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# The Food Shed

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Envisioning a Localized  
Food System

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**Picture yourself in a forest of grand pine trees,** a monoculture farm ecosystem where, aside from these enormous trees, little can grow,  
 their huge branches interlace to create one single canopy, making it difficult for any new species to get established.  
 from the ground, their trunks seem immutable, timeless, yet underneath, disease has weakened those massive trunks, their very uniformity making them vulnerable.  
 most cannot remember any other forest in its place. But our great-grandmothers remember a time when a very different forest existed.  
 What the forest has provided is plentiful but uprooting its bounty as we do seems to make us sick.  
 It expanded to provide for us when we needed it most, but despite its grandeur, the forest is fragile. As with any sick forest, it is reaching the end of its time.

**We are coming to an age of uncertainty-**

While we do not know what the scale of the changes will be, we know that changes are coming.  
 While we do not know the scale of the ecological transformations that these changes in climate herald, we do know they will have the profound effects on the landscapes and ecosystems of the earth.  
 While we do not know when we will start reaching the limits of fossil fuel availability, we know that we have already reached the limits of our earth's ability to absorb the impacts of their usage.  
 While we do not know what technologies might emerge to take fossil fuel's place, we know that it is unlikely that new technologies can provide us with the abundance of cheap energy we currently enjoy.  
 What is certain is that our world will change. **We do not need to know the measure of the future to know that we must prepare for a volatile and uncertain world.**

**Think of our food system as that forest-**  
 a powerful, mature industrial ecosystem,

That established ecosystem that serves the needs of the citizens imperfectly,  
 makes it difficult for new ideas, new ways of growing and caring for food to get established.  
 While many of the pioneer species to a new food ecosystem exist, each new idea and innovation has struggled against conditions that are adverse to their success.  
 What is needed is to create their own system, a mutually reinforcing ecosystem of species that can create the conditions for their own success, a food ecosystem, blending new and old that can become established in the understory of the existing food ecosystem.

Food is the cornerstone of the health of a society.  
The food system is the canary in the coal mine  
of our ability to adapt to an age of volatility and uncertainty.

*The goal of this document is to envision  
**a New Food System,**  
a mutually reinforcing food system  
that can become established in the understory of the existing food system,  
and then set out a path to making it **real.***

The goal of this **New Food System** is to address the current **crisis of food**  
while preparing to weather an **age of uncertainty.**

## Envisioning a Food System of the Future—A Design Exercise

**Design Question:** Starting with imperfect **food systems**, how do we ensure we can eat well in an energy constrained, ecologically strained and uncertain world?

**Answer:** Through creating **resilient**, equitable and sustainable food systems.

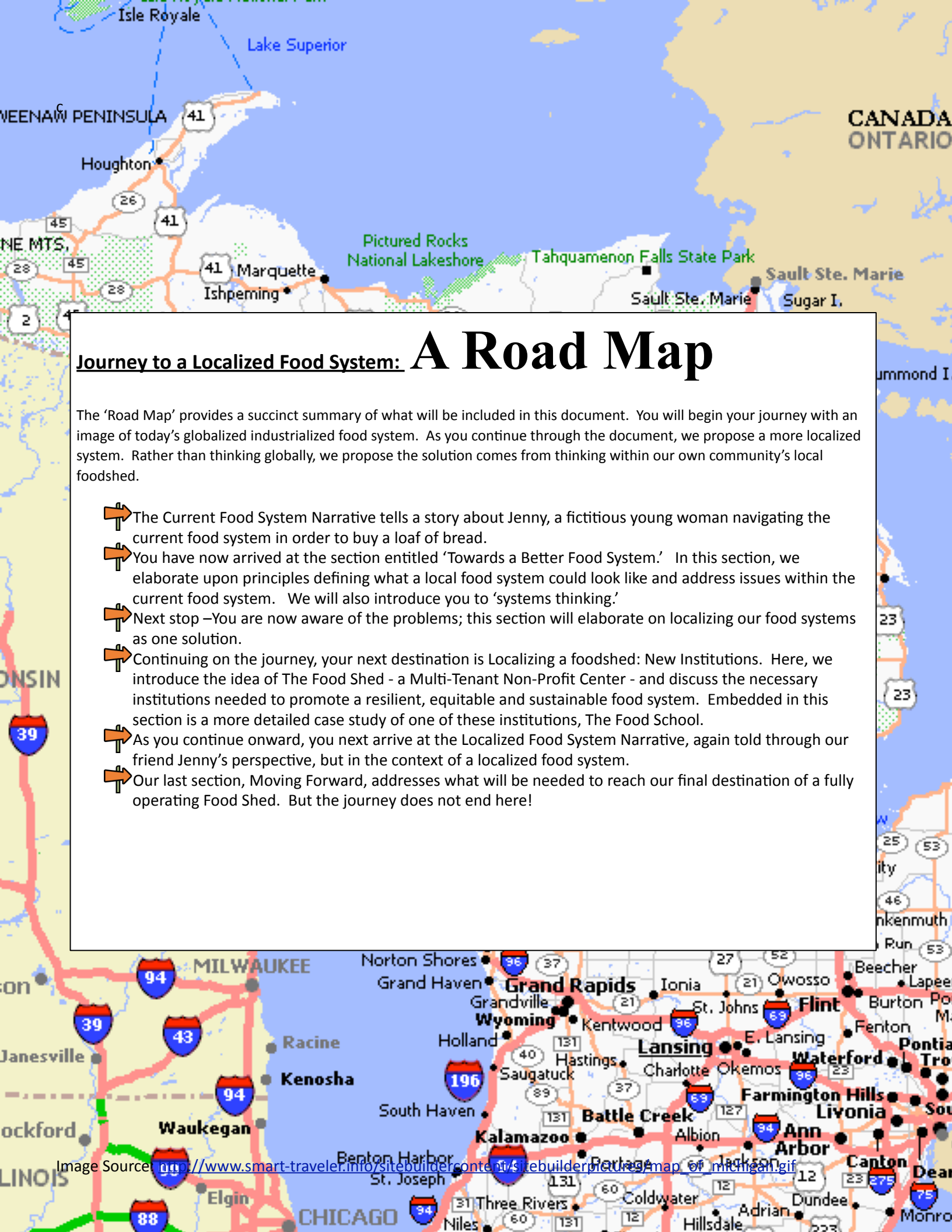
**Question:** How do we create resilient, equitable and sustainable food systems?

**Answer:** By localizing our food systems.

This project is the end-product of year and a half long exploration of **localization**, a way to create more livable communities, and to help them prepare for a changing **volatile** world. The exercise of this project was to undertake a collaborative design process that would use localization as an adaptive strategy, and to envision the institutions and tools that could craft a resilient, equitable and sustainable food system.

The process has involved research into the food systems of North America and elsewhere, examining case studies of healthy food systems in different localities. More importantly, it has involved many interviews with individuals who play integral roles within existing food systems and many collaborative brainstorming sessions. This document is not intended to provide an analysis of the research or an accounting of the experiences of others; rather it is a creative design exercise, drawing on the wisdom and ideas of many to envision new solutions.

The goal of this document is to provide *an image of the possible*, and offer a set of interlocking strategies that a community or group of communities might employ to marshal their resources and build a better local food system for themselves. As such, this document is an attempt to provide the necessary tools and rough blueprint for the creation of an equitable, resilient and sustainable **localized food system**.



## Journey to a Localized Food System: **A Road Map**

The 'Road Map' provides a succinct summary of what will be included in this document. You will begin your journey with an image of today's globalized industrialized food system. As you continue through the document, we propose a more localized system. Rather than thinking globally, we propose the solution comes from thinking within our own community's local foodshed.

- ➔ The Current Food System Narrative tells a story about Jenny, a fictitious young woman navigating the current food system in order to buy a loaf of bread.
- ➔ You have now arrived at the section entitled 'Towards a Better Food System.' In this section, we elaborate upon principles defining what a local food system could look like and address issues within the current food system. We will also introduce you to 'systems thinking.'
- ➔ Next stop –You are now aware of the problems; this section will elaborate on localizing our food systems as one solution.
- ➔ Continuing on the journey, your next destination is Localizing a foodshed: New Institutions. Here, we introduce the idea of The Food Shed - a Multi-Tenant Non-Profit Center - and discuss the necessary institutions needed to promote a resilient, equitable and sustainable food system. Embedded in this section is a more detailed case study of one of these institutions, The Food School.
- ➔ As you continue onward, you next arrive at the Localized Food System Narrative, again told through our friend Jenny's perspective, but in the context of a localized food system.
- ➔ Our last section, Moving Forward, addresses what will be needed to reach our final destination of a fully operating Food Shed. But the journey does not end here!

