WHAT IS SUSTAINABLE FOOD:
An Exploration of Food Systems and the Potential for Sustainability

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Introduction

Modern food production is the most efficient way humans have been able to produce food throughout all of history. This system allows enormous volumes of food to be grown by very few people and distributed in convenience all over the world; this system is not sustainable. But, what does a sustainable food production system look like, and is there a possibility that the system already in place has potential to be a sustainable one? Does it start with the consumer or the farmer? Does it mean that we can only buy food grown within 150 miles of our homes, is this even possible for the entire world to do? These are big questions, and cannot be answered unless the definition for *sustainable food* is known.

Sustainability is the ability to be sustained, supported, upheld or confirmed.[1] This definition doesn't seem to make sense for food. For environmental scientists, sustainability means the quality of not being harmful to the environment by not depleting natural resources at a rate they cannot replenish themselves, and thereby supporting long-term ecological balance.[2] This definition of sustainability is more adequate for defining sustainability in the sense of food, but it isn't as inclusive as it needs to be. The reality is there is no definition for sustainable food and as a result of this, there is no truly sustainable food system. Looking into different facets of the current food system and identifying which components are attempting to adhere to the environmental scientists definition of sustainability, it is possible to understand what a sustainable food system looks like.

Food Labeling

Food labeling is an attempt to educate the public on where our food comes from and what food items purchased from a distributor are. The history of food labeling is also a history of social attitude toward food and health.[3] Most governments have taken the minimalist approach to regulations on quality and nutrition, and no government program requires labeling related to environmental or social impacts of the food distributed. In fact, The US, with its frankly inadequate labeling standards[4], is at the "forefront of establishing a mandatory and comprehensive national nutrition labeling policy".[5] The fact that the US

labeling standards are some of the best (though this doesn't include regulation) is concerning; considering the purposeful exclusion of some nutritional information. It is better to analyze sustainable food from labeling standards that are not required by the government, but rather arose out of individual concern for agricultural impact on social and environmental spheres. Three food labels any US citizen can see in the supermarket include: Non-GMO, USDA Organic, and Fair Trade.

USDA Organic

It wasn't until 2002 that the USDA Organic seal was established, before this seal was provided by the US government, there were no government standards to food labeled 'organic'.[6] Seeing this label on a product guarantees that these foods are either a) 100% organic- all ingredients are certified organic including any processing aids, b) Organic- containing no less than 95% of certified organic ingredients, excluding salt and water, or c) "Made With" Organic- containing 70% certified organic ingredients, excluding salt and water.[7] USDA standards for labeling organic comply with the definition for sustainability by stating, "organic operations must demonstrate that they are protecting natural resources, conserving biodiversity, and using only approved substances".[8] Yet, the standard only encompasses 70% of the product labeled at minimum, so 30% of the product may contribute to the degradation of the environment and consequently the community affected by the production. This is a step toward sustainable food, but it isn't the model to look to when developing new sustainable food systems.

Non-GMO Project Certified

"Non-GMO Project Verified " is a food label that indicates the product with the seal has undergone a verification process, which is an assurance that the product has been produced according to the best practices for GMO avoidance. A GMO, or genetically modified organism is an organism whose genetic material has been manipulated artificially to produce desired effects. These organisms are so new to the food system that the effects on human health are uncertain, but the impact from GMOs breeding with nearby non-GMO crops is that, if left uncontained, eventually all crops will have GMO DNA in them, as a result of cross-pollination, and will never be able to revert back to non-GMO material.[9] The

“Non-GMO Project Verified” standards do not state the products boasting the seal are GMO-free, but rather that they are verified to have undergone testing to assess the risk of GMO contamination in a product. Any product that is verified to be less than 0.9% affected by GMO contamination may be labeled as “Non-GMO Project Verified”.[10] This label is an effective indicator that human health and low environmental impact was taken into consideration during the cultivation of the crop in question. Sustainability has three pillars: social, environmental, and economic.[11] The “Non-GMO Project Verified " seal touches on the social and environmental pillars, making this label a good model for sustainable food standards.

