Responsible Innovation and Food Charity: An Investigation into Methods of Reducing Hunger in the United States

A Research Paper submitted to the Department of Engineering and Society

Presented to the Faculty of the School of Engineering and Applied Science

University of Virginia • Charlottesville, Virginia

In Partial Fulfillment of the Requirements for the Degree

Bachelor of Science, School of Engineering

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Spring 2022

On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Introduction

Hunger is one of the most pressing issues facing America today, as it has been throughout the 20th and 21st centuries. Statistically, hunger rates have fluctuated over time, largely in response to major economic events such as the 2008 market crash and the 2020 coronavirus pandemic. Between such events, rates tend to creep downwards by a percent or two per year, only to spike again along with economic bust cycles. In recent months, the effects of COVID-19 on food insecurity have been thoroughly analyzed, and the findings are grim—one estimation submits that one in eight Americans and one in six American children were at risk of food insecurity in 2021, an increase of roughly 20% relative to pre-pandemic levels (Feeding America, 2021).

Putting numbers to this issue is not meant to turn a tragedy into a statistic. Hunger is a very serious reality for Americans and others all over the world. Food insecurity presents immeasurable detriments to mental and physical health, growth and development, and overall quality of life, especially for young people (Fang, D., Thomsen, M., & Nayga, R, 2021). It is a blight on the lives of people who deserve to be happy and healthy, but in reality are more than 250% more likely to suffer from depression, anxiety, and other health consequences than food secure individuals.

Also worth noting is that traditionally underrepresented demographic groups suffer the effects of food insecurity at the highest frequencies. One in four Latino, one in three Black, and one in two Native American citizens face food insecurity (Yepiz, 2021), compared to one in nine white Americans (Feeding America, 2021). In this sense, hunger is not only a humanitarian issue but also an equality concern, and any changes to existing food infrastructure need to be cognizant of their impact on these groups.

In the meantime, while millions of Americans do not know when their next meal will be, the United States agriculture industry landfills billions of pounds of food each year (United States Department of Agriculture, 2016). If this seems counterintuitive given the food shortages in various parts of the country, many intrepid changemakers agree—enter the charitable food space, a massive interconnected web of nonprofits, food banks, pantries and other distribution centers, third-party logistics providers, farms, and consumers (note: a glossary can be found in the Appendix). Its goal is simple in theory: divert food from waste facilities to hungry families. In practice, the sourcing, transportation, and placing of food is extremely complicated and requires buy-in from a wide variety of stakeholders. How can suppliers be incentivized to provide food to the charitable space rather than landfilling? When food becomes available, who decides where it goes and how it gets there? How can donated loads be equitably distributed within a food system that already systemically excludes certain communities?

Several models already exist for answering these questions and others, and new improvements are being proposed to this day. Each applies a different set of rules and values to the system, and each has its share of successes and failures. The goal of this paper is to analyze both existing and proposed systems that underpin the charitable food space using Stilgoe's theory of Responsible Innovation (RI), and to provide recommendations for how the charitable pipeline and its clients can be supported, streamlined, and strengthened. Finally, it will explore a "perfect" scenario for the charitable food space (CFS) that patches the gaps in current practices irrespective of cost or other barriers.

Historical Context

Food surplus and food waste issues are not ignored by federal or state policy, and carelessness in the past is not entirely the cause of these issues today. In fact, legislation related to United States agriculture has dramatically altered supply and demand in ways directly relevant to the CFS. Toward the end of the twentieth century, federal lawmakers attempted to combat high rates of food insecurity by heavily incentivizing production of commodity goods. The idea was that focusing as high up in the supply chain as possible would create a solid footing on which to ameliorate demand from under-resourced communities downstream. In other words, if people in poverty needed food, that food needed to come from somewhere, so the United States Department of Agriculture (USDA) created a system of subsidies and incentives for major suppliers to scale up their operations. These were codified in the 1985 Food Security Act and the 2002 Farm Security and Rural Investment Acts, which more or less stipulated that government money was available for wholesale suppliers who could generate goods as quickly as possible (Isaacson et al, 2021).

The effects of these policies laid the groundwork for the CFS to become what it is here in the twenty-first century. To skim over a mountain of details about logistical infrastructure, transportation coordination, physical access, and others, the overall impact was that wholesalers grew massive amounts of food but often had nowhere to send it, having exhausted all primary markets too early with product still left over (LaJoie, 2021). Thus, those seeking charitable donations began to focus not on production, but on procurement of surplus. (For this reason, the charitable food space is also sometimes called the “food recovery space.”)