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**foodshed:** The geographical area within which food flows from a grower's field to an eater's table.

**The Food Shed:** The physical space proposed for providing a forum for the informal governance of an emerging local food system.

*Take Note...*

Throughout this document, words **in color** can be found in the glossary.

## The Food Shed Narrative

### Our Current Food System

Jenny woke up one cold January morning, rolled out of bed, trudged to the kitchen, only to realize that she was out of bread. She quickly grabbed her coat, boots, gloves and car keys and headed out the door.

After about a seven mile drive and a quick stop for gas, Jenny arrived at the nearest Kroger grocery store. She found a parking space in the over-sized lot and walked quickly to the entrance. Once inside, Jenny began navigating her way to the bread section. She passed a rainbow of exotic fruits and vegetables, ranging from the tropical bananas and pineapples to asparagus and red peppers, without a second thought, they were, after all, a normal part of her winter shopping experience.

Upon reaching the bread section, Jenny couldn't help but feel a bit overwhelmed at the massive selection. The fluorescent lighting beamed down upon hundreds of loaves: Whole Wheat White Bread, Multi-Grain, 7-Grain, 9-Grain, 12-Grain, Carb-Free Bread, etc. Becoming more flustered by the minute, Jenny grabbed a loaf of her stand-by White Wonder Bread and retraced her steps back to the check-out.

While waiting to pay, Jenny took a second glance at her loaf. The ingredient list was alarming. "High fructose corn syrup? Exthoxylated mono and diglycerides? Dough conditioners? Datem? Calcium propionate? What is this stuff?" Jenny pondered to herself. "Made in Southern California? Wow, cross-continent, this bread has traveled more that I have this winter!"

Jenny placed her Wonder Bread on the conveyer belt, mutely handed the surly cashier \$1.79 and found her way back to her car. For the first time, Jenny's Wonder Bread inspired just that; she began to wonder about the sense of it all...



## Towards a Better Food System

Let's engage in a little thought experiment. We each have a different mental image about what the **food system** looks like now; each may be filled with details like combines, BT corn, big rigs hauling pigs down interstates, uniform fields of grain, and so on. We also may each have a different mental image about what we think a future food system *should look like*. Maybe instead of lawns we have garden plots in suburbia. Maybe the rooftops sprout with vegetables in Brooklyn, or every Tuesday night there is a vendor just around the corner who sells out the back of a pickup the things he grows just outside of town. The experiment is to let go of any particular tangible details, the instrumental **how** and **what** to our food, and think about the essence of what the food system should accomplish, its intrinsic goals. This thought experiment on the food system led to the following principles for a better food system.

### Principles to a Better Food System

**Healthy**—The food system should support **health**, meaning that it has the capacity to provide the staples of a wholesome, life-supporting diet for the individual and community level. A healthy food system should support:

- Farming practices that are in **harmony** with ecological systems.
- The provision of a wide variety of **whole foods** to the public – food that is in a minimally (if at all) processed form.
- **Transparency of information** regarding where, when, and how food was grown and processed to facilitate healthy choices.
- A **legacy** of information regarding what's healthy for our bodies from time-tested food cultures from around the world.
- The development of a food culture where **social interaction** is inextricably linked with human interactions and food consumption patterns.

**Equitable**—The food system should be **equitable**, providing access to good, healthy food for all citizens. An equitable food system depends on:

- A low barrier to **access**—it is fairly easy to acquire good food.
- **Affordable** food—food should not cost a citizen so much that they must make compromises about the quality or quantity of the food they eat.
- **Fair compensation** to farmers and other food actors for the value of their work.

**Resilient**—The food system should be **resilient**, or adaptable to changes and robust to stresses. A resilient food system means:

- Our food system should foster **experimentation and innovation**. Such experimentation is necessary to muddle our way towards better systems.
- Our food system should be **diverse**, in terms of what foods it cultivates and provides, what forms it provides them in, and what kinds of producers and outlets exist. Diversity is the bedrock of resilience.
- Our food system should promote **self-knowledge**, or research on food, collaboration between food actors, flows of information across a food system, diffusion of ideas across foodsheds. Self-knowledge is the lifeblood of resilience.
- Our food system should be **robust** to shocks in climate and growing conditions, buffered from shocks in market and economic conditions. A key building block of robust systems is balanced permeability and interconnectedness.
- Our food should be **self-sustaining** as a system, ecologically, economically, and culturally.

## Issues within the Current Food System

Our current **food system** is a system in crisis. This system, dominated by what is commonly referred to as the **industrial food system**, falls short in a multitude of ways to uphold principles that support human, animal, and environmental health. There do exist components of this system that are not entirely broken, but many more are in desperate need of repair or, more often, need complete replacement. Let us walk through a series of snapshots of how our current industrial food system operates in ways that are in direct conflict with the *principles for a better food system* that we have outlined in the previous section.

### Health

The industrial food system does not favor healthy foods or a healthy food culture. In the industrial food system, processed or refined foods are favored over **whole foods**. Quantity reigns over quality. Industrial food culture prizes monetary savings and convenience in favor of a holistic notion of physical and social wellness. People have very little idea anymore of what is in their food or how it arrives to the grocery store shelf, leaving them unable to make healthy choices for themselves or for their community. Farmers and consumers are faceless players on the scene of the industrial food system, typically never crossing paths over a lifetime of food production and consumption. In the industrial food system, food is not place-based; it does not reflect the unique features and resources special to a given locale. The industrial food system is not a healthy system for our bodies or our communities.

#### *Bad for Our Health*

The negative effects of the industrial food system on the health of Americans are clear. In 2004, 66% of American adults were overweight or obese.<sup>i</sup> In the same year, 400,000 deaths were attributed to a lack of adequate nutrition and physical activity.<sup>ii</sup> It is clear that what we eat significantly contributes to three of the top killers of the American public – heart disease, cancer, and stroke.<sup>iii</sup>

#### *Our Industrial Food System Diet*

Because of the dominance of the industrial food system and the energy and resources devoted to growing **commodity** crops, corn, wheat, rice and soy now make up approximately two thirds of the American diet.<sup>iv</sup> These commodity crops tend to be consumed in foods that are processed along with significant amounts of added fat and sugar. Processed foods produced with large amount of corn, wheat and soy are beloved by the food industry because they tend to be easier to store for longer periods of time without spoiling. One way this is accomplished is by removing certain plant parts, such as the husks of grains, during processing. These plant parts, however, happen to be packed with nutrients; in fact, this is why removing them increases food's shelf-life – because pests seek out these nutrient-dense plant parts, rendering food far more vulnerable to quick spoilage.<sup>v</sup> In order to increase the storability and portability of food, nutrients that are *vital to our health* are being removed. Scientists have attempted to eliminate this obstacle by adding these nutrients back into foods, as seen in products that are labeled 'fortified' ('fortified' with the nutrients that they originally contained), but research has shown that these processed, 'fortified' products somehow do not fortify our bodies with health as successfully as **real foods** – foods in their original form, minimally tinkered with before reaching our dinner plate – for reasons that Western science has yet to understand.<sup>vi</sup> Research has also shown that plants grown with fossil-fuel based fertilizers, standard practice in the industrial food system, are often nutritionally inferior to the same varieties grown in organic soils for a multitude of reasons.<sup>vii</sup>

#### *How Did This Happen?*

The goal of the food industry, specifically since the 1970s, has been to grow as many calories as possible, as quickly as possible, that can be purchased for as little money as possible.<sup>viii</sup> Agricultural policies were rewritten in the 1970s to encourage farmers to plant commodity crops as densely as possible in the field. These specific crops were ideal for providing plentiful, calorie-rich, cheap food due to their tremendous photosynthesizing and calorie-making efficiency.<sup>ix</sup> The agricultural subsidies given by the U.S. government that supported these farming practices drove a vast swath of American farmers to shift away from growing a large variety of plants (*hundreds* of varieties in many cases) to a very select few.<sup>x</sup> Once grown and harvested from the farmer's field, the majority of these commodity crops are used to feed livestock, with a still large percentage devoted to the highly processed foods one can find in almost any grocery store across the United States.