Fair Trade

The Fair trade label is the most inclusive in terms of a model of sustainability. It has the economic, social, and environmental stewardship components that both the USDA Organic and “Non-GMO Project Verified" labels lack in varying capacities. The Fair Trade standard aims “to bring… empowerment, economic development, social development, and environmental stewardship to farmers and workers around the world” through a certification process.[12] Fair Trade standards are broken up into these separate groups and include the following: Empowerment- mandating inclusive participation and transparency (i.e. workers unions or farmer cooperatives), premium management (farmers manage community development premiums), focus on training and capacity building (training in workplace safety, freedom from discrimination, finance management, pricing and international market mechanisms). Economic development- stable business partnerships, predetermined premiums (every sale has a predetermined premium), guaranteed minimum prices on commodities and increasing wage levels. Social responsibility- prohibitions of child labor, compliance with International Labor Conventions, safe workplace, and access to healthcare and community development programs. Environmental stewardship- most toxic chemicals are not used, no GMO products, the safe use of agrochemicals, responsible waste management, protection of biodiversity, and reduction of energy and greenhouse gas emissions.[13] This all-inclusive label allows for a model of sustainable food that not only includes the product and

processing, but also the economic and social effects of the industry on the health and empowerment of the peoples involved. But, it is important to note that Fair Trade is a private label, and it is not required by any government to meet the same standards of production that the Fair Trade label constitutes. As it stands currently, Fair Trade is an optional standard for agribusiness and it is up to each individual farmer or company on whether or not they will comply with those standards.

Section 1: Pillars of Sustainability

According to Richard Gilbert, a professor of economics at University of Berkley, the pillars that make up a definition of sustainability are the social, environmental, and economic sectors.[14] In terms of a food system this can be broken into the production, distribution, and preparation of food throughout communities.

Social

The first pillar of sustainability, social, is meant to include the living beings of the planet. In relation to the food system this means the consumers and producers of food items. To ensure that the social pillar is sustainable it can be measured through social justice. Social justice is a critical component to sustainability because it can not only ensure that access by consumers is granted to the food system, but it can also ensure that the producers of food are fairly compensated for their work, and are working in conditions that don't limit their capacity to contribute to or benefit from the system they are a part of. According to the National Association of Social Workers, the definition for social justice is "that everyone deserves equal economic, political and social rights and opportunities".[15] Under this condition, those who do not have sustainable access to the same foods as the rest of their community are victims of social injustice.

Food Security

Food security is a condition related to the supply of food and an individual's access to it.[16] As defined by the USDA it is the "access by all people at all times to enough food for an active, healthy life".[17] Those who are already disadvantaged socially, culturally, and economically are generally

disadvantaged in their capacity to access healthy, sustainable foods as well.[18] The World Health Organization (WHO) asserts that there are three pillars to food security: food availability, food access, and food use. This means that not only is there enough food available to an individual, but also that they have the resources to gain foods for a nutritious diet and use them appropriately based on knowledge of basic nutrition and care, as well as adequate water and sanitation. Food security is a sustainable development issue and is linked to economic development and the environment.[19] In order for a community to have sustainable development, and thus a sustainable food system it is imperative that every individual meet the requirements for food security.

Food security has always been of utmost importance to humanity. Nomadic hunter-gatherer populations negotiated their lives around the presence of food, and when agriculture was developed the security of food was dependent on whatever could be grown in the season and region of the inhabitants.[20] This basic human trait changed drastically with the development of trade, and since then the plight of agricultural workers and the connection we have to food as changed drastically. A lack of food security means a lack of development. Food insecurity is associated with poor health, depression, and poor cognitive and emotional development in children.[21]

A human-rights approach to food security is necessary for a sustainable food system, recognition of the need to respect, protect and fulfill the human right to sustainable food access.[22] Human rights are to include the economic, social, cultural, civil and political considerations and are “interrelated, interdependent, and indivisible”.[23] The actors of human rights in the agricultural industry are the farmer, their communities and the marginalized groups that produce food for sale. These actors organize themselves into collectives to fend off oppression; i.e. Fair Trade. These collectives allow the individuals to ensure that their human rights are protected, including: the right to provide the means to “sustain dignified livelihoods”, the right to work for “dignified wages” and “working conditions”, the right to be able to afford adequate housing, the right to clean water, the right to education, the right to

"self-determination", and the rights to culture.[24] In this way, by protecting basic human rights for agricultural workers, there can be social justice, and thus a sustainable food system.

