

## **MSUS Culminating Experience Final Report**

Hanna Layton

April 15, 2020

An Epic-Cure to Crisis Response

Epic-Cure Non-Profit

### **Abstract:**

The original intent of the project was to attempt to mitigate the complex sustainability issue of systematic food waste via creating a guide that would educate users how to create a food saving organization that prevents edible food from ending up in landfills. The guide was going to be based on a nonprofit organization my family and I founded called Epic Cure, that has activated programs that serve to relieve community food insecurity, encourage community connectedness, support environmental health, and empower youth with entrepreneurial opportunity. The development of the guide was going to be based on my personal experience developing and running the organization, as well as my understanding of sustainable systems and frameworks. However, the original scope and plan of this project has shifted considerably since the outbreak of the COVID-19 virus. I have decided to put the guide on hold so that I can step into a space of agency via working in real time, to adapt my organization so that we can continue to operate when we are most needed. This shift is a response to the health and economic crisis that continues to unfold daily. In order to sustain the wellbeing of communities, the adaptation of a food aid service in the time of the crisis is an imminent need. This project shift not only serves to provide emergency relief, but also to identify gaps in the food distribution system and the supply chains that NGOs like Epic-Cure rely on so that we might be more resilient in the face of future shocks to the systems.

## Table of Contents:

1. Introduction and Background
2. Literature Review
3. Project Approach and Intervention Methods
4. Outcomes/Findings
5. Recommendations
6. Conclusions
7. Appendix
8. References



## Introduction and Background

In this highly industrialized and capitalistic era, it is evident that we have become disconnected from the resources and processes on which we rely. This modern characteristic has led to inequities within our communities and to the degradation of our natural resources. The United States of America is particularly well known as a throw-away culture. We are unnecessarily wasteful in the name of comfort, but our environmental capacity to keep up with such a lifestyle is dwindling. One of the most obvious examples of American wastefulness is seen in our food waste culture. Food waste is generally defined as the discarding or misuse of food that is still safe and nutritious for human consumption (FOA, 2014). In the U.S. 40% of food goes to waste, accounting for the largest solid waste contribution to landfills (Gunders, 2012). The food that is wasted in the United States pre- and post- “consumption” has the potential to feed 25 million people each year but is instead thrown away leading to a misuse of precious resources. Rather than feeding food to landfills, I am offering a way to take advantage of the safe and nutritious food that would otherwise be discarded and redistribute this resource to people.

Intervening on the food waste system provides potential to relieve an urgent social dilemma, food insecurity, a very serious and largely avoidable issue that is embedded in almost all societies across the world. In the U.S., 1 in 8 people, including 1 in 5 children, suffer from food insecurity (USDA). Yet, as is the case in most developed countries, this suffering does not correlate with a lack of food supply. Rather, people are threatened by hunger and food related health issues rooted in systematic and structural inequities driven by capitalistic tendencies, and as a result mostly marginalized communities suffer considerable consequences that directly impede the population’s health, opportunity, and justice.

Not only is the well-being of millions of people threatened because of inequitable access to food, the economic and environmental impacts of wasting consumable food is a misuse of our valuable resources. American industries and consumers throw away over 161 billion dollars annually in edible food (USDA), all contributing to an environmental

crisis in which we are compromising our increasingly scarce resources such as water, land, and fresh air. It is estimated that wasted food in North America accounts for 30 percent of cropland, 31 percent of fertilizer usage, and 35 percent of freshwater consumption (Neff et al., 2016). More so, food waste in American landfills gives off 25 percent of U.S. methane emissions, a dangerous greenhouse gas (GHG) 25 percent more potent than carbon dioxide (CO<sub>2</sub>) (Hall et al., 2009).

The solution I am focusing on works to stop consumable food from ending up in landfills, and redirect it to address food insecurity, ensuring that community members, regardless of income, age, and ethnicity, are nourished. Over the past year, I co-founded Epic-Cure with the mission of: “Nourishing our planet and its people by eliminating food waste and hunger, teaching self-sufficiency, connecting generations, and promoting individual success through accomplishment” (Epic-Cure, 2019). The organization's programs have been active since May of 2019. By partnering with local food retailers Epic-Cure has saved and redistributed over 350,000 pounds of food to over 25,000 individuals and diverted more than 5,000 pounds of inedible food to local compost facilities and pig farmers. The organization focuses on serving marginalized communities by making food accessible and using it as a tool for economic relief and educational empowerment. (See Appendix A). As the mission highlights, the goal is not to create a system on which the community it serves is reliant, but rather work with the community to capacitate and empower them with rescued food. Epic-Cure provides an efficient, sustainable, and community first approach.

As the organization has grown its reach and operating capacity, it has attracted attention from multiple community leaders in the southeastern region of the U.S., as well as national food aid organizations. Individuals who wish to offer similar services to their communities have reached out for guidance on how to replicate Epic-Cure's success. Therefore, for my culminating experience, I was going to create a transferable guide and supporting toolkit that will outline how to replicate Epic-Cure NP services, to help

combat community food insecurity via mitigating the sustainability problem of food waste.