### The Gap Between Consumers and Producers

The journey of food from soil to plate once was far shorter and far more varied than its journey in today's industrial food system. One recent study found that the average conventional fruit or vegetable travels approximately 35 times farther than average local fruits or vegetables.<sup>.xi</sup> In addition to excessive food miles traveled in the industrial food system, the network of food system actors along the food chain, from **producers, processors, distributors, retailers**, and consumers, has become increasingly consolidated, resulting in a shift from locally-owned small to medium size food system actors to non-locally owned large scale, centralized operations.<sup>.xii</sup> These food system actors are, as a result, often fragmented geographically either from each other or in relation to the populations they serve.<sup>.xiii</sup>

### The Informational Poverty of Our Current Food System

This structure, which widens the physical gap between consumers and producers, creates an informational gap that makes it difficult for consumers to acquire adequate information about their food and the people who provide them with it. The burden for information acquisition is placed heavily on the consumer, as non-standard voluntary labeling and marketing are the main methods of communicating the differences of local or organic foods in the United States.<sup>.xiv</sup> In order to find out detailed information about how food is grown or how it reaches store shelves, a consumer is most likely required to contact producers or processors directly, leaving information-seeking about one's food an extremely time and energy consuming process.<sup>.xv</sup> This issue is compounded by the decreasing percentage of Americans directly involved in agriculture compared to years past. While Americans tend to know little about farming, most are generally satisfied with what they do know about the various actors in the food system.<sup>.xvi</sup> When information *is* provided for consumers through labeling and marketing, there are still many obstacles to creating an informed public that can make healthy food choices.

### What Makes an Unhealthy Food Culture?

The standard Western diet, a product of the industrial food system and its partnership with Western nutritional science, has supplanted the wisdom of tradition for food choices; we now largely rely on food scientist and marketers to dictate our diets.<sup>.xvii</sup> Food that is nutritious and tastes good are necessary goals of a healthy food culture, but in the context of the industrial food system these goals are easily subverted without meaningful social interaction. In a food culture that highly values convenience and cost, the consumption of food is largely decoupled from social interaction in today's society. When food is not eaten in an intentional social setting, whether in the form of age-old ritual or newly constructed social settings, it can lead to food being viewed as nutrients to aid in our survival or a selection of flavors to satisfy our palate. This phenomenon is perpetuated by the dominance of convenient, cheap food options such as fast-food or other low-quality food establishments. When whole, nutritious food is eaten at a table with friends and family instead of fast food or other highly processed food eaten in one's car or at one's desk, food is eaten *more slowly*, in *smaller quantities*, and *enjoyed far more*.<sup>.xviii</sup>

Before the rise of the industrial food system, and the rise of Western nutritional science, *culture* used to be the sole guide for what we eat. Tweaked and time-tested over generations, cultural knowledge about what we should eat *and how*, have guided our interactions with food for millennia.<sup>.xix</sup> The growing gap between producers and consumers also subtracts from the embedded meaning in food that leads to both physical and social health. When consumers have no direct contact with the special complex of factors and conditions that provided their food, the food becomes 'faceless'. Food, then, is far more easily conceived of as fuel instead of a treasured product of the hard work, dedication, and special circumstances of both people and the environment.

## **Equity**

The industrial food system is a challenged system for equitably providing healthy food to all citizens. *Food deserts* abound. *Real food* is priced out of reach for many, whereas "**edible food-like substances**", products of highly processed commodity crops, are the only accessible and affordable items for those without adequate financial resources. Farmers, and other food actors in the food system, are not paid properly for their work – the work of providing sustenance for the American public and beyond.

### Food Deserts

A food desert is a rural or urban populated area that has little or no access to healthy foods. By contrast, food deserts often have many options for very low-quality, unhealthy foods available in establishments such as convenience stores, gas stations or fast-food restaurants. Many food deserts have been created in urban areas where grocery stores have left along with residents who have moved to the surrounding suburbs. Often public transportation has declined in food deserts, creating added barriers for financially strapped citizens without personal vehicles to obtain healthy food. When communities have characteristics of a food desert, research has shown that residents are at much greater risk for diet-related disease.<sup>xx</sup> The phenomenon of food deserts is a salient example of how our current food system does not equitably provide access to healthy foods for all.

### Pricing Paradox

Our current food system is structured in a way that provides largely unequal access to affordable, healthy food for all citizens. Not only is healthy food often not available in areas where financially strapped residents live, but healthy food is often priced higher than conventional products of the industrial food system, leaving many to feel that foods labeled local or organic are 'elitist'.<sup>xxi xxii</sup> Simultaneously, our society has unrealistic expectations for what percentage of our income we should pay for food. In 2000, Americans spent approximately 19 cents on every dollar for food, whereas they spent over double that – 40 cents – on every dollar for food in 1975.<sup>xxiii</sup> In our current food system, prices at the store rarely reflect the 'real cost of food' – the full economic, social and environmental cost of bringing food to market.<sup>xxiv</sup>

### Unfair Compensation

The lack of citizen understanding of the real cost of food sets farmers up to be underpaid for their work. There are additional forces that exacerbate this situation. With the shift from small, owner-operated farms to larger, non-locally owned industrial farms (previously discussed), farmers are often in the position where control over the way they grow food or how they price it is in the hands of processors and distributors instead of their own.<sup>xxv xxvi</sup> When these decisions are largely in the hands of processors and distributors, farmers may experience serious damage to their economic livelihoods and struggle to stay afloat or be forced to leave the industry entirely.<sup>xxvii xxviii</sup>

## **Resilience**

The industrial food system is not a resilient system. It lacks adequate space for experimentation and innovation for food production and distribution techniques, resulting in an extremely unvaried profile of procedures and products. It lacks the kind of robustness needed to absorb the shocks of changing conditions, whether they are economic, ecologic, or otherwise. Furthermore, the industrial food system is not *self-sustaining*, particularly in light of the increasing ecological and economic strains we are facing on our planet, which are bound to deepen in the years to come.

### Lack of Experimentation and Innovation

Experimentation and innovation are both key to a healthy food system, and there are far too few examples of these in our current food system.

### Monocultures of Commodity Crops

Diversity stems from experimentation and innovation. Our current food system is one of monocultures (the cultivation of a single crop) of commodity crops, where there is little diversity to be found. Due to the current state of agriculture where government subsidies have forced farms to grow an extremely limited number of commodity crops bound for large corporations, genetic diversity of cultivated plants has plummeted.<sup>xxix</sup> Towards the end of the 1970s, over 50% of the beans, potatoes and cotton varieties produced in the United States were planted with three to four varieties per crop. This plummet in biodiversity renders crops unable to weather environmental disturbances such as temperature fluctuation or pests, leaving farmers to become increasingly dependent on fertilizers, pesticides, and irrigation.<sup>xxx xxxi</sup>

### Monocultures of Relationships and Practices

Diversity issues extend beyond plant varieties to the variety of ways in which a food system can be structured and run. In the industrial food system, consolidation of small scale producers, processors, distributors and **retailers** have vastly reduced the variety of business models and relationships that contribute to a resilient, robust system. This consolidation puts control and power in the hands of the few, primarily on the processing and retailing end of the food system, leaving the entire system at greater risk for collapse if the cards supporting the house of cards happen to fall from external

pressures. The horizontal consolidation of global food retailers demonstrates this developing phenomenon. In 1997, the five largest food retailers accounted for 24% of the retail food market in the United States. By 2005, this percentage was up to 56%. The trend is continuing, and it is predicted that six or fewer food retailers will control the global sale of food, with Wal-Mart being the only U.S. company.<sup>xxxii</sup>

### Ecologically Speaking

The earth's ecological systems are incurring incredible, and at times irreparable, damage caused by the industrial food system. Industrial agricultural practices rely on enormous amounts fossil fuel-based products such as fertilizers, pesticides, and vehicle fuel to operate large equipment used to farm crops on extensive tracts of land.<sup>xxxiii</sup> The surface runoff of water from these fields can carry these fertilizers and pesticides into streams, lakes and reservoirs, resulting in cases of dangerously high levels of chemicals for wildlife and human drinking water.<sup>xxxiv</sup> Soil erosion is an additional issue to contend with as a result of industrial farming. In the United States, approximately 10 times as much soil erodes from agricultural fields than is naturally replaced. Soil erosion can also clog bodies of water that can lead to increased flooding, and decreased reservoir capacity form.<sup>xxxv</sup>

It is estimated that approximately one third of human created green house gases come from either agriculture or forestry (land is often deforested for animals to graze, or for crops that become animal feed).<sup>xxxvi</sup> Large amounts of fossil fuels are also used for transporting food around the country. In the industrial food system, distances between food actors have increased significantly as costs of transportation have decreased as a result of the subsidization of energy sources including oil, coal and natural gas.<sup>xxxvii xxxviii xxxix</sup> Dependence on non-renewable fossil fuels is not only troublesome due to green house gas emissions; the world's supply of fossil fuels is not infinite, and despite controversy over just how much we have left and when we will run out, it is clear that we must learn how to run our world, including our food systems, without relying on fossil fuels.