Economic

> Modern Agriculture produces a lot of food, and produces it cheaply, to feats that people have spent all of human history trying to achieve.[25]

Economic considerations for a sustainable food system are related to fair compensation for agricultural workers (a sustainable solution to this issue being Fair Trade requirements), economic access to food, relating to food security, and solved through political remedy such as The Supplemental Nutrition Assistance Program (SNAP) in the US, and through creating local economy instead of using trade and commerce as a sole means of providing food in a community (the Farm to Table movement). According to the USDA, agriculture makes up 4.8% of US GDP. This adds up to $835 billion; including not only farms, but also food service, food products, fishing and other agriculture-related industry.[26] Economic sustainability is imperative to a sustainable food system given how much capital is wrapped up in the agricultural industry.

SNAP and Food Deserts

The Supplemental Nutrition Assistance Program, or SNAP, is the United States nutritional assistance program for low-income families and individuals.[27] Under the Food and Nutrition Act of 2008, the eligible items for purchase with use of SNAP are defined. No hot food items, household supplies, or pet foods are eligible for purchase with these benefits, but energy drinks, ice cream, soda and candy bars are eligible since they have nutrition labels on them.[28] A study of the effect of SNAP benefits on different racial and income groups has shown that often benefits do not improve health for minority communities.[29] This can be related to a condition of communities known as food deserts. Food deserts are "areas…that lack access to healthy, nutritious, and affordable food".[30] Often these areas are situated in low-income communities that lack access to supermarkets, or other fresh food vendors. Often these neighborhoods are comprised of minority groups due to a process known as

‘red-lining’ (spatial discrimination).[31] Food deserts result as a lack of economic incentive for distributors to open up a location due to the lack of economic capital in the area. People who are low-income and receiving SNAP benefits in these areas often are forced to shop at convenience stores or liquor stores, limiting their access to healthy foods.[32] This combination of food insecurity and the actual uselessness of SNAP benefits to provide a sustainable food system to minority communities is a structural flaw in the modern food system.

Environmental

In 1962, Rachel Carson sparked the environmental revolution with her book *Silent Spring*. The book forced the banning of the widely used pesticide DDT in 1972[33], the passing of the Clean Air Act in 1963, and the Clean Water Act of 1977.[34] DDT is a powerful pesticide that was developed during WWII, initially used to combat malaria and other insect-borne human diseases among military and civilian populations. However, after *Silent Spring* was released and Carson exposed the environmental and human degradation that could occur from the pesticide, inquiries were made by the US government into the effects of the chemical and found that DDT posed “unacceptable risks to the environment and potential harm to human health”.[35]

Pesticides

DDT, dichloro-diphenyl-trichloroethane, was widely used during WWII for control of vector-borne illness. After the war was over, the chemical companies kept producing it and DDT was widely used as an agricultural pesticide due to its effectiveness and cost efficiency. After 1959, DDT usage dropped due to introduction of more effective pesticides and increased insect resistance.[36] However, agrochemical use continues on, and the effect on the environment is just as harmful as it ever has been. Runoff from non-organic pesticides being used on farms ends up in natural water systems harming the biota and ultimately diminishing the quality of the ecosystem. In the Pacific Northwest the presence of organochlorine pesticides in streams and rivers have been correlated to return rate decline in salmon.[37] The environmental impact of pesticides on the natural world is one that cannot be denied. In

addition to this there is the obvious unintended consequence of the pesticide runoff killing the intended victim, but in the wrong location. The consequences of releasing pesticides into wild insect populations, and their gained potential for resistance would be devastating to agriculture in the future. The current explosion of the use of the pesticide BT (Bacillus thuringiensis) has been proven to result in increased insect resistance to the pesticide.[38] The effect of this on agricultural systems is the increase of pest devastation on pivotal crops to our food system. This unsustainable use of pesticides cannot be included in a sustainable food system. Most agrochemicals are synthetic, and when tested for their ability to cause cancer, "about half of them are carcinogenic".[39]

Section 2: Producers

Farmers and ranchers and agricultural workers comprise 15% of the US population. There are 2.2 million farms dotted across the US producing food for our nation to consume and export.[40] 14,048 of these farms are organic, only .7% of American farms.[41] Producers are the front lines of sustainable food systems, if the product is not cultivated or raised sustainably, then the system is already broken. In this section I will discuss two methods of sustainable food production in urban farming and sustainable livestock cultivation. Both of these methods will prove the cultivation of our raw food products can successfully be sustainable.