However, since I began developing this scalable guidebook, a global health crisis has developed rapidly and mercilessly. As a non-profit community food aid organization, Epic-Cure's services have proven to be essential. We had thought briefly about how we would respond in a disaster prior to this, but did not have a robust procedure. In the month of March, I decided to travel back to Florida and help design a resiliency and crisis operations plan in real time in response to the pandemic. This has led to a shift in my project problem, rather than it being what can we do about food waste, it becomes: how does an organization like mine scale up to meet rapidly increasing demands, with less food inputs, while preserving the wellbeing of our volunteers, clients, and environment. As the conditions and impacts of the health crisis continue to unfold each day, my organization must continue to adapt accordingly. Thus, my project has become a real time, on-the-ground crisis response project.

The intended outcome of this project shift is to scale up and serve the growing number of community members that depend on our services to meet their nutrition and hygienic needs. More so, I am working to create long term resilience within the organization via creating a strong interdisciplinary team that is equipped to manage both 'normal' and crisis situations. My hope is that through this project I can provide efficient and effective community support, as well as build long term relationships within the community and with other support service networks.

This project is an opportunity to expand my capacity to build successful and scalable and robust community empowerment programs and structures. I aim to do this via expanding my organization to the larger context in an emergency situation, while identifying gaps in the food distribution system and the supply chains that NGOs like Epic-Cure rely on. This is a space in which I can grow my resilience and ability to adapt, while creating a timely and tangible impact in my community. Post-graduation, I hope to work with communities in crisis to create solutions that create holistic wellbeing for the

people and the planet. The goal is to learn how I can appropriately engage with and empower communities to take sustainable solutions into their own hands.

## Literature Review

### *Topic: Sustainable Food Aid Organizations*

Keywords: food rescue policy, food waste policy, nonprofit regulations, feeding the hungry, food deserts, food insecurity, food aid, sustainable food system, circular food economy

As we have shifted to a largely industrialized food processes, the amount of food lost and wasted has grown exponentially, across all levels i.e. growth to consumption. The food that ends up in landfills rather than being eaten has contributed to environmental, social, and economic deficits. The goal of this project is to redesign the food waste problem so that it becomes an opportunity for environmental, social and economic wellbeing. Although there are inefficiencies along all levels of the food supply chain, in order to produce a quality solution, I have chosen to restrict the scope of my project to focus on mitigating food waste at the retail level. While this solution is not the most efficient intervention as it concerns the downstream production of food waste rather than reducing the source at the production level, the scale of retail food waste provides a viable and accessible intervention point for the scope of this project.

### *Problem Identification:*

A study published by the National Resource Defense Council (NRDC) aims to explain where and why 40% of food produced in the U.S. is being discarded along the journey from farm to fork. Food waste in the United States is the single largest component of municipal solid waste and contributes a considerable portion of U.S. methane emissions. (Gunders, 2012). The life sustaining resources that are threatened by such waste include land availability and viability, freshwater availability and air quality. The issue is layered and complex, as the food is wasted or lost at each level. The incentive to address the issue by industries and consumers does not outweigh the convenience of wasting food. The study works to examine each stage of the food economy and identify the key inefficiencies and offer mitigation strategies. As mentioned above, the

stage I am primarily concerned with is the food waste at the retail level, which the study estimates to be approximately 10% of the total retail food supply. The retail contribution to food waste is much greater than that 10% because of the control retailers have up and down the food supply chain, making retailers the most influential intervention point. (Gunders, 2012).

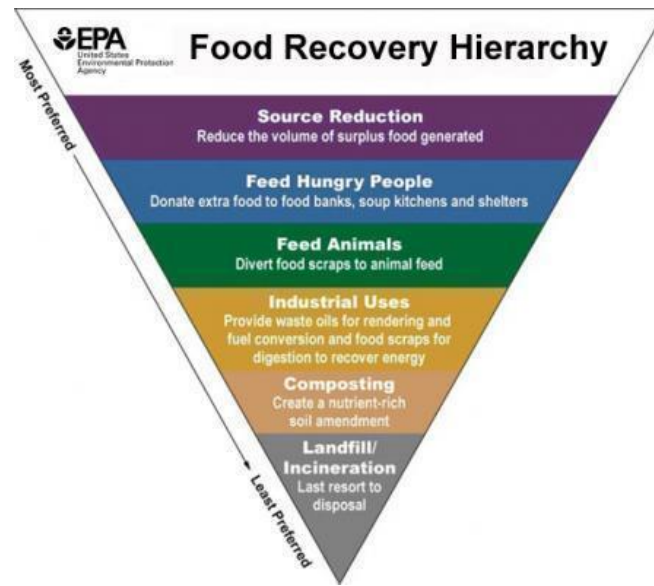
More so, in the NRDC's report concerning corporate food waste, it is estimated that food retailers, restaurants, and services contribute to 16 percent (approximately 28 million tons) of all U.S. food waste, costing such organizations about \$57 billion per year. (NRDC, 2017). These industries are throwing out their investments along with their food. This behavior is becoming increasingly unacceptable in the eyes of the public as well. Neff et al., (2015) sampled the American consumers behaviors, attitudes and awareness of food waste via an online survey. The data gathered created a baseline of the American consumers' understanding of, and contribution to the issue of food waste. The results from respondents of the 1,010 self-reports that were obtained suggest that most respondents are aware that food waste is an increasingly concerning issue and that many believe the retailers can play an important role in creating a solution. (Neff et al., 2015). The study indicates that consumers are interested in food waste mitigation plans and that they are holding food retail agencies accountable as part of the solution.