STS Framework

The final piece of background before beginning analysis is a discussion of the STS framework relevant to this thesis. A framework is useful not only for describing the causes and effects of current systems, but also gaining comprehensive understanding of their successes and failures, which is the goal of this paper. As mentioned, the chosen framework for the analysis is Stilgoe's Responsible Innovation. Technological advancements often have unintended consequences, or are used in unfair and even malicious ways, especially in today's world where so many decision-makers are hungry not for food, but for power and control (Perrow, 1991). The RI framework provides a set of guidelines for innovations in the STEM world, with the vision to "[take] care of the future through collective stewardship of science and innovation in the present" (Stilgoe et al, 2013, p. 3). The CFS specifically needs, and is indeed undergoing, innovation in the present, and of course the idea of creating a better future is the point of charity in general. It follows that the innovations made to the CFS should incorporate RI principles, so as to ensure that they actually achieve the desired effects on food-insecure individuals and families—those effects being availability and access to plentiful food that is affordable, nutritious, and culturally appropriate, including in rural and tribal communities (USDA, 2017, and Northern Plains Reservation Aid, 2017).

The CFS is big, both physically and financially. Thousands of food banks, distribution pantries, and recovery organizations use budgets of millions of dollars to move billions of pounds of food around the country (Food Bank News, 2020, and Feeding America, 2022). And yet United States hunger statistics are what they are, as discussed earlier. Where are the missing links? What innovations can be made that can attempt to fix these failures, to what extent will they do so, and in what ways will the innovations themselves fail?

Responsible Innovation is a general theory, certainly not created for food-related innovations in particular. Its four tenets include anticipation, reflexivity, inclusion, and responsiveness, and the analysis section will pass both current and proposed CFS systems through each of these filters in order to answer the aforementioned questions.

Analysis

Market-Based Distribution Approach

The majority of food that moves through the charitable pipeline is subject to supply and demand constraints, like any commodity. The facilitator, usually Feeding America (a national logistics provider and the largest actor in the CFS), broadcasts its available goods, and each food bank and other recipient organization has the agency to advocate for its own needs. While the facilitator does not unilaterally decide where to send goods, they have the power to allocate "shares" (which are basically fake money) to its distribution network, which are then used to bid on available food (Prendergast, 2020).

In the original design of this system, RI anticipation was clearly taken seriously. Anticipation refers to the call for increased foresight into social, political, economic, and environmental concerns, as well as implementation factors such as engaging with existing experts. Looking through the anticipation lens, it is evident that Feeding America investigated the decentralized distribution system based on these concerns before rolling out its market-based approach. Centralizing food distribution authority, while efficient, would not lead to the best outcomes for clients of the CFS. For example, the facilitator could send a truckload of apples to a food bank under the assumption that getting the food somewhere, anywhere, was fulfilling the goal of providing for communities in need—while enticing at first, this strategy would quickly

collapse. It's entirely possible that the food bank already had a load of apples, and the new ones would simply expire before they could be distributed—or on the other hand, another food bank within distribution range may have needed apples more than the one that received them. Anticipating these problems led to the increased agency for food recipients, who now share knowledge of their client bases with the facilitator and receive shipments as needed.

However, this is not to say that flaws and externalities are nonexistent in the anticipation of this system. For example, an environmental issue present in the market-based approach is that shipping truckloads of goods over long distances generates significant amounts of harmful emissions, and food recipients are not incentivized to consider this when bidding shares on the facilitator's food.

The second dimension of RI is reflexivity, referring to an innovator's or organization's acknowledgement of their own place in the sociotechnical weave of their field, as well as understanding their own identities, biases, and assumptions relative to their work. It is an important factor in nonprofit management of any kind, and food charity is no different. Who created the market-based system in the first place? It was a team of individuals from the University of Chicago Booth School of Business, current Feeding America employees, and food bank directors (Prendergast, 2020). Specifically, the impetus for the project was provided by Feeding America, Chicago Booth spearheaded the design, and food bank directors provided a consulting role.

From an outside perspective, it is impossible to see into the minds of these people as they hashed out details in 2004, but as groups, each has its own goals and reputations. The University of Chicago is a wealthy elite-level school with a majority-white faculty (The New York Times, 2017, and Foley, 2021), a notable mismatch with the intended users of the market-based system.