Urban Farming

Urban farming is a community level social movement aimed at improving the economic stability, biodiversity, health and wellness of communities.[42] This movement isn't new to the US; "victory gardens" were encouraged by President Franklin D. Roosevelt during WWII in order to combat food scarcity and were largely successful- producing 42% of the fresh vegetables consumed in 1943 by the US.[43] Today, urban farming- including community gardens, corporate gardens, friend and family gardens are largely successful in the attempt to make global food systems sustainable, local and accessible.[44]

Victory Gardens

Naomi Klein calls for a “Marshall Plan for the Earth” in her book *This Changes Everything*.[45] In regard to a sustainable food system, the Marshall Plan for the US during WWII, specifically the victory garden program, is a good model for sustainable food production. During the years of WWII food production was considered a “first line of defense”.[46] In the age of climate change and devastation it should be considered no differently. The idea of victory gardens, or ‘family’ gardens used to supply food for the families back home during the war proved to be successful, but also a fantastic program that inspired communalism through the inclusion of all community members regardless of race, ethnicity, or gender.[47] These gardens had symbolic and material function, the communalistic ideals imposed through this food production system led to a sort of spiritual cleansing through “intimate contact with the earth”.[48] They also provided fresh produce for Americans during times when food security was not guaranteed for every individual. In 1942, 16.5 million Americans grew their own victory gardens, providing intimacy with their food, as well as economic food security.[49] The inclusion of minority communities into victory garden participation drastically improved the economic welfare and food security of these groups. As a side project an African American man found the time to raise a victory garden. The account of his economic benefit is as follows: “He ‘invested’ $4 in seeds and other equipment for his quarter of an acre of land, and to date he has cleared more than $12 on the sale of his greens alone”.[50] The economic benefit, empowerment opportunities, and security enhancement as a result of victory gardens can serve as a model for sustainable food production today.

Community Gardens

In her book *Farm City: The Education of an Urban Farmer*, Novella Carpenter describes the entire process of starting a successful community garden and livestock cultivation whilst living in inner city Oakland from idea to profit. Opening the book with the line, “I have a farm on a dead-end street in the ghetto” she goes on to describe how the small garden she started in an abandoned lot across the street became a hub for community involvement and a primary source of food security for herself and supplemental for her neighbors.[51] In inner city Oakland, Carpenter raises pigs, chickens, turkeys,

watermelons, tomatoes, and other edible plants and herbs in addition to beekeeping. Urban Farming is an organization that began in 2003 with the mission of creating “an abundance of food for people in need by supporting and encouraging the establishment of gardens on unused land and space while increasing diversity, raising awareness for health and wellness, and inspiring and educating youth, adults and seniors to create an economically sustainable system to uplift communities around the globe”.[52] This modern action of an old idea has increased food security and access to healthy foods in urban areas and increased biodiversity in places where concrete has been abundant. Using spaces that are among buildings to grow edible plants not only promotes health among humans, but increases the health of the earth. Plants have the ability to improve air quality through their uptake of carbon dioxide from the air and soil, which overall improves the environmental quality of a city through their ecosystem services.[53] Community gardens are a great way for humans to interact with their environment in a way that not only benefits mankind, but also the earth itself. This is proven to be a sustainable interaction.

Section 2: Distributors

Distributors play a major role in the food system. Distributors are the middlemen between producers and consumers, responsible for the disconnection between farmers and their customers. As discussed earlier, food deserts occur as a result of lacking economic incentive for grocery stores and supermarkets to open in low-income neighborhoods. Distributors are responsible for the access of consumers to healthy and sustainable foods. But with the way urban food systems are set up currently it is not always possible for individuals to find the foods they need to be involved in a sustainable and healthy system.[54]

Farmers Markets

A farmers market is “a common area where several farmers gather on a recurring basis to sell a variety of fresh fruits, vegetables, and other farm products directly to consumers”.[55] This is a form of direct-to-consumer marketing, essentially eliminating the middlemen.[56] By directly linking the consumer to the producer, and in effect to the earth their food comes from. They offer a more holistic

view of food production to the consumer by allowing individuals to access information about the food they are consuming. In addition to the linkage between rural and urban communities, farmers markets regulate who is "allowed to access market space based on locally and democratically determined rules".[57] Farmers market are not currently the food system, but rather access points for locally grown foods, that boost the economy rather than sustain it.[58]