*Solution:*

Rescuing food that would otherwise be thrown away from retailers is not a new idea, rather it has been done by many organizations and proven to be a viable food waste and food insecurity mitigation strategy. There are numerous studies and organizations that provide evidence that support food rescue from retailers for community redistribution as a promising food waste intervention point.

The Environmental Protection Agency (EPA), published a Food Recovery Hierarchy diagram (EPA, 2019) that outlines actions individuals and agencies can take to prevent

or reduce the amount of wasted food. The hierarchy identifies feeding hungry people as one of the most effective strategies for reducing food waste. The resource also highlights ways in which to create a food saving and redistribution program, which provides the foundation for my project's usefulness. Similar recommendations promoting food rescue as a way to mitigate food waste are outlined and promoted in multiple NDRC reports including Wasted: "How America Is Losing Up to 40 Percent of Its Food from Farm to Fork to Landfill" and "Tackling Food Waste in Cities: A Policy and Program Toolkit."



There are numerous successful organizations that have worked to rescue and redistribute food that would otherwise end up in landfills. Feeding America rescued over 3.5 billion pounds of food in 2018 (Feeding America, 2019) and Waste Not Want Not Florida which rescues around 4,750 pounds of food a day to provide over 14,000 people with food annually (Waste Not Want Not, 2019). These organizations are primarily concerned with the social impact of food rescue and the potential the food has to nourish communities.

In an expert interview concerning sustainable food economies, I was able to talk to Kristen Osgood, who served as Stern Produce's Regenerative Strategy Manager for three years. She was in charge of championing and implementing sustainable programs within the distribution company. She tackled the issue of food waste via implementing a food donation program for all of the food that was not being rotated out within the company's time expectancy. She used the EPA food hierarchy represented above as a framework for sustainably redirecting food 'waste' in an environmentally and socially conscious manner. She created an inventory of all the products donated to these partner agencies and used it to inform the stock budgeting annually, so that the company could be more proactive in controlling the amount of product loss each year. The implementation of this program is one of her core achievements in this role. Her work emphasizes that food rescue organizations have the potential to influence players

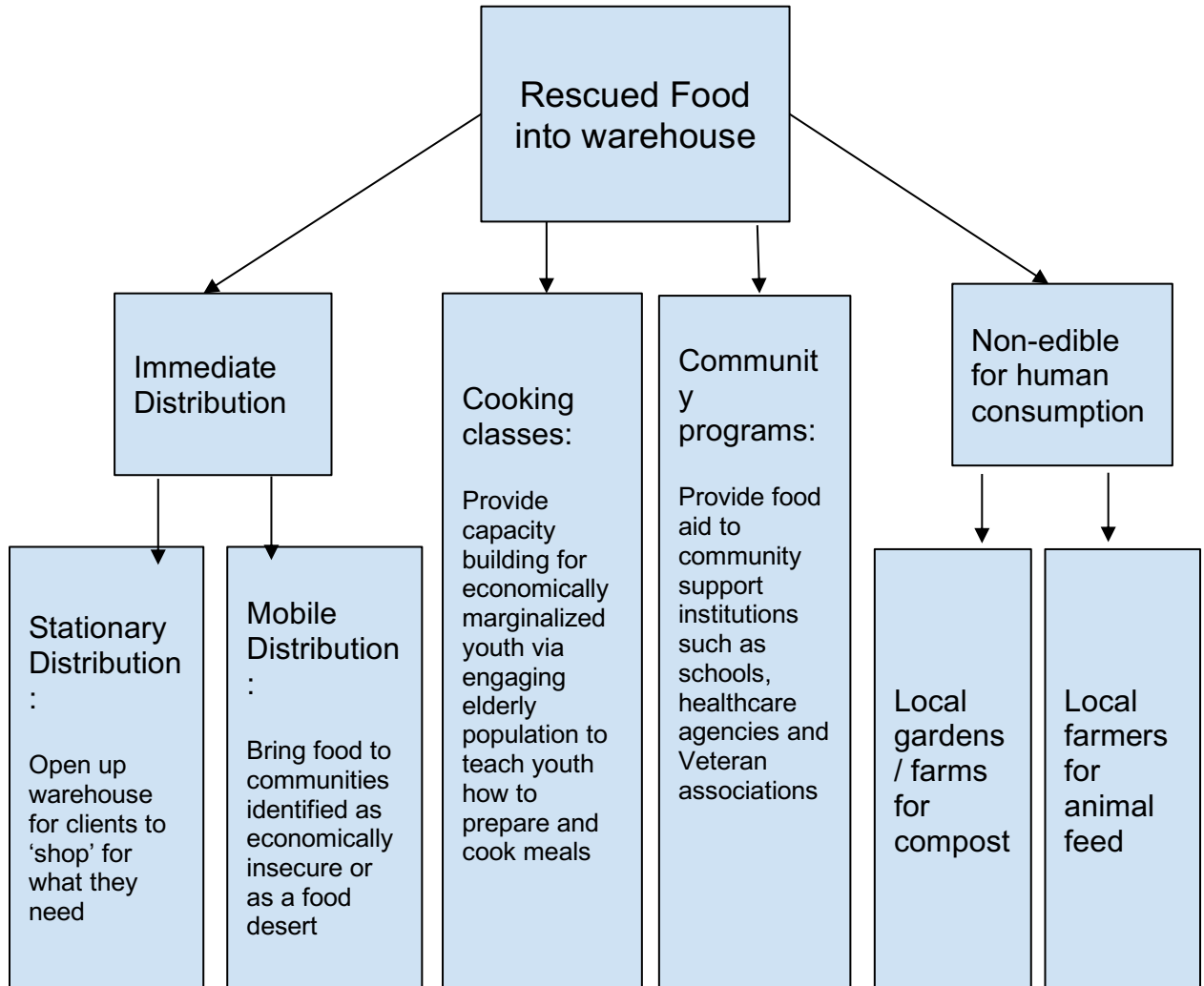
upstream. If the retailers donating to food aid agencies create a tracking program of which food is generally being overstocked or otherwise unsold, they have the capacity to reduce their food loss in the future via adjusting how much they order into stock based on consumer interest.