The Booth school employs a variety of business leaders, some of whom have experience with economic analysis of American social issues (University of Chicago Booth School of Business, 2022) and some of whom are versed in labor economics and organizational behavior (Medium, 2019), both of which are requisite familiarities for devising CFS innovations. For their part, Feeding America is one of the largest nonprofit organizations in America (Forbes, 2021), to the point that most food banks in the United States are Feeding America affiliates. With massive size comes a tendency to use resources to sustain the organization's overhead and management needs, rather than fulfilling its mission statement—a problem that has been pointed out about Feeding America multiple times in the past (GreatNonprofits, 2021). Last, food banks operate regionally and are well connected with their communities. Their managers and directors provide the boots-on-the-ground hunger relief, making them the most knowledgeable about the direct impacts of food charity on people's lives (Yepiz, 2021). As a result, they are well-deserving of a place in the conversation about how to improve food charity operations.

Inclusion is somewhat of a gray area in the market-based approach, where some elements are addressed in arguably the best way possible and others are not addressed much at all. In general, inclusion challenges what Stilgoe describes as "top-down policy-making," encouraging technical leaders to incorporate feedback and ideas from as many voices as possible rather than relying solely on expert opinion (Stilgoe, 2013, p. 4). This dismantles the common default that innovated systems are inherently designed for people of certain demographic groups and backgrounds. As mentioned, the original group of designers included economic think tank leaders and food bank representatives, passing Stilgoe's inclusivity check for user-centered design.

However, an issue with the market-based approach is that it forces recipients to make decisions about their deal flow based on the "financial" resources the facilitator allocates to them, not necessarily on their community's needs. For example, a very useful product could become available to the general network of recipients, but many may not be able to "afford" it because they used too many shares on other deliveries. Because of this, food banks that have access to more financial resources (actual money, not Feeding America's shares) are more likely to drop out of the system entirely and pursue independent operations (Prendergast, 2017). Interestingly, the architects of market-based solutions took this consideration very much into account, and to be fair, the issue would likely be exacerbated if real money were used all along. Regardless, the resource management mechanic breeds inequality between the haves and have-nots in the CFS.

While market-based financial structure has some weak points in its treatment of members within the system, there are many stakeholders who are not included in the system at all. A more clear-cut example of a lack of inclusivity comes from food deserts (Dutko, Ver Ploeg, & Farrigan, 2012). Because the market approach is only applicable to existing food banks and other forms of food infrastructure, areas of the country where such infrastructure is scarce do not have a way in. In other words, food insecure people can't participate in Feeding America's network if there is no food bank in their area, or if they cannot travel to the nearest one.

Finally, those responsible for the market-based system have done a significant amount of work under Stilgoe's category of responsiveness, which entails reacting intelligently to new feedback and overcoming the inertia of existing components that need to be replaced. The stimulus to create the market-based approach in the first place was a response to the failures of its predecessor, central authority (see anticipation section). In this sense, the Feeding America

team and others involved succeeded at responsiveness even just by taking on the project nearly two decades ago. Since then, the same team has routinely clarified details of its behind-the-scenes workings—meticulous justifications for why each decision was made are readily available, establishing a strong precedent of transparency among similar food charity organizations (Prendergast, 2017).

On the other hand, Feeding America and its associates do not plan to substantially change their system in response to its few shortcomings. Rather than overhauling the years of work already in place, they advocate for improvements to United States food infrastructure in other ways, such as advertising, political advocacy, and research, but not directly through their placement protocols (Feeding America, 2022).

Tax Program Incentive Approach

While market-based food placement solutions are already standard practice in the CFS, other innovations may enter the space soon. One such proposal is a tax-based incentive structure for produce wholesalers ("tax program"). It works by having logistics providers claim tax benefits on food donors' behalf (non-cash contributions to qualified 501(c)(3) organizations are tax deductible), then dividing the savings between the donor, logistics provider, and recipient. This process is nonexistent among produce wholesalers, but it could represent a massive breakthrough in the CFS because suppliers would be financially incentivized to donate surplus rather than seeking unproductive alternatives like landfilling (see the Capstone Technical Report for more information on the details of the tax program). However, nonprofits are currently investigating the required legal specifications for such a program, with hopes to roll it out within the next few years (The Farmlink Project, 2021).

