composting. At the Portland Water Pollution Lab, I interviewed John Holzworth about the “Cut Through the FOG” program.

When asked about the barriers to creating functional food waste diversion programs, De Block and Joplin cited both local logistical and broader systematic issues. Joplin suggested that businesses occupying spaces in shared buildings often also shared waste bins. Usually, this meant that implementing composting programs required the consent of all the other businesses in the building as well as the consent of the property manager. The downtown area posed particularly significant challenges. To implement composting in large buildings can mean finding extra space for storage, which is especially scarce in dense urban areas. Dense urban settings usually require waste to be

stored inside, and it also must be transported between floors, which can be difficult if the building is using a one-way chute system. Joplin and de Block also cited the common compost-related issues of fruit flies and odor as being particularly problematic at the city center due to limited spatial capacity. In downtown Portland, waste can only be left on the street for 12 hours or less, which means that it must be stored indoors between the weekly pickup days. Since space indoors is limited and costly, doubling the size of waste receptacles (by adding a compost bin) can seem like a great hurdle for many properties.

The “Cut Through the FOG” program was initiated as an attempt to reduce the levels of fats, oils, and grease (“FOG”) in the sewer system, in response to a request by the EPA that the City of Portland take action to reduce frequent sewer overflows that contaminated waterways. The program is based on a taxation program, which is being implemented in all food service facilities around Portland (still in progress as of May, 2014). Though the primary objective is to reduce sewer overflows, the taxation program also indirectly encourages composting and other methods of food waste diversion. Businesses can lower their taxation rate by composting or donating food scraps, removing food grinders, and installing grease interceptors. The base rate for a sit-down restaurant is \$4.07 per CCF (748 gallons) of water used. The rate for a sit-down restaurant taking all precautions (with food composting and/or donation, no grinders, and a grease interceptor) is \$2.91 per CCF. Many restaurants operate on a fairly short-term basis, and may not find that implementation of new programs is monetarily beneficial. Furthermore, the time and labor that is required to remove grinders, install grease interceptors, and start composting and donation programs adds additional opportunity costs to the business. However, in the case that a business was already considering implementing food donation or composting programs, the “Cut Through the FOG” taxes and discussion with city advisors may act as a final incentive to take that step.

Community Environmental Services at Port of Portland

In 2003, the Community Environmental Services (CES) program at Portland State University implemented a program to reduce waste going to the landfill at concessions stands in the Portland Airport. The outreach program provides a useful

example of how the agglomeration of businesses can lead to easier implementation of food donation and composting systems. In a way, the Portland Airport acts as a mini city. The Port of Portland acts as a government, presiding over a set of businesses, which profit by appealing to customers. CES teams up with the Port of Portland to encourage waste diversion programs, but neither can necessarily *require* restaurants to participate. The City of Portland follows a similar model, teaming up with waste collection companies and other agencies to encourage waste diversion, while not directly mandating it, in order to allow for some economic freedom. Because the Portland airport functions almost autonomously from the rest of the city, its relatively successful waste diversion program is a good example of how a similar program could function city-wide.

The strong relationship between Port of Portland and CES has been a crucial element in approaching a zero waste system at the airport. Graduate students of the Urban and Public Affairs program at PSU have the opportunity to conduct research or participate in outreach to businesses. A point person designated by CES works with employees at each concession stand to ensure that they are recycling, donating, and composting whenever possible. The CES team inspects the waste thrown away by all of the concessions stands almost every day, then attempts to identify where any misplaced waste came from. Then Julia Metz, the current outreach coordinator, talks to the offending party and tries to encourage better waste sorting by offering \$5.00 gift cards to those who donate, compost, and recycle with care.

Metz believes that incentivization is a more effective method to encourage cooperation than reprimanding employees for their mistakes. Thomas Doherty, a professor of Ecopsychology at Lewis and Clark helped Metz establish the system of incentivization at the airport (more on this after I talk to him). Fortunately, CES and the Port of Portland have the funds to offer a monetary incentive to employees. Metz also reminds managers and employees that many customers prefer restaurants that engage in actions of social or environmental responsibility.

Metz has faced a few logistical obstacles at the airport that others had mentioned were present in the rest of the city as well. The amount of packaged food that is disposed of at the airport is particularly high, due to the fast-paced nature of a transportation hub. Fortunately, the waste diversion team at the airport has been able to team up with St.