## Project Approach and Intervention Methods

As seen in the literature review, a substantial amount of food goes to waste. To feed people instead of landfills, diverting consumable food from the waste stream is an opportunity to feed hungry people. Epic Cure has fed many people with their food waste diversion and delivery model. Many more people could be fed by replicating Epic-Cure's model, therefore a guidebook showing other organizations how to replicate the model would provide communities with a tool that provides social and environmental relief. Through creating a guide on how to replicate and potentially improve on the programs that Epic-Cure offers, I had expected to capacitate communities around the country to take a grassroots approach to combating systemic food waste, while promoting community empowerment. Ultimately, the vision was to create a consumer led movement that opposes and prevents the current reality of edible food ending up in landfills.

This guide was intended to promote the vision via teaching communities how to move food in a more equitable and useful way. It would serve as an educational model on how a group of individuals in a community can work together to improve the social and environmental health of their communities by accessing a tangible and effective intervention point, i.e. food loss at the retail level. By providing an open source guide that explains how to replicate Epic-Cure's programs, communities would be equipped to divert large quantities of waste from landfills, promote nourishment and connection within communities, and provide economic relief for low-income community members. Economic relief for community members who struggle with economic insecurity is an important function as it will enable these members to spend their limited monetary resource on other life essentials such as electricity, transportation costs and medical assistance. This model promotes holistic wellbeing for communities and their environment.

The Epic-Cure’s current model is summarized below. The model starts with the rescued food arriving at the warehouse and then is distributed across the different programs, based on the amount of food needed for each, the quality of the food received, and the weekly schedule.



The model is congruent with the EPA’s food recovery hierarchy, distributing the food first to hungry people, and if necessary, to farmers for animal feed or composting, effectively diverting all food rescued from the landfill. This model will inform the guide structure and content.

The guidebook I intended to create would hold the social and environmental impact of mitigating food waste with equal balance, as this seems to be lacking from many of the

similar organizations I have researched. From what I have already observed via working with Epic-Cure, this model has worked to educate the community about the value of food in terms of social and environmental impact. Not only have 550,000+ pounds of edible food been diverted from local landfills and given to 25,000+ people who need it, but we have observed that those who interact with the organization- clients and nonclients alike, have begun to shift their attitudes and behaviors towards being more proactive about preventing food waste. To name one example of this, there is a local movement towards establishing a city-wide composting facility, led by volunteers who learned about the impact of food waste in landfills from the organization.

The guide would highlight programs that teach users how to move and use food in a way that serves and uplifts their community. The programs the guide would contain include the food rescue, food distribution, and educational youth cooking program. The finished guide would also include a section that explores alternative organizational structures that users can build out. The alternative structures could include a cooperative model and a benefit corporation model. The goal of the alternative organizational structure module is to feature transformational and sustainable food economy pathways, and how they might be built to encourage the mission and programs of Epic-Cure.