Anticipation has been an interesting task for the team designing and implementing the tax program (of which I am a member). It is necessary to anticipate both the legal requirements of the program and the behavior of other actors in the CFS, two categories that have been handled somewhat differently.

Legally, anticipation is paramount, and has been treated as such since the tax program's inception. It is very easy to overlook federal and state government stipulations about what information needs to be included to claim tax benefits, what role logistics providers may play in the process, what details the recipient needs to sign off on, and so on. The planners need to get every minute detail exactly correct the first time the program runs a pilot—partly because failing an IRS audit due to a mistake creates a headache for all parties, but mostly because the program needs validity within the agriculture supply industry in order to become a new standard. If it fails the first time, word will spread that the tax program does not work and it will become significantly more difficult to try again. Word of success, on the other hand, will spread just as quickly, making it critical to anticipate every possible legal outcome. The team has been hard at work at this for over a year.

Anticipating the actions and responses of other links in the charitable food pipeline (i.e., food donors and food banks) has been less rigorous. The mentality toward this challenge has been more in tune with "try it and see what happens," since the stakes are not as high when simply gauging interest among a group of potential tax program partners. One of the first steps in the project was to contact a few organizations and casually discuss the idea with them, as a way to measure whether there was a market for such partners. More recently, when the team has a question or idea that is relevant to a partner, typically the solution is to reach out right away rather than spending time anticipating any unforeseen consequences.

Moving to reflexivity, the tax program is being built primarily by a nonprofit by The Farmlink Project (FLP), though a variety of additional groups have been instrumental in shaping it. FLP was founded in April 2020 and has a reputation for being passionate and scrappy (Food Recovery Network, 2021), which has had both positive and negative effects on its innovation work. Because of its young age, it carries a significant amount of organizational agility, allowing the team to pivot between ideas without disrupting systems already in place. However, such a new entrant into the CFS does not have as many well-established relationships with agricultural wholesalers or food banks, making outreach and partner procurement difficult. In other words, FLP must work hard to gain the trust of its partners, slowing down progress on the tax program. Another relevant aspect of The Farmlink Project's organizational identity is its past sourcing methods, which occasionally included purchasing produce from suppliers. FLP no longer pays for produce, instead taking only donated loads, so reintroducing financial incentive back into its deal-making process could help get partners interested.

At a more granular level, the core team designing the tax program is made up of industry professionals in nonprofit management, food donation operation specialists, and students, with each group on roughly the same hierarchical level. There is some disconnect between the racial and socioeconomic demographics of the FLP team and the people its work is intended to serve, much like the Chicago Booth researchers. An important difference, though, is the addition of student involvement in the project. The students bring zeal, off-hours productivity, and technological savviness to the discussions surrounding the tax program, though they also represent a further mismatch with its target audience of food-insecure people.

Because of the complexity of the legal challenges in implementing the tax program, the design team has extended its reach far outside its own organizational boundary. Food law

experts, pro-bono lawyers, certified public accountants, and other types of industry professionals have all provided valuable feedback, from the most fundamental (what tax benefits exist for food donors?) to the most nitty-gritty (what is the best way to ensure that recipients provide the necessary documentation and signatures in a timely manner?). Conversations directly with users have also informed decision-making, even when the feedback received is negative—for example, potential partners who have expressed hesitation or skepticism in the program have helped the team decide which parameters to adjust to assuage those doubts. In this sense, the design process has been inclusive of all necessary voices, and over time has received both validation from experts and buy-in from users.

To expand on the partners' side, once the tax program is fully implemented it could be one hundred percent inclusive in theory, but it may not be until years after launch. Any supplier that produces and donates goods in the United States is eligible for federal tax benefits—there is no need for them to be an official part of a logistics provider's network. Thus, in terms of the benefits of the program, it is possible to include any organization that desires to donate goods. This is also true because the program is financially scalable—because money flows *into* the CFS in step with productivity, more resources to expand become available in a positive feedback cycle as the program reaches more partners. However, there are barriers to this happening, at least in the short term. For one, organizing and managing all the accounts and partnerships in a national-scale operation requires a larger labor force than is currently available to the tax program team. So the size of that team needs to grow alongside the program itself, which is not yet part of the implementation strategy. Furthermore, the team is currently focused on larger food suppliers in order to attain a proof-of-concept suitable to attract big players in the agriculture

industry. Small-scale donors may become an extension of the project eventually, but for now they are not the target audience for the tax program.