Vincent de Paul, which has the facilities to manage and redistribute prepared and packaged food. However, once this food is no longer possible to donate, composting it takes time and labor, as the food must be separated from the packaging. Often, the opportunity cost of unwrapping food is too high for restaurant workers in a fast-paced and stressful environment to undertake.

Another logistical challenge is teaching employees to compost and donate food at locations with very high employee turnover rates. Metz suggested that the employee turnover rates at airport concession stands are probably higher than those in most food service facilities. Metz also makes sure to attend as many employee trainings as she can in order to encourage proper waste sorting from the start. However, these trainings can sometimes occur months after employees have been hired, which means Metz's efforts are often belated.


The Portland airport has two large refrigerators to store each day's donations from those food service facilities that participate in the donation program. St. Vincent de Paul is responsible for picking up donated prepared food each day. While donors must take a fairly long walk through the airport to the communal refrigerators to drop off food, St. Vincent de Paul does the bulk of the work, driving out to the airport to pick up the food, then redistributing it people who are food insecure.

Many of the struggles the waste diversion team has experienced at the airport have also been experienced by those in the same field around other parts of the city. The program at the Portland airport is an example of how waste diversion programs could benefit by using a central operating system (perhaps a coalition of government, utility company, and donation agency partners) who could work with businesses to oversee and coordinate donation and composting programs.

Summary of Results

Table 1 represents the most common and/or most pertinent barriers to composting and various forms of food donation, as reported by the people I interviewed. Specifically, these insights represent the perspectives of people working in the food industry, government waste diversion, or donation coordination in Portland, and recounts their answers to the following question: *What challenges do Portland*

restaurants face when implementing composting, recycling, and food donation programs?



Donation for Human Consumption	Direct donation to farms/for animal consumption	Donation for other uses (ex. Biofuels, industrial)	Composting
<i>Fear of food contamination/breaches of safety rules</i>	<i>Restaurants expect farmers to contact them, not vice versa</i>	<i>Lack of donatable material (specificity in needs)</i>	<i>Can ultimately be more expensive (bags, opportunity cost, etc.)</i>
<i>Very high employee turnover rate</i>	<i>Lack of interest/motivation by stakeholders</i>	<i>Difficulty establishing relationships</i>	<i>Not all waste management services offer composting</i>
<i>Incompatibility of schedules</i>	<i>Employee point person necessary</i>	<i>Restaurants want oil users to contact them</i>	<i>“Opt-in” composting system for businesses</i>
<i>Employee point person necessary</i>	<i>Incompatibility of schedules</i>	<i>Employee point person necessary</i>	<i>Prices set by utilities can be higher than for garbage</i>
<i>Time constraints</i>	<i>Difficulty establishing relationships</i>		<i>Pests, odor, poor aesthetics</i>
<i>Inter-occupational drama</i>	<i>Lack of capital</i>		<i>Packaging</i>
<i>Lack of capital (containers, fridges, etc.)</i>	<i>Packaging constraints</i>		
<i>Packaging constraints</i>			

Table 1: Barriers to donation for human consumption, animal consumption and other uses, and composting.

At the food service level, composting and donation systems proved to be limited logistically, particularly regarding employee coordination and education on which types of food are donatable, and which types of waste are compostable. Financial barriers were a great concern as well. As Conell-Maribona stated, “Composting is more expensive than landfill garbage service. In addition, trashcan liners are considerably

more expensive than plastic bags. Recycling waste instead of ‘throwing it away’ just simply makes sense.”

Many of the challenges discussed by interviewees were logistical, but larger structural problems were also represented, both directly and indirectly. For example, the responses I received from independent restaurant employees sometimes contradicted each other, revealing a system permeated with imperfect information. Other employee insights uncovered a need for tighter networks among industries, which would allow food service facilities to connect with farmers in need of livestock feed or biofuel producers searching for used oil.

Throughout my research, I discovered ways in which various influences were propelling food waste diversion, even in the fast-paced environment of food service. **Table 2** provides some answers to the following question: *To what extent do each of the following catalyze the implementation of alternative food waste diversion programs: consumer interest; personal values of employees and managers; government policies and regulations?* Each of these factors have a different influence on waste diversion. These influences provide an answer to the last question: *In what ways are such programs incentivizing socially just and environmentally efficient waste management in Portland?* Collectively, the influences of personal values of employees, consumer demand, and government regulation result in effective waste management programs that actively divert food waste for other uses, even when the challenges listed in **table 1** are hindering progress.