#### Emergency Food Services

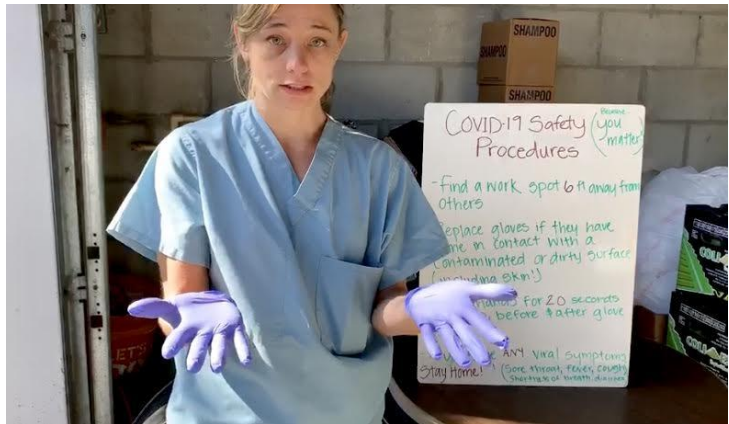
Since the project shift, my project approach has become an active, on the ground approach. I have been working onsite at my organization's facility to work out the unfolding barriers to our service, to ensure that we can continue to aid the community through this tumultuous time. I developed an interdisciplinary team consisting of healthcare professionals, law enforcement, economists, and leaders from national food aid organizations. With the multiple perspectives and via building out partnerships with other food aid services, food manufacturers and retailers, and federal agencies such as USDA, we have been able to satisfy the growing demand while taking all known precautions we can to ensure the health and wellbeing of our team and the people we serve. I am taking notes and videos of the changes we make as they happen, so that

afterwards I will have the necessary data to record our best practices and areas of improvement. Once I finish collecting my data, I will have the means to create an emergency preparedness guide of some sort should a similar situation come up in the future.

To continue providing services through the restrictive, nonessential stay at home orders, I have worked with local law enforcement and Feeding America to be deemed an essential service. I have also formed partnerships with new food suppliers such as Sysco and USDA, to make up for the food inputs we lost because of the diminishing retail supply rescue chain.



To ensure the safety of our volunteers and our clientele, we have a nurse practitioner who is familiar with the virus and its conditions and gives our volunteers a safety and precaution demonstration. She examines the warehouse procedures once a week and writes a list of suggestions accordingly. I have recorded a video of her giving the recommendations and have shared it with all of our volunteers on our volunteer web page. We have also adjusted warehouse procedures to reflect the best safety practices we can manage.



Aside from on the ground learning, I am collecting a series of interviews from a variety of stakeholders and perspectives. A barrier I have observed is that during this crisis,

there are so many streams of mixed information. This causes frustration with our everyday systems, whether it be healthcare, food systems, or employment performing interviews with a variety of stakeholders including law enforcement, clientele, health care workers to discuss the frustrations with the system, so that we can document which systematic changes are needed. After the pandemic we do not want to return to 'business as usual' rather we want to shift to business better than usual, to create more robust systems, with more mobility for transformative networks of change.

The proximal goals of this project are to ensure that all community members who rely on us through this time of global need, are given adequate and nutritious foods, and to protect the health and wellbeing volunteers and clients alike throughout the process. These goals are being carried out daily as we continue to find more avenues to support larger and more numerous distributions.



The long-term goals I intend to contribute to through this project include building valuable relationships with key crisis agencies and food suppliers. I would also like to use this as an opportunity to build more trust within the local community, so that we can best serve and capacitate our local population in the future. With community trust, we also have the ability to contribute to our community resilience. Included in FEMA's Natural Disaster Recovery Framework (see appendix C) is the recognition of nonprofit and voluntary agencies as a key stakeholder and contributor to a community's resilience post-disaster. These organizations are vital in an emergency as they help compensate for the community's unmet needs through the crisis. These organizations are usually able to mobilize more quickly than government agencies in disaster situations, providing essentials such as food, shelter, and coordination of volunteers. (FEMA, 2017). Finally, as we work through this time of uncertainty, we are working to create long term plans and programs that we can implement post crisis, which will hopefully bring us to a state of business 'better than usual' rather than back to our pre-pandemic baseline.

To measure the success of my intervention I plan to perform a reverse comparative analysis using Arnim Wiek's Transformational Framework for Sustainability Problem Solving. (Wiek, 2015). I will compare the long-term vision, which is to expand our services and provide capacity building material and programs for other like organizations and our clients. I use the data I am collecting along the way to determine if my solution strategies are sufficient to get us to the long-term vision and appropriately mitigate the causal structures of the problem.

Along the way I have also been using the Sustainability Competencies Framework by actively using the systems thinking and strategic competencies as the lenses to inform my methods and interventions. (Wiek et al, 2011). With both of these frameworks, once the crisis begins to subside, I will be able to refer back to my notes on how the organization has adapted to fit the needs of emergency aid. I will analyze my approaches via the framework and use of these lenses to determine any gaps in the sustainability of my intervention, so that I can work to mitigate these in the future of my organization.

### Outcomes/Findings

Since adapting the project in the past three weeks to address the still unfolding global crisis, I have been able to scale our services up to meet the growing demand. This has been a result of numerous strategic partnerships with community agencies, businesses, and federal relief programs. Although our usual supply of rescued food from local retailers has decreased 70%, and the number of individuals we serve has already increased 15% in the past month, we have been able to not only maintain, but to grow our support services. We have shifted from four weekly distributions, serving on average 1082 individuals per week in February, to 6 distributions weekly serving an average 1234 individuals per week in March. More so, we have increased our amount of 'food in' by approximately 30,000 pounds between February and March, while decreasing our cost per family by \$.58 to average only \$1.78 per meal box per family. (See appendix B.).