### Culturally Speaking

In the industrial food system, knowledge and skills are consolidated and centralized wherever food production and processing occur. Only a handful of decades ago, the average citizen was a witness if not direct participant in the very local and decentralized journey of food traveling from soil to plate. Depending on a system, such as the industrial food system, leaves local food knowledge and skills to wither away; new generations come into the world never having known that food does not grow directly on supermarket shelves. In a resource scarce future, when we cannot depend on endless amounts of fossil fuels, vast fields of commodity crops, or consistently maintained highways to transport our food to us. Localities must continue to exercise and promote cultural wisdom about how to grow their own food in order to thrive.

### Economically Speaking

In our current industrial food system, local community member food dollars leak out of the local economy, channeled, instead, to national or transnational corporations outside of local or regional areas. In a locality that depends on the infrastructure and products of the industrial food system, local farmers struggle to stay afloat, local businesses cannot support as many jobs, and the local tax base is diminished.<sup>xl xli</sup>

## Re-framing the Problem—The Complex Food System

In the previous section, we laid out some *principles for a good food system* and walked through the challenges to the current food system living up to those principles. With such intractable problems at the root of our current **crisis of food**, and unprecedented changes in store for us in the coming **era of change**, the question remains: how do we get from the food system we have now to a food system that can be healthy, equitable, and **resilient**? This next section will explore one way to approach that problem.

*[sidebar “Eating is a political act.”—Wendell Berry (Eating is a political act because it is an action within a complex system, which has consequences for the behavior of the system as a whole—not just for the person who sold you the food).]*

A key question in this design exercise was: why have contemporary efforts to reform the food system been insufficient? In the course of conversations and research, it became clear that part of the issue was in the framing of the problem: most of our efforts at improving food don't see the forest for the trees. If we desire better food, it is necessary to explore the problem not as a series of disconnected issues, but as a systemic problem. We have used the phrase the food system so far in this document, but what does that really mean? What does it mean for how we eat that our food comes from a complex system? What does that mean for how we get to a better food system?

A simple test: think back to what you have eaten today. Can you name where those foods were grown? Can you explain how those foods were processed (if they were) and how those processes work? Can you name where those foods pass through on their way to your plate? Can you even name all the ingredients? Our food systems have a bewildering complexity to them. **A complex system** is any group of interacting, interconnected components where the behavior of the whole is not obvious from the behavior of the individual parts. In short, if the whole is greater than the sum of the parts, it is a complex system. How do we know a complex system when we see one?

### Attributes to a Complex System

**Emergence**—Perhaps the key aspect of a complex system is that there is *emergent behavior*, or characteristics of the system as a whole that are not obvious and are unexpected from any simple combination of the constituent parts of the system. In fact, many of the negative behaviors of the food system as a whole can be thought of as emergent behavior. For example, the **commodity crop** subsidies intended to boost production (and did) then led to an explosion in processed foods. These processed foods transformed Americans' eating habits and are linked to obesity and the other food-related health epidemics. So, the modern health epidemics emerged out of the post-war industrial food system. From the farmer to policy makers to grocers to consumers, the health consequences were an entirely unintended consequence that no one expected or intended.

**Flows**—As a consumer in our modern industrial economy, it's hard not to be aware of the scale and diversity of the flows of goods, energy, and information across our economy. These flows are the lifeblood of a complex system, and a central feature to our existing food system.

**Surprise & Non-linearity**—Another tell-tale aspect of a complex system is that it exhibits *surprising* behavior. This is best illustrated by example: One bad batch of peppers is shipped from Mexico to central processing plant in the US, contaminating (let's say) a 1 ton batch of tomatoes. The tomatoes come into contact with machinery, transport equipment and other tomatoes, spreading the contamination to 10-100 tons. Since we cannot isolate where the contamination came from (it took weeks to learn it was actually from peppers) tomato and pepper sales across the country are suspended, resulting in disposal of thousands of tons of tomatoes and peppers, and totaling 100 million dollars in losses.

In short, any reaction does not have an equal and opposite reaction; that is the element of surprise. The response could be anything from no reaction to a catastrophic reaction; that is what complexity scientists mean by non-linearity.

**Diversity & Building Blocks**—Building blocks can be thought of as the pieces of a complex system. Many of the building blocks to the food system are familiar, such as grocery stores, cattle cars, refrigerators, farms, grain silos, and so forth. Diversity gets paired with building blocks because all complex systems have a diversity of building blocks, but how diverse and what kind of diversity dictates what kind of complex system you have. Keep this in mind, since will be more on this later.

**Information Management**—Another central feature of complex systems is that they are alive with information. Complex systems carry many structures for learning—creating information about itself and the world outside the system, for transmission—moving information from one node in the system to another, and storage—keeping useful information around until it is needed. Some kinds of information management with the food system is familiar, such as the labels on food in the grocery store. If a complex system wants to learn and grow and adapt, information management is essential.

**Internal Models**—Perhaps the most elusive and important concept to a complex system is the idea of an internal model. An internal model is how a system thinks of itself and its place in the broader world; it is like the philosophy on life that a complex system has. Internal models have the power to sync the efforts of many actors scattered throughout a system, coordinating what the actors in the system expect and how they anticipate the future. The financial crisis, our ecological crisis, our political crisis, each can be seen as a crisis of internal models, where the accepted, shared internal model for our world seems now to be insufficient to properly explain the world. In a complex, adaptive society, these moments of internal model crisis are the moments of profound change, as other competing internal models that have been waiting in the wings suddenly take the stage.

What lessons can we take from looking at the food system as a complex system? The examples provide a sense of the *law of unintended consequences* with complex systems. If any action is taken without considering how it will affect the system as a whole, it will inevitably have consequences that it did not intend. It is a reminder of how powerfully important a diverse, pluralistic society is: without those competing models of the world, in times of crisis there would be no shift, no willingness to let go of values and practices that are no longer in our best interests. In the words of the great systems thinker Donella Meadows, “it is in the space of mastery over **paradigms** that people throw off addictions, live in constant joy, bring down empires, get locked up or burned at the stake or crucified or shot, and have impacts that last for millennia.” If we intend to change the behavior of the food system as a whole, we must generate system-wise solutions. The *kind* of system we have matters; it makes a difference in how it behaves and how well it meets our needs. Building a good food system means thinking about both the problems and the solutions in terms of systems.

## A Tale of Two Systems

To take this a step farther, what kind of complex system is our food system? What kind of system do we want? There are many different kinds of complex systems. This next section will introduce two different kinds of complex systems. One, a **Highly Optimized Tolerance System (HOT)**, is a nice description of the food system that we have now. The other, a Complex Adaptive System (CAS), provides the basic principles and constraints of the kinds of food system we might want. We’ll use the characteristics we introduced above to explain how they are different and similar, and why one kind of system makes a good food system and the other doesn’t.

### Highly Optimized Tolerance (HOT)

One flavor of complex system is a Highly Optimized Tolerance System. A HOT system is a system “where design or evolution create complex systems with features like high efficiency, performance, and robustness to designed-for uncertainties, but are hypersensitive to design flaws and unanticipated perturbations.”<sup>xiii</sup> HOT systems are the hallmark of both natural and human design, being an end-product both of species evolution and of a rigorous engineering process. Both in nature and in our designs we see an **internal model** at play that sees the world as finite and knowable, where the problems faced are predictable, and coming up with one right answer is possible. Because of this, specializing to deal with the particular task or problem you will face is not only possible but a very good thing. Out of this penchant for specialization **emerges** a strong trend towards efficiency, and designs that are remarkably robust to the expected. This push for efficiency plays itself out in its **information management** and its **diversity and building blocks**, as only what information is deemed essential to specialization and the components involved in the most efficient and robust arrangement are produced, transmitted or stored. There is a fierce selection amongst the building blocks of the system, as diversity is useful—only as long as it serves the master idea of driving greater efficiency. The resulting **flows** within a HOT system are powerful, generative, and linear. The flip side to HOT systems is that they are vulnerable to the unexpected. HOT systems become volatile at the margins, and are likely to have **surprises** causing catastrophic collapse. So in short, a HOT system is fantastically good at what it is adapted for, and quite fragile outside of its comfort zone.

Consider the Boeing 777. The story with the 777 goes that these planes are so multiply redundant that knocking out any one system won’t cause the plane to crash. Even punching a hole in the wing won’t take it down: the system knows how to learn about “wing holes” and keep the plane steady. On the other hand, the 777 wasn’t designed for a

Phoenix summer. Call it an oversight, but it was never expecting to have to take off in 122 degree heat, and consequently it cannot compensate for the thinness of the air. A plane that can fly with a partial wing, but can't take off in Phoenix in July: robust to the expected, and fragile to the unexpected. A quintessential HOT system.