The tax program also fails the same inclusivity check that the market-based approach does in terms of food access and food deserts. It works only within the bounds of existing food infrastructure, which implicitly excludes individuals and families who do not have physical access to food charity organizations.

Last, there is not much to say about the responsiveness of the tax program—since it has not been fully rolled out, there is limited feedback from the public for the design team to respond to. That said, other types of developments besides public comments have informed design decisions, such as new laws added to federal and state tax codes during the design process. And as mentioned, the team has already tweaked its outreach and business strategies based on feedback from potential partners, and they will continue to do so throughout the course of implementation.

Contextual Notes

It is worth noting that FLP does not use a market-based system to allocate goods to recipients. The placement protocol it uses has advantages and disadvantages, but it is not the focus of this paper and will not be elaborated on.

Also, there are many other food recovery organizations and logistics providers in the CFS besides Feeding America and The Farmlink Project. Brighter Bites, Food Donation Connection, and Food Recovery Network are some other larger ones (but as mentioned, Feeding America controls the majority of charitable food flows in the United States). All these organizations have

roughly the same goal of providing food to the hungry, and they mostly choose to collaborate rather than compete over space and resources.

Discussion

In analyzing the market-based process and the tax-based process, the objective is not to pit one against the other. They do not address the same need within the CFS—tax-based tackles procurement of donated food whereas market-based tackles its allocation to recipients. Thus, they are not directly comparable as viable options for CFS processes, in the sense that the innovation of the tax program does not aim to replace the market-based approach as a step in the charitable pipeline. The goal here is to compare to what extent they fulfill the four RI dimensions, and later to explore future innovations that could benefit the CFS further.

Another qualification is that neither system is perfect, through the RI lens or in actual practice, nor are they intended to be. Innovations in the CFS are designed to increase availability of donated food and to allocate it to distribution centers more effectively—they do not pretend to definitively solve world hunger (Prendergast 2017). Similarly, failing to exceed standards in every RI dimension is not indicative of a failure of the innovation as a whole. Such innovations need not mark all of Stilgoe's checkboxes in order to provide a net benefit to the CFS and its clients—in fact, some may even argue that the preceding analysis ascribes more responsibility to these innovations than their scopes intended. But it is still useful to zoom out of the granular details of each innovation and examine their place within larger systems, and this includes broader successes and shortcomings.

For right now, the tax program is still in development, but it could become a reality very soon. The same set of legal principles that underpin the tax program have been applied to

donations in food retail (Food Donation Connection, 2018) and to different types of logistics management workflows (MEANS Database, 2021). Both of these methodologies have been successful, indicating that implementing the same process in wholesale produce donations is completely possible. This could lead to a surge in donated fresh produce entering the charitable pipeline and eventually reaching the hands of hungry people, as suppliers would be strongly incentivized to take advantage of the savings available when they participate in the tax program. As stated, the concept of "the first domino has to fall" applies here. When one supplier completes the tax program alongside the facilitator, others will be quick to do the same so as to keep pace with their competitors' new revenue stream.

While the tax program could in theory flood the charity market with food, as mentioned, it addresses availability rather than access for food-insecure people. Facilitators in the CFS are part of a much larger system that requires effort and collaboration from a wide range of other institutions in order to alleviate American food insecurity more comprehensively (Ghost-Dastidar et al, 2017). Buy-in from corporate wholesalers, governments, and financial investors is essential in addition to the groundwork laid by members of the CFS, as they all hold some form of stake or control over United States food infrastructure.

Produce wholesalers' role remains much the same as it has been throughout the twenty-first century, which is to grow commodity crops and donate food when possible. Various incentives to donate food already exist—even without the tax program—such as avoiding landfilling fees, supporting local communities, positive publicity, and environmental benefits (Broad Leib, 2021). The responsibility lies on suppliers to realize these benefits, and to strongly consider new ones that develop over time, such as the savings provided by the tax program.

Governments of all jurisdictions also have an important role to play. While the food and agriculture policies of the twentieth century helped shape food recovery space as it is today, further legislation is necessary to appreciably impact hunger in the United States. Social welfare plans like the Supplemental Nutrition Assistance Program (SNAP) are an effective method, and the fact that federal tax benefits exist specifically for food donors is a step in the right direction. But there is more that can be done. California has led the way for state governments to get involved in the CFS, with its own state-level tax credit available for food donors, as well as legislation enacted in January 2022 that sets a hard 20% minimum amount of surplus that suppliers must recover rather than dispose (CA SB-1383, 2016, and California Association of Food Banks, 2022). If more states follow California's example, government support for food charity through legislation and funding could significantly impact food insecurity rates.