Although we have managed to decrease our cost per family served, the crisis has brought added economic insecurity to the organization. The organization is 100% volunteer led, with contributions from a few local donors with the rest of the operating cost historically covered by the founders. Since the crisis has unfolded, the founders no longer have the opportunity to cover leftover costs. This has made our financial sustainability an area of concern for us. In the past month my team and I have worked to find emergency funding to enable us to continue to provide this relief. We have received two of the five grants we applied for, which has provided enough security to stay in operation for the next two months. Securing funding is something we are continually working on in this time so that we can help as many people as possible.

The increase of distributions is a response to the immediate needs of our community. We have begun to serve health care professionals, meeting them at the hospital during shift change times, so that all of our first responders have access to food, without putting the rest of the community at risk of contamination. We have also begun programs in which we deliver four prepared meals weekly to seniors and supplied food to the Veterans Affairs Association to ensure their members are nourished.

The work that this project has contributed is primarily centered around the organization's resilience and capacity building. As an organization that is still in its early development stage, prior to the crisis we were slowly building our capacity to expand service to the community. We had reached four distributions per week serving on average 400 families a week with food we rescued from grocery outlets. Although we were efficient, we would not have predicted how much more we could do. Since the crisis was presented and we saw that almost half of the food aid services in our country were halting their aid, we worked quickly to prepare how to accommodate for the increase of need through a time in which our typical food supply chain would be greatly disrupted. The actions we have taken to accommodate the growing need include partnering with the USDA and Feeding America, working with food distributors including KeHe and Sysco, renting a refrigerated truck and a box truck for extra storage and mobilization of distributions, applying to grants for increased operating costs, and working with medical professionals to ensure the health of our volunteers and clients. We have been able to

increase our distributions to eight distributions on average per week, now serving 1,200 families per week.

So far, we have found our efforts to scale up quickly to be successful. We have been able to continue our community support in the form of food aid and hygiene products, despite the health barriers and despite the decrease in food rescued from our normal streams (local grocery stores). This success has made us optimistic. As the unemployment rate continues to climb, we are expecting and preparing for a steady increase of clientele, and we are working to continue to grow our capacity daily, so that we can manage the increase of need as it comes.

I have not yet finished gathering all of the data necessary to come to a definite conclusion as the crisis continues to unfold each day. I will continue to perform my daily research until the crisis subsides or until I am completely satisfied with our crisis response operations. Once one of these options presents itself, I will perform my reflective analysis using sustainability frameworks and criteria, to determine the academic sustainability measurements of my intervention.

## Recommendations

As my client is my organization, I will be able to implement my recommendations with the help of my team.

### 1. Expanded Services

One of my final recommendations that I am working on getting implemented now is the opening of a second warehouse in Putnam County, which is adjacent to the county we service now. This county is characterized by extreme need with very few support services. We have been able to do mobile distributions there each week, but it simply does not fit the need. Opening a second warehouse in this county is a high priority for us. I have a grant application in progress for the operating costs of this project now. We already identified a warehouse location and are working on securing a lease for it now. Our partners at Feeding Northeast Florida are very excited and supportive of this initiative and have agreed to supply the necessary equipment such as refrigeration for

the new facility. The warehouse we have identified is 15,000 square feet which is about five times larger than our facility in St. Johns County. The new space will allow us to not only supply the residents in need, but also to supply other food aid services in the area with the resources necessary to achieve greater food security via food rescue and redistribution.

## 2. Addressing Systemic Challenges

Prior to this project shift, I had received feedback about creating a project around a food aid organization. The primary critique was that a food aid service is not a sustainable solution, rather it is a social support 'band-aid' fix to much deeper systematic deficiencies, such as inequitable institutions and the wastefulness of upstream food economy players. Although I had agreed that it was the most impactful intervention point, I had the agency to intervene downstream and address both outlet level food waste and community food insecurity. When the crisis hit, this proved to be a much more necessary intervention point than previously considered. With the crisis came a serious shock to our economic and global trade systems. COVID-19 is acting as a stress-test to our systems and it is exposing the fragility of our largely industrial and globalized food supply chains and economies.

When the crisis hit many of the grocery stores in the U.S. and around the world were barren, compared to the norm. This was a result of both 'the tragedy of the commons', meaning consumers in panic mode flocked to the stores to buy any and everything they could out of fear, and because of the increased travel restrictions. With so many international ports and flights being closed or halted because of the virus, the transportation of food primary food resources was impacted greatly. As a result, my organization was affected, as our primary input of food items were rescued from local food retail outlets. With a decrease of almost 70% of food we could rescue from these outlets, we and similar agencies were forced to face the system deficiency head on. We had to reconfigure our supply chain quickly so that we could continue to provide food aid with the increasing pressure and demand. Our short-term survival action plan consisted of working with national food aid organizations such as Feeding America, federal organizations such as FEMA and USDA, and food manufactures such as Sysco and KeHe. These partnerships have provided us the capacity to continue to serve our

community through the crisis and have provided us the assurance that we can continue work through systematic disruptions.