### Our HOT Food System

In fact, our food system is much like the proverbial Boeing 777. Like the Boeing, our food system has become highly adapted to a few expected conditions, such as cheap abundant fossil fuel availability, free and unfettered international trade, and a policy framework that promotes agribusiness and large scale food retailing. Like the Boeing, the structure that it has evolved into is highly efficient, able to provide cheap, abundant food on a scale never before seen. Like the Boeing, the system is fragile to disturbances, as our tomato-pepper scare illustrates.

These similarities are disturbing, but does the structure of our food system really match the structure of a HOT system? As it turns out there is a surprising correspondence. Fitting with HOT system **internal models**, the idea of progress drove agricultural innovation towards not only greater specialization but a narrowing of the human control over food production. Foods themselves were capable of being analyzed and reduced to nutrients. The assumption of the internal model is that the problems with producing more and better food were knowable, and we could control them. The **emergent** consequence of this mindset of progress was the remarkable increases in efficiency seen over the 20th century. Corresponding increases in robustness can also be seen in farm output—up to a point. As with a HOT system, the food system experiences a selection pressure against **diversity** and for only the most efficient building blocks. As a result of the specialization pressures, from the “get big or get out” movement of the 1950s to the progressive narrowing of food types seen on shelves to the reduction of food outlets to big box supermarkets (present farmers market movement, which in volume is a blip, excluded), has driven a fierce selection for only the most efficient. The result has been fewer actors with ever greater efficiency advantages within all sectors of the food system.

Just like in a HOT system, the pressure on **information management** has been to provide only what is deemed necessary to specialization and efficiency. The resting state of our food system is, in fact, to transmit only price as information: the only necessary information for maximization of producer consumer efficiency. While regulation has provided more information to consumers in labeling and monitoring, each change to this has been predicated on strong consumer pressure leading to regulatory action. We've even lost food culture and other ways of transmitting **information** across a society about food due to this system. The resulting flows within the modern food system are the quintessence of a HOT system. Powerful specialized actors pump massive flows of energy and product all over the globe, generating surplus value for consumers and surplus revenue for producers.

The kicker is the similarities in terms of **surprise**. While the food system is robust to the things it was planned for, as a life cycle analysis of our food system's dependence on fossil fuel inputs demonstrates our food system is quite vulnerable to collapse when the unexpected happens (like a shortage of fossil fuel availability). As the volatility to food commodity prices illustrates, our food system can get remarkably **volatile** at the margins of the expected.

### Lessons from a HOT food system

If we accept the premise that our food system can be characterized as a HOT system, what does this mean for how we address the current issues and future challenges to our food system? First, because a HOT system is dependent on initial conditions, if any of the underpinnings of modern life change, our food system is vulnerable. Since the abundant, cheap energy availability upon which the current food system depends is likely to contract, and ecological systems into which our food production methods are intertwined are likely to become increasingly strained, **our food system is vulnerable to exactly the kinds of changes we can expect to see**. In order to reach a food system that can weather the challenges of an age of uncertainty, it is necessary to move to a kind of system that is **resilient** in a way a HOT system is not.

**Second, because of hyper-optimized interdependent rigidity of the HOT food system, it is very difficult to produce systemic changes in behavior of the food system.** As the 'Issues with the Current Food System' section illustrated, despite many efforts at reform, it has proven difficult to produce significant improvements on these issues within the current food system. The consequence of the structural inflexibility of our HOT food system is that the issues of **equity and health** of the current food system cannot be addressed within the current food system. Addressing those issues will mean moving to a different kind of architecture for our food system.

The take away from examining our food system as a HOT system is simple: if we want a healthy, equitable, resilient food system, we can't get there from here. In order for our food system to fulfill those requirements, it will have to have an entirely different kind of system architecture from a HOT system. So, what kind of system do we want?



### A Complex Adaptive System (CAS)

An alternative flavor of complex system is a Complex Adaptive System. The differences between it and a HOT system are striking, and begin with its **internal model**: the world can never be perfectly known, and the future never entirely predicted. Given this, curiosity and a tolerance of experimentation are paramount. Think of a healthy CAS like a healthy democracy. What **emerges** from this is one of the most common paradigms in nature: decentralized control that balances multiple goals in order to create a flexible, adaptable system as a whole. Rather than restrictive, its structures foster the **diversity** and proliferation of new building blocks. Part of what a CAS system is doing is constantly inventing new **building blocks** and trying out new arrangements. The churning diversity to a CAS systems means that it is constantly changing, experimenting with new ideas and structures, and learning for mistakes and failures, and pumping out ideas, innovations. This in turn provides new institutions, providing the seed stock of better systems and the foundation of new things when conditions change. In order to support such a diversity of actors, CAS systems foster a rich production, storage and movement of information. Like a balance between local, state and federal power, **flows** can be characterized as a balance between cycling and linear, with many retaining value within a particular sub-systems of the whole. Unlike in a HOT system, parts can have considerable autonomy, even being in conflict with other components. The consequence of this architecture for the **surprises** of complexity is that while there are more frequent small failures and perturbations, there are much fewer catastrophic ones.

A consequence of a CAS system being flexible and experimental is that it cannot be optimized for any one thing like a HOT system can. If a CAS town and a HOT town were to go to both produce food and were trying to optimize for lowering cost, the HOT town would always produce the cheaper food. On the flip side, an advantage of the CAS architecture is that it can do multiple optimality, meaning it can balance many goals and make improvements towards all of them. If a HOT system and a CAS system were preparing for an exam, it is as if a HOT system thinks that it knows all the problems that it will have to solve, and is working toward one best answer to each. A CAS system believes that it can't perfectly predict the problems it will be asked, and so it tries to improve its ability to answer many kinds of problems that it may face. So, a HOT system is excellent for dealing with knowable problems in a certain world, while a CAS system is excellent for dealing with complex problems in an uncertain world.

So, if we desire a system that can balance the demands of being healthy, equitable and resilient, a CAS system is capable of striking a balance. If we desire a system that will not collapse under significant changes and can put up with some hecticness, a CAS system is a better fit. If we desire a system that can be pluralistic, testing many strategies simultaneously to look for better answers, a CAS system is a better choice. So, how do we get a Complex Adaptive Food System?

### **Localization—What It Is, What It Is Not**

One to transform a system is through localization. Localization is a recently much talked about concept, with many different ideas about what it means. So, it may help to first clarify what localization means to this exploration.

- **Localization is a pressure towards shorter and more direct connections.** Rather than your food passing through ten hands to reach you, a more localized connection might mean it touches two.
- **Localization doesn't mean fewer connections, or connections of poorer quality.** In fact, it can mean connections that are *informationally richer* and provide us with a better quality of life.
- **Localization is a force (a verb).** That force can strengthen the local through empowering communities to generate vibrant economies that are less dependent on global markets and less vulnerable to economic downturns.
- **Localization is not just local (a noun).** It does not imply isolated communities that are cut off from the world.
- **Localization is a systemic pressure.** It is like a wind through a forest, creating a diffuse but powerful force on many things. Localization is a pressure that can provide balance to the forces of a globalized world.
- **Localization is not the same thing as anti-globalization.** In fact, through a balance of the pressure of localization on a system and globalization on a system, a system can find a balance where it is both connected and self-reliant. This balancing of short connections and long connections is what produces resilient systems.
- **Localization is an adaptive strategy.** When a system is overstretched, localization is how it returns to a more robust state to weather harsh conditions. Systems that possess a sufficiently localized structure are "shade-tolerant", making them able to thrive under otherwise adverse conditions.
- **Localization is not regressive.** We are not working with the same world we had 200 years ago; localizing from our current state will never recreate the past. It does not imply a return to the past, or to old social structures, norms, or

methods of cultivation. That said, our past was more localized: when we were mostly farmers, and lived in close-knit communities. There are social institutions and practices from the American past that may be valuable to localizing in the future.

●**Localization is a social process.** It requires a community in implicit consensus that change is needed. Reaching such a consensus requires a community actively seeking to empower itself, producing the relationships, assets and plans to work together towards a shared end.

●**Localization is not just a means; it is an end in and of itself.** Localization carries many instrumental benefits to the changes it brings, but perhaps its most attractive attribute is the intrinsic value that localizing grants a community. By undergoing the process of localizing, a community takes on a different philosophy on what the good life means, and how one lives it. Living the patterns of localization—tending your garden, attending community planning meetings, etc—are a part of that good life.

## Localization as an Adaptive Strategy

If localization is a force that can help to transform a system, how can we use localization to generate a food system that can be healthy, equitable and resilient?

### Using Localization to build a CAS

To return to Donnella Meadow's comment about points of leverage for transforming a system, the most important change to be made is to the **internal model** to a food system. Perhaps the most important force localization provides is to push the loci of decision-making from a few at the top of the pyramid to many closer to the base. This decentralization of authority accomplishes a few important things. First, it shifts the operational philosophy of a system from the belief in the primacy of top-down authority to the belief that distributed wisdom is best.