Government policies and action	Values of employees and managers	Business perception of consumer interest
<i>Taxation (Cut Through the FOG)</i>	<i>May inspire action even when not economically rational</i>	<i>Adds monetary incentive to waste diversion</i>
<i>Outreach and advising</i>	<i>Slower employee turnover rates are more conducive to diversion</i>	<i>Leads to designation of social/environmental department</i>
<i>“Portland Composts!” website maintenance</i>	<i>Managers can teach employees values</i>	<i>Incentivizes creation of waste diversion businesses</i>
<i>Notification of policy changes</i>	<i>Managers of chain restaurants can have programs authorized for all branches at once</i>	<i>Creates a niche to increase competitive advantage</i>

Table 2: Shows what is being done to divert waste according to sector/stakeholder.

Discussion and Visualizations for the Future

Synthesis and Implications

Both the similarities and the differences in interviewee’s perspectives can illuminate the obstacles to effective food donation and composting programs. **Tables 1 and 2** show the most commonly cited and observed obstacles, but it is important to note that some outweigh others in prevalence. For example “lack of interest/motivation by stakeholders” represents the extent to which food donation for animal consumption *doesn’t exist* because people are unaware of the concept, or viewed the process of donation as requiring too much effort for too little gain. Farmers also may not have the resources or relationships to execute a donation program for feeding animals. This issue is likely the most common deterrent to establishing waste diversion programs, though it applies less to composting since composting is relatively familiar to most Portlanders.

Liaisons between food service facilities and charity agencies (like St. Vincent de Paul, Urban Gleaners, etc.) are always financially limited, as most rely on money from fundraisers and grants. This restricts organizations from expanding or improving, limiting the scope of food donation services. In order to manage food donation on a larger scale while minimizing costs, donation programs could make use of existing waste management systems. This would institutionalize food donation by using existing government funding, employees, and infrastructure to increase donation between food service facilities and leave redistribution to existing charities, non-profits, and NGOs working in food donation. Below is a conceptual map of the current structure of waste diversion programs in Portland (**figure 6**) and another hypothetical alternative that streamlines the process according to the inefficiencies discussed above (**figure 7**).

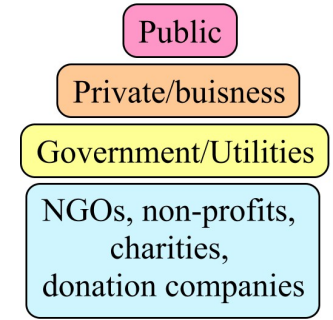
Current Waste Diversion System in Portland

Food donation is currently entirely dependent on non-profits and charities. Local government offers advising to businesses that are looking donate or compost, but that is the extent to which the government is able to help. Utility companies only manage business compost when it is requested by the business. Food donation and food

composting operate in entirely different sectors, which requires businesses to contact a variety of different people when attempting to divert food waste.

Funding for donation comes from a variety of sources while funding for composting programs comes from taxpayers (local government) and from those who participate in waste collection (utility companies).