The realization that our organization depends on a somewhat fragile system has shifted our thinking on how we should operate post disaster. We are thinking about how we can continue to provide food and encourage the security of food via encouraging a more robust local food economy. Some ideas we have for the future include building off of our cooking class program for the youth to include cooking and entrepreneurial food business related skills to our adult customers, working with local farmers to purchase their excess or unsellable goods, creating a client compost program, and creating an accessible food education initiative.

## Conclusions

My original intent for this project was to use Epic-Cure as a model to build out a guide that would highlight how to implement sustainable food aid programs via food rescuing. Since the crisis, my project has shifted to the realm of crisis mitigation, working on the ground in real time to adapt my organization so that it cannot only stay open, but operate on a much larger scale to continue to provide food aid relief when it is most needed.

This project has been one of constant learning and adaptation. As we continue to work through the crisis with a solutions thinking lens, we have the ability to document our changes so that post crisis we can highlight our most effective and meaningful actions. I hope to use the data I am collecting now in the guidebook project I intend to finish post-graduation. This crisis mitigation information can serve to help our organization and similar organizations work through future crises.

By focusing my immediate attention on my NGO's adaptation to the crisis, I can gather the necessary information so that once the crisis is resolved, I can continue the guide book with more knowledge about building community trust and resilience, how to handle crisis situations, and how to deal with supply chain shocks. By working to mitigate the crisis with my organization as it unfolds, I have learned that as a sustainability professional, I must always be prepared to manage the unpredictable outputs of complex systems. I have learned that sustainability solutions require collaboration

between multifield perspectives, it is the combination of approaches to the solution that makes the solution not just possible, but real and able to be executed. This project shift has proven to me that aid services are not just 'band aid' solutions, but at times, lifelines, a necessity to preserve social and economic sustainability.

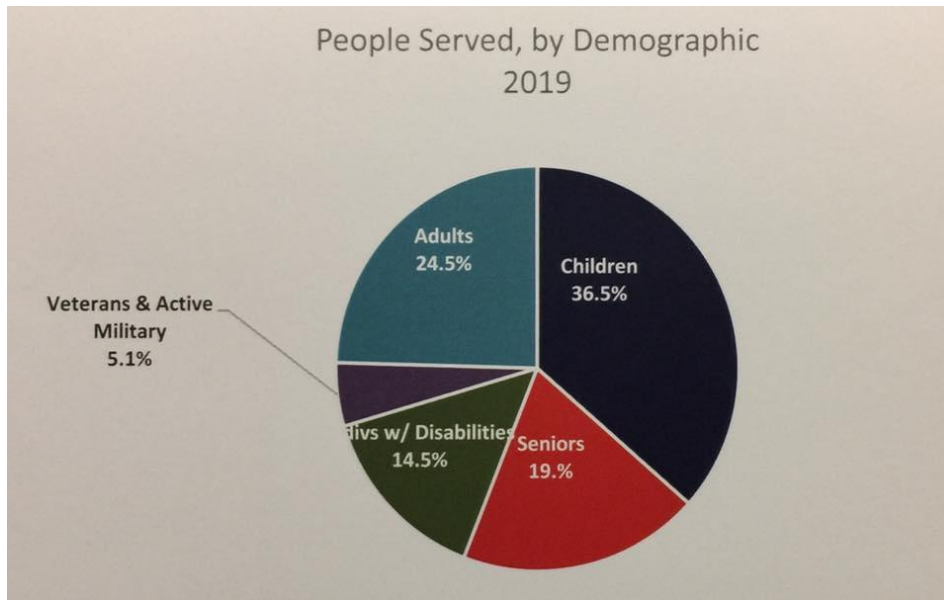
I look at this project not just as an immediate relief service project, but an opportunity to observe the fragility of the globalized and capitalistic systems that the U.S. society is dependent on. It is an opportunity to see the systematic weaknesses that are normally hidden or overlooked. For my organization, it is an opportunity to think not just about the short-term sustainability of our community, but about what we can develop so that after when things begin to normalize, we can reach a better than before state, rather than a business as usual state.

I am not quite sure if my exact project can be extended by future students, but I do think that the lessons I am learning could be valuable. I would be happy to connect with future students on adaptation of projects in the face of unforeseeable barriers.