Second, this shift in the loci of decision making creates the space for experimentation—an essential ingredient to producing the culture of innovation our food system needs. Generating **building blocks** of a better food system, and experimenting with new arrangements of new and old ideas cannot happen without that culture of innovation.

Third, by pushing back from universal system coordination (a globalized system) towards a more localized system, it provides the space for many different opinions about what is best. This, in turn shifts the paradigm of the system from one of optimization for the One Right Answer to a philosophy of many right answers. Localizing a system suddenly pivots its values towards tolerance of divergent, **diverse** opinions and strategies. Localization can help strike a balance within a system amongst competing needs. Localization shifts a system's internal model to being one of pluralism, a distributed democracy that provides a playground for experimentation and innovation.

By connecting local actors more frequently with other local actors, localization produces **flows** of a very different nature within a system. A localized system will be characterized more by cycling flows that generate value localized to a place and less by linear flows that generate value over long distances. Like the global capitalism, such linear flows are powerful, but the most resilient, equitable systems are built by striking a balance between long and shorter flows.

By shortening the distance of the connections between actors in the system, localization not only changes the amount of **information** that might flow across the system, but it changes the quality of that information as well. By providing a balance between local connections and global connections, localization provides a balance between interconnectedness and autonomy. Properly localized systems produce a rich interconnectedness and a permeable boundary to outside systems, produce better informed actors, more appropriate innovations, and more vibrant systems. Like a healthy democracy, such vibrance, while chaotic, is the lifeblood of resilience, producing a churning, ever-learning and adapting and strengthening system that is less vulnerable to **surprise**. Localization is a primary way of increasing the resilience of a too HOT, over-stretched system.

At the end of our whirlwind tour of the complexity of a food system, hopefully a few things are clear. First, our food system is a complex system. Second, it matters what *kind* of food system we have. Third, our current food system is a Highly Optimized Tolerance System, and that comes with some problems. Fourth, we would prefer our food system be a Complex Adaptive system. Fifth, localization is a wonderful method for transforming complex system, and can help us produce a CAS food system.

Having walked through conceptually how localization could generate a better food system, how might that work on the ground? The next section will explore the **institutions and tools** that could be used to localize the food system in your **foodshed**.

## Localizing a foodshed: New Institutions

### Doers

- The Local Grocer
- The Gatherer

### Generators

- The Catalyst
- The Foundation

### Facilitators

- The Proponent
- The Law Lab
- The Certifier
- The Food School

**The Food Shed** that we have envisioned is comprised of eight different institutions that can be classified as Generators, Facilitators or Doers. Generators will help to supply necessary funding to start up and continue operations within the Food Shed. Facilitators will provide support and services for the development of the institutions and local communities. Doers will conduct the ground level work needed to provide healthy food from within the **foodshed**. Each institution has a

separate mission that contributes to the success of the Food Shed. The institutions will likely develop in different stages depending on the specific foodshed. Although many of these institutions may currently exist, we find it necessary to house these organizations under one unifying roof, the Food Shed, therefore creating an improved sense of communication, cooperation and creativity. Each organization is discussed in further detail in the following pages.

## **THE FOOD SHED**

### **What is the Food Shed? (Characteristics)**

Mission—The **Food Shed**, a **multi-tenant non-profit center**, seeks to provide a hub for efforts within the **foodshed** to foster a more localized, healthy, equitable, and **resilient food system**. The Food Shed seeks to provide the forum for the informal governance of an emerging **local food system** within the local foodshed. Through the inclusion of **food actors** and citizens of the foodshed into a democratic process of collective governance and collaborative problem solving, the Food Shed will help to enable the continued stewardship of a healthy, equitable and resilient local food system.

[sidebar **Financial Structure**— Umbrella 501c3 Non-Profit]

### **Revenue/Operating Structure**

- **Sufficient**—Yearly operating funds provided by local and regional philanthropies.
- **Ideal**—An endowment underwrites the yearly operations of the space, (possibly supplemented by tax support from municipalities within the foodshed)]

### **What the Food Shed Does (Activities)**

**Multi-Tenant Non-Profit Center**—Provides a physical home, as well as administrative and office support services to all member tenants of the Food Shed. It is hard to do good without having a space to call home. For many non-profits and publicly interested organizations, funds are lacking to secure quality workspaces. The most basic goal of the Food Shed is to provide a home to publicly-interested organizations working on any and all issues within its foodshed. Organizations with common interests sharing a home provides the opportunity to exchange information and ideas, forming the basis for deeper relationships between **food system actors**. Deeper relationships and richer information provides the seed crystals for collaborative problem-solving and innovation, the critical ingredients to continued food system stewardship.

**Umbrella 501c3**— Acts as an umbrella entity for member organizations and other new non-tenant food actor organizations, freeing new non-profits of the burden of establishing non-profit status.

**The Food Shed Forum**—Structures an inclusive informal governance process amongst citizens of the foodshed and food system actors, providing a forum for conversation, cooperation, negotiation, guideline and rule drafting. It would be of critical importance to ensure a broad democratic representation within the forum, including **producers** of all types, consumers from a wide demographic, the various institutions within the Food Shed, local government, and other food actors based externally to the Food Shed. Such a forum of informal governance across a diversity of actors enables robust system-wise collective decision-making about the future of the foodshed.

**Help Desk**—Provides coordinated support to citizens regarding the resources of Food Shed members.

### **What the Food Shed Accomplishes (Outcomes)**

**Collaborative Innovation & Solution Design**—By creating a physical space where key actors from the food system will be in daily contact, the Food Shed provides the opportunity for a constant flow of information and relationship-building. Such relationships and exchanges of knowledge are prerequisites for collaboration and innovation. The Food Shed provides the basis for ongoing problem solving in the arena of localized food systems.

**Food System Stewardship**—By providing a forum for the citizens of the foodshed to come to the table with other actors within the food system, the Food Shed provides the ability to come to negotiated, durable system-wise solutions. In time, such a forum could become the basis for local food system governance, ensuring an active engagement with problems and a changing reality as they arise. The Food Shed will also ensure the food system is stewarded for the long-term benefit of all.

### **What is Needed to Get the Food Shed Started?**

**Exploratory Committee**—Identifying the individuals with the necessary skills and motivation to see a founding process through to completion.

**Siting Process**—Finding a suitable location for the Center that balances the initial demand for space with the potential for growth and the necessary requirements of a collaborative environment and public meeting hall; location will be important. This would include a planning process to involve municipal governments, existing food actors, and citizen input. A food access analysis will be completed to determine a synergy between an appropriate functional location for the Center. The location should be located within or in close proximity to a food desert.

**Fundraising/Seed Capital**—Identifying initial investors to provide the seed capital for the purchase and outfit of the space is essential. Assembling sufficient operating funds to ensure to tenants the longevity of the Food Shed will also be critical.

**Call for Tenants**—Critical to the success of the Food Shed is making it an accessible resource to existing food actors.

### **Stages to Development**

**Launch Stage**—This will be centered around establishing the Food Shed as a shared resource for existing food actors.

**The Teenage Years: Founding and Take-off**—After establishment, the focus will shift to providing the needed resources to incubate and launch other proposed food system localizing institutions, such as the Gatherer, Local Grocer, and Catalyst (which will be discussed in detail later in the document).

**Maturity: Forum for Informal Governance**—As a mature local food system forms, the emphasis will shift to providing the forum for informal governance of the food system. This will be the last, most difficult and most important role that the Food Shed will play within the local food system.

## **THE LOCAL GROCER**

### **What is the Local Grocer? (Characteristics)**

The Local Grocer is a network of grocery store outlets with a mandate to provide access to healthy local foods in existing food deserts and under-served communities at a reasonable cost.

Mission—To ensure that healthy spread of local foods are available to all citizens within the **foodshed**.

[*side bar* Organizational Structure—**L3C business**]

**Revenue Stream**—Sales of local produce and food products to local residents at low margins.

### **What the Local Grocer Does (Activities)**

The Local Grocer is an *L3C business*, with a mandate to provide healthy foods to all citizens within its foodshed. In order to best reach the community, it may employ a combination of different retailing structures, using anything from a small neighborhood grocery store model to evening farmers markets to a mobile market. The Local Grocer will work closely with a Gatherer L3C, (or coordinate directly with local **producers** if no Gatherer existed) to connect a diversity of local producers to local consumers. It will prioritize working through a local distribution network or with direct partnerships with producers. Sourcing from a national distribution network will be on an as-needed basis. The Local Grocer will work in partnership with the Food School to design its stores to encourage healthy, seasonal, local eating, and will provide access to information about the **local food system** as an *imbedded* part of its retail model. The more people buy who from the Local Grocer, the more people purchase from and are aware of the local food system. The larger the market for local foods, the stronger local growers become.