Financial institutions and non-wholesaler corporations can support the effort as well. Investments from powerful corporations into hunger alleviation efforts do exist, such as Kroger's Zero Hunger | Zero Waste Foundation (2022), and they have had tangible impacts on the CFS so far. But a reality of the American economic model is that changes and innovations are unlikely to succeed unless making money is their first priority, and a reality of food charity is that profit is scarce, making it difficult to encourage such investment. Like with governments, there are many more opportunities for corporations to participate in the CFS and help reduce hunger in other ways, albeit potentially at a financial loss. One simple example would be for retailers like grocery stores to open locations in food desert areas—even if it means incurring larger transportation and operations costs—and working alongside charities and governing bodies to ensure healthy and affordable food is accessible for residents of those areas.

Finally, from increasing range of deliveries to including more food distribution centers in their networks to advocating for food-positive policy to inspiring young changemakers for the future, nonprofits across the country have worked tirelessly to fill gaps left by other controlling forces in food infrastructure. But they can boost their impact in various ways as well. Referencing the analysis done earlier, CFS members can always devote more time and resources to anticipating direct and indirect results of their actions, including more perspectives and sources of ideas as they become relevant to food charity efforts, practicing reflexivity by reflecting on their own identities, and responding to new information in real time.

Conclusion

Both existing systems and new innovations in the CFS have positive impacts on hunger in the United States, and the RI framework can help discern whether innovations are designed democratically and address social and ethical concerns. However, the system is not perfect. Progress is limited by the boundaries of external structures as well as reluctance from stakeholders whose contributions are necessary for the benefit of food-insecure people. Food charity in general is the equivalent of a Band-Aid, not a cure, for hunger—it provides immediate relief in some cases, but it is not universal. Significant structural change is needed in fields under the control of a variety of stakeholders.

To conclude, it is essential to stay grounded throughout this discussion of markets, taxes, governments, and corporations. Analyses like this can inform innovators' financial decisions and technical specifications, but this is ultimately not about finance or engineering—it is about hunger and the wellbeing of American citizens in poverty. Hopefully, advancements like the ones discussed here will bring hunger rates down far enough to make it a problem of the past.

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Appendix

Glossary

Charitable food pipeline: The process by which food is sourced, moved, and distributed by actors in the charitable food space.

Charitable food space (CFS): The network of organizations that operate under the mission of reducing food insecurity and/or waste, as well as processes used to that end and the communities served by those organizations.

Client (of the CFS): People who receive food or other supplies from distributors in the CFS (usually people experiencing hunger or food insecurity).

Donor: An organization (which does not need to be a nonprofit) that supplies food to the charitable pipeline. Most often this term refers to farms, agricultural wholesalers, or processors.

Facilitator: A nonprofit organization that helps move food through the charitable pipeline by sourcing donors, scheduling deliveries, managing logistics, etc (examples: Feeding America, The Farmlink Project).

Food bank: A nonprofit organization that accepts food donations from facilitators and in turn disperses them among a network of smaller distribution centers (such as pantries). Food banks do not distribute food directly to clients.

Food desert: An area in the United States with limited access to affordable and nutritious food, particularly such an area composed of predominantly lower-income neighborhoods and communities.

Food insecurity: From Food Forward – "a lack of access to enough good, healthy, and culturally appropriate food."

Food pantry: A local organization (such as a nonprofit, school, church, etc) that accepts food from food banks and distributes it directly to clients.

Hunger: Similar to food insecurity, with the added stipulation that includes a directly reduced intake of food (i.e., a more serious instance of food insecurity).

Load: A truck filled with food on its way from a supplier to a recipient in the CFS.

Logistics provider: same as "Facilitator"

Recipient: An organization that receives food from another entity upstream in the charitable food pipeline. In this case, “recipient” usually refers to a food bank.

Supplier: same as “Donor”

Surplus: goods that a wholesaler cannot sell to primary buyers as a result of cosmetic issues, reduced market demand, shortages in storage space, or many other reasons.

Wholesaler: an agricultural producer that grows and/or processes and distributes bulk commodity goods.