Cooperatives

Agricultural cooperatives (co-ops) are businesses that are owned and controlled by the people who use them.[59] These types of businesses do not operate for the profit of the owners solely, but rather for the mutual benefit of the members. Co-ops are economically sustainable as an alternative to large supermarket chains because they strengthen the bargaining power of the farmers, reduce costs by cutting out middlemen, and improve income opportunities for their members.[60] Members of farmer cooperatives receive the percentage of earnings on the basis of the percentage they contribute, providing economic incentive for increased production. This means that even the smallest difference in effort on part of the farmer results in a large difference in productivity and costs.[61] Farmers' cooperatives account for around 300,000 jobs in the US and over $8 billion dollars in payroll to those farmers, none of those dollars are lost to the middlemen.[62] This kind of economic benefit provides a sustainable framework for food systems. By working for the benefit of the collective, cooperatives inadvertently benefit the individual members by providing direct correlation between profit and effort.[63] In addition to the economic benefit, there is the added benefit of social exchange, the interaction between people that provide gratification and social capital.[64] The contribution of social capital in an agricultural cooperative environment provides an element of accountability to the other members, and thus a system of reciprocity is established.[65] Reciprocity allows the farmers to feel included, supported and perpetuates the system as a whole.

In addition to farmers' cooperatives, there are also consumer-owned retail food cooperatives.[66] The same concept applies here as in farmers' cooperatives; the organizations are owned and operated by their

members. Membership is open to those who invest a fee, and offers price discounts, bulk purchase opportunities and locally grown foods.[67] Membership is often discounted in exchange for labor, again promoting a socialism-esque food system. While this type of distribution is not direct-to-consumer, but rather direct-to-retail, it is still sustainable in the sense that most of the products these cooperatives stock are local and organic.[68]

CSA

Community Supported Agriculture (CSA) started as an agreement between consumers and producers with vaguely socialistic principles in which the consumer provided capital upfront for producers to grow product and in exchange the consumers are provided with a portion of the harvest.[69] In the United States, it is estimated there are more than 2500 CSAs in operation.[70] CSAs are another type of direct-to-consumer marketing.[71]CSAs not only provide consumers with a direct and empowering relationship to their farmer, but also access to knowledge of locally available produce they may not have otherwise encountered.[72] This kind of direct economic exchange leads to a buildup of social capital between the consumer and producer. Again, CSAs eliminate middlemen with the consumer participating, but doesn't eliminate the capitalism component of the market at farmers are able to sell the remaining product after the CSA 'investor' is compensated.[73] This socialism-esque system of exchange of goods between consumers and producers provides opportunities to consumers to become more directly engaged with the economic system, and the social components (farmers).

Section 4: Consumers

In Michael Pollan's book, *The Omnivore's Dilemma*, he addresses what he terms our 'national eating disorder'.[74] This term refers to the anxiety Americans feel when asked 'What should we have for dinner?'. The reason, Pollan points out, that we feel this way is because what we are marketed isn't always what we *should* eat, and we know it. We are constantly bombarded with advertisements for different foods and very rarely do we know where it actually comes from or if it is even okay for us to eat it. The problem is there is too much choice, and Pollan suggests that we should eliminate much of our

choice by avoiding the grocery store altogether and finding our food closer to home.[75] Recently, restaurant chefs and artisans have been on the "hot/trendy" local food movement.[76] The people who feed us in our communities are demanding local, sustainable product; we should be too.

Breweries

Since Portland, Oregon is a culinary center, and also has a significant number of craft breweries, it makes sense to start an analysis of sustainable consumption there. Oregon has 234 craft breweries, one of which is Upright Brewing.[77] According to Alex Ganum, brew-master at Upright, sustainability in the food system means that businesses operate in ways that make sense, by being low impact and functional.[78] Especially in an age where climate change and its effects are threatening the prosperity of the beverage industry through the loss of water resources and the changes in temperate zones used to grow hops and grapes for wine production, sustainability is key to not only producer, but also the consumer.[79] To Ganum, sustainability is a side effect of his overall efforts towards functionality. He states, "I think overall functionality trumps our desire to be sustainable, but they end up hand in hand anyhow" showing that sustainability, in the end, is actually more of a necessity to operate a profitable business.[80] As indicated in the US Economic Research Service, Ganum solidifies that working with suppliers is imperative to sustainability,[81]

> For us that means working with local suppliers because we can form solid relationships and can count on them, but in regards to sustainability that also means less transport and keeping money in the local economy.[82]