In this way, the Local Grocer is the front end of a virtuous cycle that helps to connect local consumers to local producers, propelling the localization and strengthening of the **food system**.

### **Key Partnerships—**

- The Food School—educational outreach partnership
- The Gatherer L3C—evolving supplier relationship
- The Certifier—monitoring and regulating relationships

### **What the Local Grocer Accomplishes (Outcomes)**

**Improved Community Access to Healthy Food**—The L3C business structure couples a mandate to generate public good with the ability to occupy the most difficult and under-served market niches. This enables the Local Grocer to prioritize opening stores in food deserts, in distressed communities, and in other markets where grocery chains have been unwilling to operate. Its coupling with a decentralized distribution system allows it to reach financial solvency at a small scale, meaning it can meet market demand by opening many smaller stores, increasing coverage and decreasing the barriers to access for local residents.

**Reasonable Cost to Consumers**—The L3C structure also allows the grocery to keep margins low, providing local foods at a reasonable cost to consumers.

**Expanded Market for Local Food Production**—By providing numerous outlets which are plugged into a local distribution system, the Local Grocer provides a market outlet for local farmers and community growers.

**Raising Community Awareness and Knowledge**—Through its partnerships with the Food School, the Local Grocer's stores are designed so that foods are arranged and displayed to implicitly and explicitly convey the story behind local whole foods and information about each food. A consumer in the store can learn about what is local, what is in season and what provides a balanced diet. Through this passive education store design, consumers gain a better understanding of local food economies, seasonality and healthy eating.

### **How the Local Grocer Develops (Stages)**

In the initial stages, the Local Grocer can simply be an L3C grocery sited in an under-served community with a local emphasis. Over time, it will evolve into a distributed network of endpoints for a robust localized food system. In order to effectively increase in scale of operations and the scope of access provided, however, other components of a local food network will have to develop concurrently. For instance, the Gatherer will need to expand the volume and breadth of producers and goods in order to offer a local fair cost alternative to sourcing from the existing distribution system. A possible Catalyst and incubator kitchen partnership will need to foster local value-added packaging and processing capacity in order to expand the range of quick-sellable consumer goods available.



## **THE GATHERER**

### **What is the Gatherer? (Characteristics)**

Mission—The Gatherer will cultivate a robust local food economy by creating a decentralized, local-centric food distribution network. This alternative model for the movement, management and distribution of foods and information about foods throughout a **foodshed** can provide a different economic playing field to local **producers** and qualitatively better sourcing for grocers, restaurants and other food purchasers to local foods and food products.

The Gatherer local distribution network would use an **L3C low-profit business** structure to better align the incentives of the organizational structure with the role it plays for the public. L3C—The decreased required **rate of return** on investment allows the Gatherer to be a low profit margin business and allows it to grow slowly to maturity. The Gatherer provides the connective tissue between local demand for local foods and food products.

### **What the Gatherer Does (Activities)**

The Gatherer will buy local produce and food products from a broad range of local producers, from large, medium and small farms, community gardens and urban farms to backyard plots and rooftop gardens, and sell to a range of food outlets, from restaurants to individuals to existing grocery chains to Local Grocers. Using **just-in-time** logistics management, it will create a local distribution network using a minimum of trucks and local transport, while still providing timely point to point pick-up and delivery. Rather than being demand driven like the current supply chain, the Gatherer can be supply driven, responding to the flexibility needed by small scale producers. This ensures that local farmers can be “in the game.” What food is available responds to the changing seasons.

In addition to providing the connective tissue between local producers and consumers that are close in space, the Gatherer would connect demand with supply over time. When more apples are grown than can be bought in the summer, the Gatherer will store produce for cross-seasonal sale. In winter and spring as the local availability of fresh apples has disappeared, the apples can be supplied to consumers. When using passive cooling techniques and stored properly, this could provide higher quality produce at lower costs, with a smaller environmental footprint than sourcing an apple from the southern hemisphere.

### **What the Gatherer Accomplishes (Outcomes)**

**A Supply-Driven Distribution Network**—A flexible, *just-in-time* collection and distribution system that is responsive to when producers are able to supply produce. This not only makes for a supply-driven distribution system, but a consumer-producer relationship that is connected to the rhythms of season. This doesn't diminished availability- a mature foodshed's Gatherer that is interlinked to other Gatherers in other foodsheds will provide a wide diversity of foods, and will help to smooth the seasonality of their availability. The supply-driven distribution network will, however, help to make consumers conscious of what is in season, why it is more flavorful and how to make use of foods in season.

The Gatherer home office, based in the Food Shed building, keeps the whole operation humming. The Gatherer will maintain a website for producers and buyers, keep a handle on the information management to all the pick-ups, storage, and deliveries, and will coordinate the logistics management of produce throughout the foodshed and exchanges with other foodsheds. For example, as a request for a pickup comes in through the website from the Arbor family, it is tagged with a pickup time window to ensure it is collected while still fresh. The request goes to John's truck, one of the several trucks making pickups and deliveries through the neighborhoods. John's rounds, which are reminiscent of a FedEx run, pick up from hundreds of small scale producers in the course of a day. Larger trucks deal with local farms, which have much larger orders. After John's truck is full, he delivers some of the produce directly to the buyers who already have requests out: some produce goes to restaurants, some to local groceries. Some of it is placed in the decentralized storage trailer—a passively cooled tractor-trailer parked in an unused parking lot. Most of it finds a buyer within days; the remainder is frozen, to be stored until winter when it will be sold as re-thawed fresh produce. The Arbor's tomatoes are stored until there is a request from the neighboring foodshed for tomatoes. After the neighboring foodshed's delivery truck has unloaded, it picks up the tomatoes and other orders from the trailer storage, and heads home, to sell the tomatoes to the waiting buyer: a restaurant. The tomatoes are delivered the next morning, and served at lunch. Total transit time: 4 days. Total distance: 10-40 times fewer miles than with a traditional distribution network.

**Shrinking the Gap**—Providing a localized distribution system shrinks the distance between producers and consumers, provides food that is healthier, allows consumers to be better informed, helps communities retain wealth and reduces the environmental impacts of moving and storing food.

**Reduced Transit Time and Distance**—Shortening the distance between producer and consumer means transit times can be drastically shortened, meaning that spoilable produce can be picked closer to when it is ripe, providing foods that are more healthy.

**Informationally Rich Distribution Network**—A key value added to a local network is the richness of the relationships developed with local producers and buyers. The Gatherer can convey a valuable set of information from producers to consumers about the quality and growing conditions of their foods. Buyers can better understand the “why” behind the costs, providing a passive education on the value of buying locally and the true costs to production. The Gatherer can be a thermostat of buyer concerns, questions and feedback, providing a valuable source of information to producers so that they can make more informed choices. This informational feedback is a critical improvement on the informational poverty of our current food system.

**Lower Overhead to Sourcing Locally**—One of the most often cited barriers by restaurants, cooperatives and grocery stores to buying locally is time and energy involved in developing direct relationships with producers. A Gatherer ensures that those who want to buy local can buy local by reducing the barrier to local engagement without a loss of information.

[Think of a buyer for The Gatherer as a *sommelier of local produce*, knowing the producers and their products like the back of his hand, acting as an ambassador of knowledge between buyers and sellers. As a specialist in local foods, a local food sommelier can manage those relationships and provide an **equal or better** base of information on local foods, seasonality and product qualities to consumers.]

**Supports the Development of Local Producer Diversity**—Diversity is the backbone of a robust food system; one which provides not only a rich variety of goods to local consumers but has many different business models and cultivation types. This diversity of producers, who respond to different incentives and stresses, provides flexibility to a food system that a series of relatively homogenous agribusinesses lacks. By providing a decentralized supply network that is capable of picking-up orders of many types and sizes at many locations, the Gatherer can accommodate a wide variety of producer types.

**A Decentralized, Flexible National Distribution Network**—As adjacent foodsheds acquire mature Gatherers, a low-impact network of exchange can be built to connect consumers and producers in neighboring regions. As localized food systems emerge throughout the country, they can coordinate the exchange of information and the movement of goods to create an economy with greater flexibility and greater variety than exists at present while still maintaining the integrity of a **local food system**. In this way, a decentralized national network can provide access to the bounty of the nation’s agriculture while still prioritizing by distance and community. A decentralized network with modern information management and health practices can also avoid the pitfalls of centralized distribution and processing bottlenecks that have poor consequences for food safety.