Legend



Legend applies to **figure 6** and **figure7**

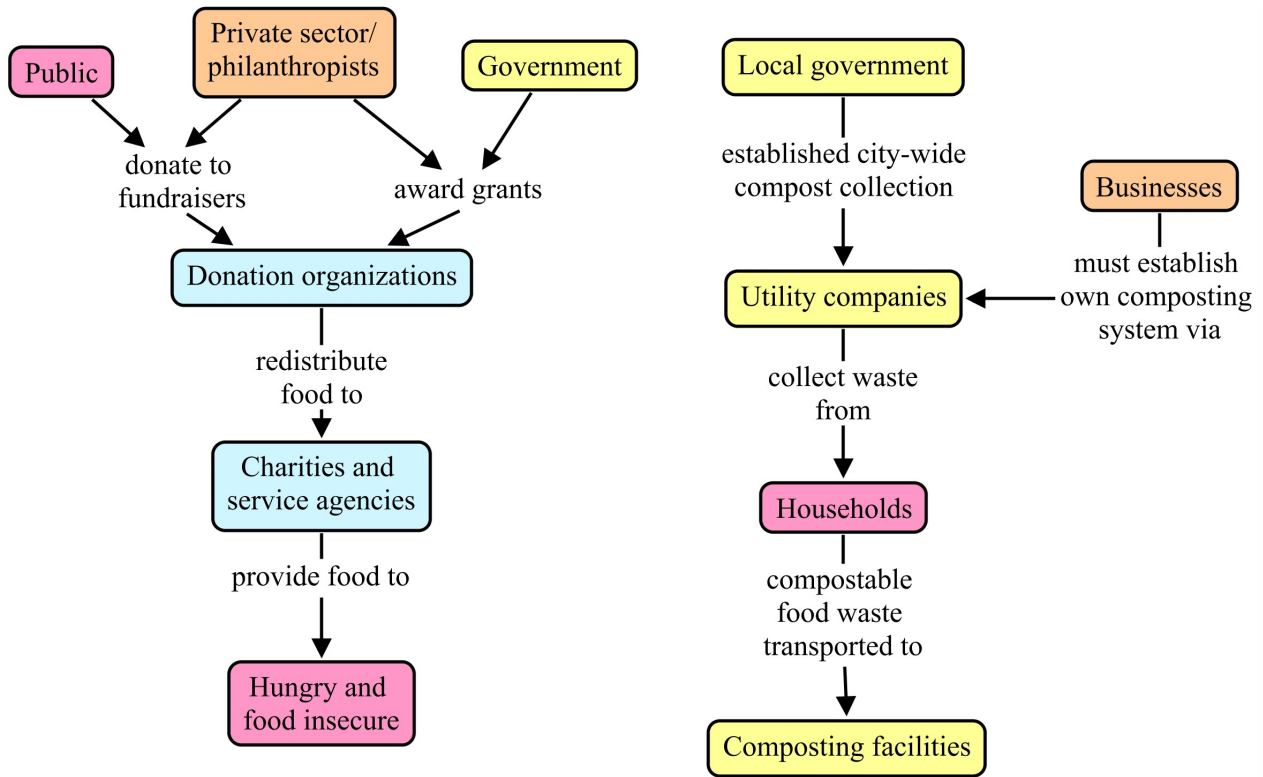


Figure 6: Concept map of current food waste diversion programs in Portland. Composting and food donation programs operate in separate organizational spheres.

Imagined Restructure of Food Waste Diversion in Portland

By integrating a donation program into existing waste management collection, the process of food waste diversion could be streamlined. Waste management utility companies could pick up donated food from businesses, and drop it off at one location for non-profits and charities to pick up and redistribute. This system illustrated in **figure**

7 would still involve all of the actors previously included, but would allow institutionalized systems (local government and utility companies) to shoulder the bulk of the load with little additional cost. Non-profits and charities could then focus their funds and labor on redistribution, removing the time and labor needed to coordinate with businesses and collect donations. This would allow both utilities and non-profit/charity organizations to move much greater amounts of donated food. The thicker lines represent the main path donation programs would take, with box in red being primarily supplemental and emergency food donation programs.