## Appendix

### A. Demographics of individuals served by Epic-Cure:

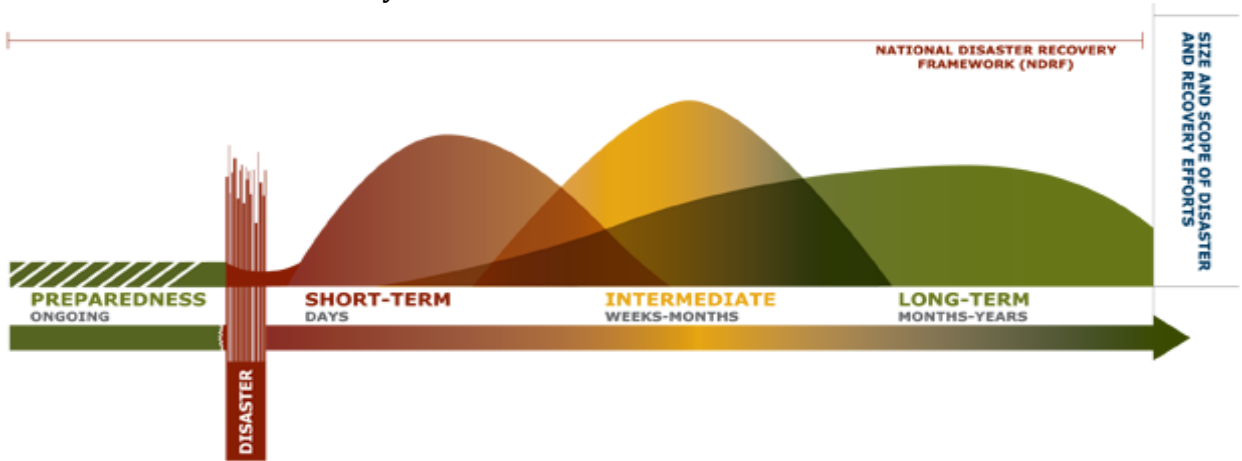
Provides evidence that the majority of the food insecure community members are children. Creating a system in which provides sustainable food aid is critical for the opportunity and health of our most vulnerable populations.



### B. The data set of the increase of food rescued and redistributed per month, with the organizations cost per family served highlighted.

Month	Operating Expense	Pounds In	Families	Household	Seniors	Children	Individuals with Disabilities	Veterans/Active Military	Cost per Family	Pounds Per Family	Cost per pound	Cost per Family
May 19	3,962.49	2171	57	226	111	132	104	102	69.52	38.09	1.83	69.52
Jun 19	4,686.28	19937	201	710	121	290	84	21	23.31	99.19	0.24	23.31
Jul 19	5,770.01	20474.1	445	1599	250	615	211	75	12.97	46.01	0.28	12.97
Aug 19	3,995.14	30723.2	799	2885	469	1285	311	145	5.00	38.45	0.13	5.00
Sep 19	5,337.13	49029.4	1116	3855	598	1473	487	148	4.78	43.93	0.11	4.78
Oct 19	4,512.94	63080.9	983	3432	586	1216	422	167	4.59	64.17	0.07	4.59
Nov 19	5,271.10	63033.9	1584	4464	1066	1482	716	228	3.33	39.79	0.08	3.33
Dec 19	2,736.20	67477.1	1349	3949	888	1226	725	183	2.03	50.02	0.04	2.03
Jan 20	3,869.62	78185.5	1500	4583	1001	1466	825	214	2.58	52.12	0.05	2.58
Feb 20	3,492.82	72985.6	1478	4329	1000	1267	788	206	2.36	49.38	0.05	2.36
Mar 20	2,881.93	105341.6	1617	4933	1026	1625	849	244	1.78	65.15	0.03	1.78

### C. National Disaster Recovery Framework



## References

- EPA. (2019). Food Recovery Hierarchy. Retrieved from:  
<https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy>
- Feeding America. (2019). Fighting Food Waste With Food Rescue. Retrieved from:  
<https://www.feedingamerica.org/our-work>
- FOA. (2014). Technical Platform on the Measurement and Reduction of Food Loss and Waste. Retrieved from  
<http://www.fao.org/platform-food-loss-waste/en/>
- FEMA. (2017). National Disaster Recovery Framework. Retrieved From:  
<https://www.fema.gov/media-library/assets/documents/117794>
- Gunders, D. (2012). Wasted: How America Is Losing Up to 40 Percent of Its Food from Farm to Fork to Landfill. *NRDC*. Retrieved from  
<https://www.nrdc.org/sites/default/files/wasted-food-IP.pdf>
- Hall KD, Guo J, Dore M, Chow CC (2009) The Progressive Increase of Food Waste in America and Its Environmental Impact. *PLoS ONE* 4(11): e7940.  
<https://doi.org/10.1371/journal.pone.0007940>
- Neff RA, Spiker ML, Truant PL (2015) Wasted Food: U.S. Consumers' Reported Awareness, Attitudes, and Behaviors. *PLoS ONE* 10(6): e0127881.  
<https://doi.org/10.1371/journal.pone.0127881>  
(Neff et al., 2015).
- USDA. (n.d.). OCE: U.S. Food Waste Challenge: FAQ's. Retrieved from  
<https://www.usda.gov/oce/foodwaste/faqs.htm>
- Waste Not Want Not. (2019). What We Do and Our Impact. Retrieved from  
<http://wastenotflorida.com/about-waste-not-want-not/what-we-do-and-our-impact/>.
- Wiek, A (2015). Solving Transformational Sustainability Problems – Tools for a New Generation of Sustainability Professionals. School of Sustainability, Arizona State University, Tempe AZ
- Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: a reference framework for academic program development. *Sustainability science*, 6(2), 203-218.