Ganum also recognizes the importance of including the consumer into the process; "consumer benefit from straightforward business practices" is key to a sustainable food chain.[83] There are many issues to deal with on the side of production, but the main concern for Upright is the difficulty of using glass sustainably. Ganum shares his concerns with the use of glass in bottling of Upright Brewery beer by comparing the usage of bottles to kegs,

> I think glass is a significant resource. When you compare a stainless steel keg that has the equivalent of over 6o of our bottles, and the fact that the keg may last decades while the glass

is a single use and then ends up in the recycling bin, there's an enormous difference to look at. We don't offset it short of encouraging people to enjoy draft beer and offering growler fills at the tasting room as an alternative to bringing home bottles.[84]

It isn't an easy task to negotiate sustainability in the beverage industry, but due to demand from consumers and attention from brew-masters, the Portland craft brewing industry has already managed a sustainable alternative to previously wasteful services.

Restaurants

In the food service industry, sustainability can be a huge asset to increasing profit. Food waste is a major issue in food service, as it essentially eats away at profit before the process can begin. In the US, 40% of all produced food is wasted.[85] However, this is lumping together household and commercial waste. Head Chef at the Pilot House, Ken Clemmens, estimates that the Pilot House has about a 25% food waste margin, which is typical of many food service businesses across the board.[86] Louie Cortese of Louie's Pizza and Catering estimates his current food waste at 10% of his total profit. He attributes this incredibly low waste margin to the intimacy he has with his business. He says he understands when his business will be slow and therefore knows how to order accordingly. [87] This kind of intimate understanding of food production within a business is imperative to operating on a wavelength of sustainability.

One of Cortese's biggest concerns is his energy cost, which is estimated to be around 10% of his total operating costs. While Mr. Cortese has made good progress in cutting down his CO2 emissions and saving on energy costs through insulation and energy efficient appliances. He still has one big factor that must be updated: his current ventilation. Heating, ventilation, and air conditioning (HVAC) typically make up 29% of energy consumption in food service facilities.[88] At this point in time, Mr. Cortese's poor ventilation not only consumes a lot of energy, but also takes a toll on his sales revenue: specifically, the hood above his oven is constantly removing the cool air within the store, even during slow business

period. The fan runs continuously, even when the oven is not in use, wasting a lot of energy and money. [89]

Cortese's business is also a non-organic pizza restaurant, but he intends to make the switch. Consumer reports state that organic products cost about 47% more than non-organic products in supermarkets.[90] However, commercial sourcing doesn't follow the same markup patterns as supermarkets. Sysco is a major restaurant distribution company for which the markup for organics is anywhere between 10-25% above the price of non-organics depending on the product.[91] For example organic portabella mushrooms cost 21.95/unit and non-organic mushrooms cost 19.95/unit through Sysco. However, the price that Sysco offers isn't the best Cortese could find. Bon Appetit at the University of Portland uses a farm-to-fork program that utilizes local farms in their sourcing. The availability of products varies through seasons but the price is almost always lower than Sysco's by around 10%. Examples of these farms include: Sauvies Island Organics, Creative Growers, and Kookoolan Farms.[92] Depending on the time of year farms can provide ingredients to restaurants in the area twice a week with no packaging and minimal carbon impact from transportation because the farms are all within 150 miles. Head Chef at the Pilot House, Ken Clemmen's has said that through local farmers he has been able to get tomatoes for fifty cents a pound in the peak of the season and during January (because that is leek season) can get leeks for $1.60 a pound from Sauvies Island Organics. [93] Choosing local is clearly a more economically viable option for restaurants so it is no wonder the trend has become so "hot".

Conclusion

The answer to making our current food system sustainable lies within our ability to communicate from producer, to distributor, to consumer with transparency. By including social, environmental, and economic sustainability definitions into our food system and providing labeling that allows the transparency mentioned previously. Mostly it starts with demand on the part of the consumer and involvement in the community either through direct engagement with the soil (through urban farming), or with the farmer (through CSAs and farmers markets). Cutting through the inefficiencies in transportation,

economic distribution, and social exclusion in the food system will provide sustainability in a way that our constantly changing world can identify and manage efficiently. A sustainable food system is not only feasible, it is beginning as our world finds itself looking for answers to food security in the era of climate change. The methods discussed through this research project can serve as a model for defining sustainability in food systems and push our generation and future generations towards a deeper connection with the earth, the people, and the produce.

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