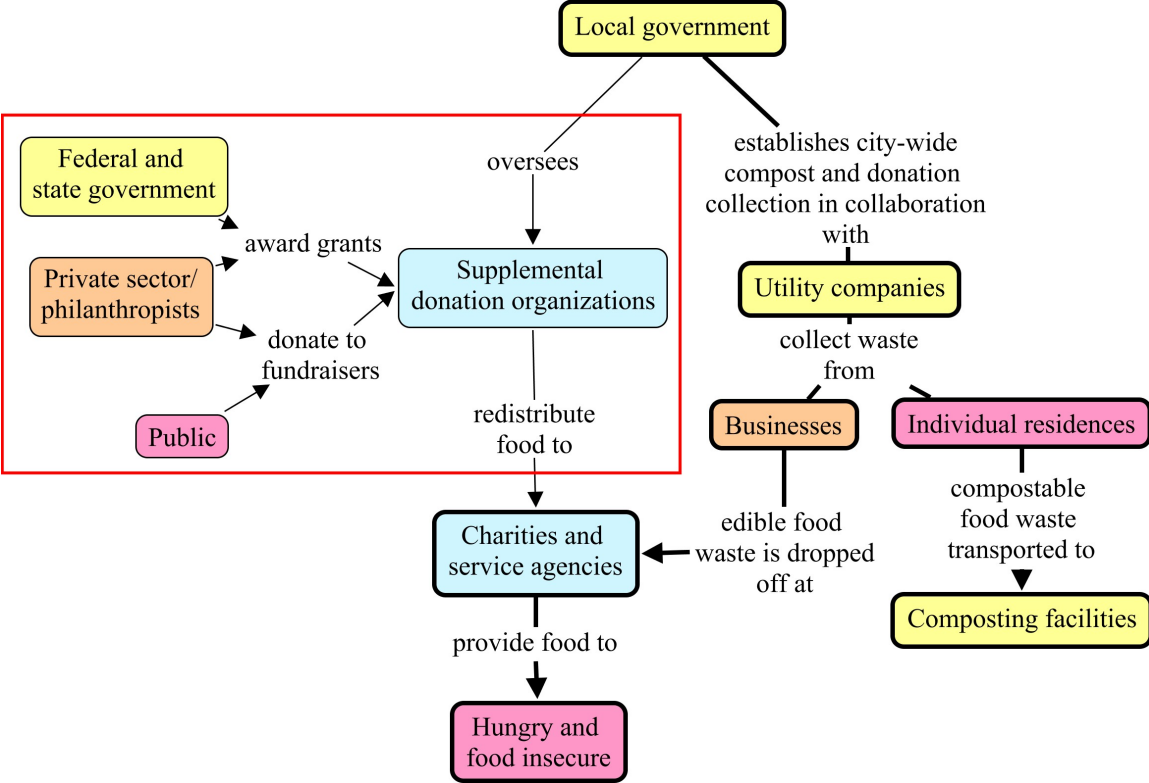


Figure 7: Concept map modeling a possible system of food donation and composting in which donation programs are integrated into existing waste collection programs.

Cleanliness and Purity

Combining food donation with institutionalized waste pickup would likely raise some concern. Safe food handling is crucial to establishing an effective food donation program, because many businesses are wary of donating when the food could be mishandled during the redistribution process. With a large institutionalized donation

collection program, businesses may worry that contamination could more easily occur in a system that deals with both polluted garbage and food that will be served to people.

In her book, *Purity and Danger*, Mary Douglas describes societal aversions to dirt and general uncleanliness as means to create order and stability by removing the impure.⁷² Waste collection literally falls under the category of “unclean,” and all societies work hard to keep waste separate from all other activities. To attach a system of food donation to the system of waste collection could seem like a step back, rather than a course of progress. Furthermore, the connotations of attaching a system of food donation to the waste collection system may create a fear of contamination. The rhetoric of “trash” and “waste” may also add to the negative views of food donation, which could even extend to the recipients of donated food. In *The Ecological Other*, Sarah Jaquette Ray describes the rhetoric of “trash” that is used at Organ Pipe Cactus National Monument to describe Mexican immigrants that use the park to enter the United States.⁷³ Similarly, creating a link between garbage collection and those who receive donated food (often people who are already struggling with poverty, discrimination, and hundreds of other tribulations) further jeopardizes the reputation and social status of donation recipients. It is difficult to gauge the extent to which such a connection would be made, and the extent to which it would be used to negate the character and esteem of donation recipients. However, there are a few precautions that could be taken to ensure that contamination and negative connotations are avoided at all costs.

Using distinctly different vehicles for donation pickup would eliminate any fear of contamination. Refrigerated trucks would be ideal, though costly. Refrigeration during transport would improve food safety in food donation, as most existing donation agencies do not have refrigerated transportation. The link between collection and processing at preexisting donation facilities would be crucial to avoiding conceptual linkages between donation and garbage collection. If donated food were still redistributed by existing agencies, the connotation between donations and garbage would be minimized. Designing and painting donation vehicles in a way that made them

⁷² Douglas, Mary. *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*. Routledge and Keegan Paul, 1996.

⁷³ Jaquette Ray, Sarah. *The Ecological Other*. University of Arizona Press, 2013: Chapter 3.

thoroughly distinguishable from waste collection could also help to dissuade citizens from associating garbage collection with donation programs. The model of food waste diversion in **figure 7** could be highly effective by taking these precautions and striving to improve food safety by capitalizing on the benefits of agglomeration (combining industries that can benefit off one another for increased efficiency).

Synchrony in Scale

Matching food service facilities with the appropriate donation programs is necessary for success. For example, a chain restaurant managed out of state may require proper proof and documentation of safe food handling processes throughout the donation and redistribution process. Generally, only larger facilities like the Oregon Food Bank or St. Vincent de Paul would be able to ensure this. Since OFB does not have a restaurant donation program, St. Vincent de Paul would be the best option for that restaurant.

Similarly, donation programs are most successful when they can find and fill a niche in which other programs are not already operating. Part of the reason Urban Gleaners was successful as an independent program (with no religious or governmental affiliation) was due to its ability to connect with businesses that couldn't donate to larger organizations due to scheduling conflicts, trivial amounts of food to donate, or incompatible food handling requirements. In the same way that businesses must employ new and creative methods and ideas to be successful, competing donation facilities must also employ original ideas.

The same is not true for waste management facilities in the Portland area, as each waste management utility company has its own region(s) of operation. Because each company sets its own prices and rules, composting procedures vary throughout the city. Smaller waste management facilities tend to charge more for composting, due to the higher cost of capital per participant. Furthermore, the variation in prices, rules, and regulations among companies can create confusion for participants. While the Bureau of Planning and Sustainability has a fairly informative system and website city waste collection, the more subtle details that are determined by utility companies still seem to be confusing for business owners and employees.

The incompatibility of schedules, load sizes, and labor can lead to inefficiencies within both composting and donation systems. To reduce these inefficiencies, the creation of more donation or composting agencies of many sizes and capacities can help match the needs of food service businesses, but the location and layout of businesses also strongly impacts the success of composting and donation programs. Agglomeration of businesses can increase the chances that a collection agency will partner with food service facilities. For example, St. Vincent de Paul was eager to partner with food service at the airport, where over 30 concessions stands are sending donations to the same refrigerator, making daily collection easy, accessible, and well worth the time of the donation collector. Further, the concessions stands at the airport proved to be a particularly good match with St. Vincent de Paul, since it is one of the few donation operations that already has the facilities and trained staff to manage large amounts prepackaged foods safely. In establishing composting facilities, agglomeration can help or hurt, depending on whether other businesses in the same building agree that compost bins would be beneficial. If not, composting can be very difficult to implement, particularly in dense urban settings with larger buildings. In buildings where composting collection programs already exist, new businesses are much more likely to compost, as the work of setting up and organizing the program has already been done.

Overcoming ideological barriers

In the U.S., strict food safety laws prevent food-borne illness, but can also lead to much greater levels of food waste. Though some restaurants claim to produce virtually no food waste, such a feat is impossible for food service facilities that rely heavily on pre-packaged food, bulk purchasing, and/or buffet-style service. Though many food service facilities are working to reduce food waste generated, there is still much to donate or compost throughout the industry. Yet many restaurants still fear liability for food-borne illness connected to donations. The fear of being responsible for harming another person is not something that can or should be taken lightly. In food service, food-borne illness can be caused by carelessness, accidents, or realities entirely out of the control of those involved in food preparation (for example, *E. coli* contamination of bulk produce). To reduce the risk of the former two causes of food-borne illness, employees of the food industry tend to take utmost precautions when handling food. The

role that government plays by requiring “Food Handler” tests justifies, and perhaps intensifies, the need to be very cautious in a kitchen.

The question then becomes one of morality: is it morally just to waste food while others go hungry, in order to virtually eliminate risk of food poisoning? Or should the risk be taken with the cost of a potential food-borne illness affecting both the recipient and the donor? Surely some food is better than no food, especially when the agencies handling the food in between are well-trained in food safety. Yet in much of the food industry today, the fear of food borne illness and liability is much more prevalent than a culture of safe donation.

Though both composting and food donation take much planning and organization to implement in a modern, developed, urban area, both are entirely plausible. For businesses, creating and maintaining strong relationships between donors and donation recipients can help reach an equilibrium between food safety and the reduction of food waste. For individuals, the reality of composting also demands individual actions to be changed, as people must take the initiative to sort their own trash, separating food scraps and recyclables from other forms of waste. In residential composting, “individualization of responsibility” is essential for the program to function at its full potential. In food donation, the individual values of employees and business managers are necessary for a business to welcome a donation program.

However, some of the most prominent critiques of “local food” can also be applied to local waste management mechanisms. In his article titled *Configuring the Authentic Value of Real Food*, Brad Weiss discusses the “fetishization” of farmer to chef relationships.⁷⁴ The same relationships are required in order to establish animal feeding programs that make use of food scraps and direct composting programs between food service facilities and farms (therefore cutting out the third party utility companies). Though such connections may seem simple, Weiss addresses the issues with “alternative totalities,” or the tendency (particularly in activism) to attempt to solve a problem by relying on only one solution, like establishing “farm to fork” programs. Weiss does not suggest that local relationships and solutions are inherently negative, but rather argues

⁷⁴Weiss, Brad. “Configuring the Authentic Value of Real Food: Farm-to-fork, Snout-to-tail, and Local Food Movements.” *American Ethnologist* 39, no. 3 (August 1, 2012): 614–626.

that they can lead to a myopic outlook on potential solutions. In the case of food donation, establishing local relationships is important, but should be considered along with changes in larger economic and political policies.

Weiss's argument rationalizes my recommendation to increase the variety of size and scope in donation programs. However, composting programs could offer more clarity and transparency by reducing the diversity of policies and practices between utility companies. While the breadth of the composting program has reached many households, businesses must work harder to implement composting, and still seem confused by the organization of the program.

Institutionalizing a mainstream form of business ethics could improve the incidence of composting and food donation within businesses. This solution utilizes the power of larger institutions, both public and private, while working to change the habits of individuals for the better. Though Classical economics traditionally assumed that firms and individuals are rational, making decisions that best benefit themselves, concepts from psychology and ethics have slowly worked their way into economic models, often invalidating assumptions of the "rational person" by incorporating the very real element of moral intuition.⁷⁵ In a 2014 article published in the *Journal of Management*, Weaver et. al. defined moral intuition as "the sudden appearance in consciousness, or at the fringe of consciousness, of an evaluative feeling (i.e. like-dislike, good-bad) about a person or event without any conscious awareness of having gone through steps of weighing evidence, crafting evaluative arguments, or inferring a conclusion."⁷⁶ According to the authors, ethics instruction varies greatly between businesses because there has been little empirical research on business ethics training in the past.⁷⁷ In smaller companies and independent businesses where ethics training has not been developed on an institutional level, education often reflects the moral intuition

⁷⁵ Weaver, Gary R., Scott J. Reynolds, and Michael E. Brown. "Moral Intuition Connecting Current Knowledge to Future Organizational Research and Practice." *Journal of Management* 40, no. 1 (January 1, 2014): 100–129. doi:10.1177/0149206313511272.

⁷⁶ Weaver, Gary R., Scott J. Reynolds, and Michael E. Brown. "Moral Intuition Connecting Current Knowledge to Future Organizational Research and Practice." *Journal of Management* 40, no. 1 (January 1, 2014): 100–129. doi:10.1177/0149206313511272.

⁷⁷ *Ibid*, 119.

of business leaders.⁷⁸ On a larger scale, corporate social responsibility is increasing as individual business leaders, entrepreneurs, and stakeholders become more aware of ethical issues in business and learn more about environmental consequences of industrial practices.⁷⁹

By creating a mainstream form of business ethics that incorporates social and environmental responsibility, charity and morality can be worked into business models while also increasing a personal sense of responsibility in employees, managers, and executives. Strong ethics programs that teach about laws like the Emerson Act and existing government programs or charity organizations could overcome the culture of fear caused by food safety laws.

Food Waste Diversion Coordinators

Through the process of interviewing, I gathered that most of the people I talked to were well connected to many other people involved in food waste diversion in Portland. I felt satisfied with my interviewing process when I asked a couple interviewees for recommendations and they could only suggest people I'd already talked to. That said, there seemed to be little collaboration between sectors. Though relationships existed between actors, collaboration was limited.

I believe that establishing a role of "Food Waste Diversion Coordinator" on a city level would be beneficial to all involved. Both Julia Metz and Claire Cummings filled a similar role on a smaller scale. At the Port of Portland, Metz oversees the entire waste diversion program. Employees of concession stands respect her and feel comfortable asking questions, yet she also holds them accountable for sorting waste properly. Metz and the waste diversion team working with her ensure that each new employee is trained properly, and offer incentives for those who compost and donate food. At BAMCO, Cummings holds a similar role, setting up donation programs and educating managers and employees.

The largest barrier to implementing a coordinator on the city level is funding. However, Port of Portland has collaborated with Community Environmental Services at

⁷⁸ Ibid.

⁷⁹ Maloni, Michael J., and Michael E. Brown. "Corporate Social Responsibility in the Supply Chain: An Application in the Food Industry." *Journal of Business Ethics* 68, no. 1 (September 1, 2006): 35–52.

PSU to employ student interns and employees who can simultaneously receive college credit, allowing the Port to minimize costs. Successful collaboration between schools, government, utility companies and donation agencies could strengthen the food waste diversion system in Portland.

In summary, though diversity in non-profit organizations and charities can lead to better matches between donors and recipients, better organization of all the various stakeholders in food waste diversion could be beneficial to everyone. There are certainly huge obstacles to streamlining waste diversion, but in other U.S. cities where waste diversion programs are implemented in the future, it may be more efficient to have a more central governing authority that can oversee and assist in implementing both composting and food donation. On a broader scale, it is important for governments to create laws that protect the service industry from liability when donating. Further, governments, schools, and businesses must educate people about laws like the Emerson Act, in tandem with teaching food safety regulations. These actions could ameliorate the current systems of food waste diversion at food service facilities in Portland and elsewhere.

Reaching a Broader Community

In most cultures, the concept of waste has negative connotations—perspectives that have been transferred from generation to generation. In Japan, this is represented by the word, “mottainai.”⁸⁰ According to Tristram Stewart, the word “cannot be translated, but it indicates a condemnation of wastefulness and squandering, and implies an endorsement of thrift and frugality. The word is used for anything from darning socks to scraping the last grains of rice from the bottom of a bowl.”⁸¹ The ethics of a society can encompass prevailing traditions, beliefs, values, folklore, superstitions, and characteristics. These ethics are sometimes forgotten or ignored in business settings, due to a variety of factors, including the need to appear professional or the urgency of procuring a profit, both of which are entirely necessary for success in most businesses. However, developing conventional ethical models that incorporate environmental and

⁸⁰ Tristram Stuart, 262.

⁸¹ Ibid.

social justice could be one way to encourage food donation and composting programs in food service facilities in a variety of geographical settings. Time and again, lack of awareness proves to be a primary inhibitor to social change. Planting the seed of thought in the form of business ethics can be one way to extend the scope of alternative systems of management.

This paper focuses on waste diversion in an economically developed and politically powerful country. Technological development allows composting and donation programs to become more efficient, productive, and thorough. Infrastructural and societal development based on technological advancement or individual responsibility can be limited by the political situation, economic resilience, and resource availability of a region. While the U.S. has strong political and economic systems, the same cannot be assumed extranationally. Many aspects of the composting and donation programs observed in Portland would not translate to countries where political conflict or economic poverty is ineluctable.

More specifically, while the U.S., Europe, and other developed countries may have begun to enter an age of “post-environmentalism” where impressive technological development may represent a legitimate and plausible solution many other countries are not at the same stage of development. For example, many parts of undeveloped Southern Africa and overpopulated India are littered with trash, due to lack of proper infrastructure or adequate landfills and waste disposal facilities. These countries may still have a long way to go before they have developed the proper infrastructure and economic or political organization to invest in advanced technologies. Other less developed countries, such as Bhutan (known for its measurement of Gross National Happiness) are attempting to circumvent processes of specialization and industrialization all together.⁸² Still, Bhutan remains economically poor and unable to achieve the technological progress that countries with greater political power, economic wealth, and strong employment levels can achieve.⁸³

⁸² Thimphu, Annie Kelly, and Bhutan. “Gross National Happiness in Bhutan: The Big Idea from a Tiny State That Could Change the World.” *The Guardian*, December 1, 2012, sec. World news. <http://www.theguardian.com/world/2012/dec/01/bhutan-wealth-happiness-counts>.

⁸³ Ibid.

Many of the policies and prescriptions proposed here would not be applicable in cities or rural areas that still lack basic sanitation facilities and garbage collection. However, as these regions develop waste management programs, incorporating the knowledge gained from existing composting and food donation systems could lead to an overall more efficient system. The trials and tribulations faced by those working in food waste diversion now, could be dodged by those developing systems elsewhere. By developing a waste collection system with composting and donation programs built into it, underdeveloped regions in the world can more quickly create infrastructure that will last much longer and benefit humans far into the future.

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Appendix

List of interview participants and other contributors (and affiliated organizations):

John Holtrop	Portland Water Pollution Control Laboratory (“Cut Through the FOG”)
Claire Cummings	Bon Appetit Waste Sustainability Specialist
Ava Miklovich	Urban Gleaners
Paul Kresik	St. Vincent de Paul
Julia Metz	CES and Port of Portland
Jennifer Erickson	Metro
Genevieve Joplin	Bureau of Planning and Sustainability (BPS)
Paul de Block	BPS
Bryan Sebok	Professor of Rhetoric and Media Studies at Lewis and Clark
Sarah Schirmer	Oregon Food Bank
John Conell-Maribona	Pambiche
Lisa Schroeder	Mother’s Bistro and Bar
Nate Young	Hopworks
Hanna Thompson	¿Por Que No?
Subway employees and management	Four Subway locations in Portland