The Arbor family of four grows tomatoes and spinach in their backyard. They eat some of it, give some away to neighbors, but still have quite a bit left over. When a few baskets of tomatoes are ripe, the Arbors get on the Gatherer website, and request a pick-up. They enter in the details of what kind of tomato, how much is ready, the tomato quality and when the tomatoes will be ready for pick-up. This is paired with the information on the family’s plot profile, giving details about the growing conditions and practices and any chemical application (hopefully none), etc. The next day, a Gatherer truck swings by the house and picks- up the produce left on the porch in the baskets. The family will receive a credit for the produce sold. The tomatoes are then taken to a storage trailer. Meanwhile, the local buyers can log on to the site and specify what kind of producer they want to purchase. For example, a local grocer buys the Arbor family’s tomatoes, along with other tomatoes from that neighborhood. The tomatoes stay in the storage trailer overnight, and are picked up and taken in a shipment that arrives at the grocery that day. The total distance traveled: about the same as a trip to the grocery store and back (compare this with the average for a grocery tomato of 1500 miles). Total time from picking to store shelf: two to three days.

**What is Needed to Make the Gatherer Happen?**

Research drawing on the just-in-time sourcing logistics management innovations is necessary; this could be as high tech as the sophisticated movement management software and GIS that Fed-Ex and UPS employ, or it could be as low tech as the horse-drawn carriages.

After the distribution model has undergone its “*proof of concept*”, then other communities could adopt the Gatherer model with significantly less money and resources required at the outset.

Some initial conditions are necessary to give the Gatherer business life:

- Local producers looking for better outlets for their food and the potential for the growth of local production
- Nascent market demand for local foods (proof of market)
- Local investors/philanthropies interested in making a long-term investment in their foodshed
- Feasibility study of the business model for a particular foodshed

This is likely the project of a local social entrepreneur who is familiar with the community and knows its markets, needs, assets, and has a sense for when a community is “ready” for the Gatherer to be established.

### **How the Gatherer Develops (Stages)**

**Pre Launch**—After conducting a feasibility study that has determined readiness to launch, the first stage will consist of securing funding from a local Catalyst (explained below) and other investors, developing the network of contacts, setting out the needed resources (trucks, storage units, etc) and tailoring the logistics management system to the foodshed.

**Symbiotic Expansion**—Once established, a Gatherer may prove to be the benchmark of a local food system’s growth. It will expand in operations as demand increases, both in number of outlets and in supply, as farms switch to selling local and as more local producers, of all varieties, come online.

**Joining Hands**—As Gatherers emerge in neighboring foodsheds, the challenge will be to join forces to create mutually beneficial exchanges between these neighboring foodsheds (i.e. several foodsheds in Michigan exchanging with foodsheds in Iowa) that do not create negative consequences for local producers.

**Critical Mass**—Once there is a critical mass of Gatherers, they can create not only an alternative path for sourcing local, but an alternative system for the movement of foods across regions and the country. At such a time, it will be important to create operational principles that preserve the decentralized, locally resilient, but interlinked, nature of the Gatherer structure.

**Preserving Competition**—If localization is successful, and national distribution networks become secondary to a decentralized network of foodshed Gatherers, it will be in the public interest to have several Gatherers operating within each foodshed. This will provide redundancy, choice, and **resilience** to the actors within a local distribution network, each of which is critical to preserving a system that is equitable, resilient and sustainable.

## **THE CATALYST**

### **What is the Catalyst? (Characteristics)**

Mission—The Catalyst will promote the development of a vibrant, **resilient** and diverse **food system** through providing financial assistance to local producers and processors of food.

Financial Structure—**Community Development Financial Institution (CDFI)**

### **What is a CDFI? Why is it different?**

A Community Development Financial Institution is a special kind of bank. A non-profit entity, the CDFI will focus on filling unmet needs, often in underserved communities around issues of critical importance to a community. The CDFI's social mandate will provide the foundation for micro-lending, and developing the system expertise to make informed loans and provide quality financial assistance to lenders. Many of the existing CDFIs address housing issues, providing financial assistance in low income communities to home buyers. CDFIs emerged in communities where traditional lending institutions were not willing to serve, and continue to provide access to loans to those who have no other source of lending.

A CDFI has a different financial bottom line so that the low **rate of return** (different than a low **rate of repayment**) is not a barrier to investment. CDFIs often provide loans at terms (both interest rates and repayment rates) that are better than the terms through traditional lenders. Average repayment rates remain high (95-98%) [citation]

Because of their small scale, knowledge of their served community, and circumscribed portfolio of lending, they are stable financial institutions, and have been relatively unaffected by the current financial turmoil. The presence of a CDFI provides more than simply available funds; their long term presence in cities like Philadelphia has provided an economic anchor to communities undergoing transition. CDFIs can be a tool for community asset generation, generating public goods far more valuable than the dollar values of their loans.

*“In short, CDFIs can be smart lenders to an emerging set of food producers.”*

### **Where is the money coming from?**

CDFIs get their funding from a variety of sources. Mainstream banks provide the bulk of their funding, with significant portions also coming from foundations, corporations, individuals, and the Federal CDFI Fund. A CDFI involved in localizing a food system provides an ideal social investment for investors looking to put their money into their community. To date, no CDFI has ever defaulted on a loan to a creditor.<sup>xliii</sup>

### **What the Catalyst Does (Activities)**

- Provides seed capital to business ventures fostering value-added products from local produce, to be sold locally and regionally
- Provides grants and low-interest loans to facilitate the age-transition of older farmers handing over their farms to younger farmers
- Provides financial assistance in the form of loans to farmers attempting to adopt organic and other sustainable farming practices, who are in need of funds to facilitate a transition in productivity, profitability, farm capital, etc.
- Provides micro loans to urban farmers and other small production scale farming schemes
- Provides critical capital to the Gatherer **L3C** and the Local Grocer L3C to support, launch and scale up operations.

### **What the Catalyst Accomplishes (Outcomes)**

By providing seed funding to producers of many scales and kinds, the Catalyst will promote food production diversity, an important piece of a robust local food system. By providing access to funding across marginal community, the Catalyst also addresses the issues of equity into food production.

By providing seed funding to local food processors and other new food actors, the Catalyst will promote the development of new building blocks to a resilient food system.

By providing funding to emerging Local Grocers or Gatherers, the Catalyst will help to foster the other institutions necessary to successfully localize a food system.

**Stages to Development and What is Needed to Make the Catalyst Happen?**

The stages and requirements for establishing a successful CDFI are well-documented elsewhere. Please refer to the resources available with the [CDFI Coalition](#) or with [Opportunity Finance](#).

## **THE FOUNDATION**

### **What is the Foundation? (Characteristics)**

Mission – The mission of the Foundation will be to identify missing building blocks of the **foodshed** and provide seed grants to get them established. The Foundation will appropriate its endowment to grant and provide social investment, helping to promote the development of existing institutions and non-profit/**L3C** actors.

[side bar] Financial Structure – 501c3 Non-Profit

The purpose of the Foundation will be to evaluate the progress of the **Food Shed** and then seek out and identify any missing or under-represented actors. This will ensure the highest level of innovation, integration and democratic governance within the foodshed.

### **What the Foundation Does (Activities)**

- Grant-making and social investment in new and existing food institutions
- Conducts internal assessments within the Food Shed to determine what additional actors are needed
- Reaches out to additional necessary actors

### **What the Foundation Accomplishes (Outcomes)**

***Ensures representation of the social, economic and environmental sectors of the foodshed*** – By granting to existing **food actors** and providing seed funding to necessary new food actors, the Foundation will ensure social, economic and environmental concerns are realized and represented by the Food Shed.

***Provides funding to help food actors with start-up costs***- The Foundation provides the seed funding for new and existing food actors to use towards start-up costs. Many actors who would not otherwise have the financial means to develop their ideas will have the opportunity to do so.

***Realizes the needs of the Food Shed*** – The Foundation will conduct regular assessments of the Food Shed's progress. Therefore, the Foundation will have the ability to discern areas for improvement and will identify any missing pieces that may help to contribute to a healthy and localized food system.

***Helps to close the informational gap*** – By ensuring across-the-board representation of actors, the Foundation fosters information sharing. Individuals, groups within communities, community based organizations, funders, government leaders and additional food actors will be provided with the opportunity to engage in conversation. Collaboration between all parties will help to disseminate information about what is necessary to create and continue a healthy and localized food system. Acquisition of information about food production will be much easier for the consumer because the Foundation will create a better informed and involved community.

## **THE LAW LAB**

### **What is the Law Lab? (Characteristics)**

Mission – In order to create and promote the development of a vibrant, **resilient** and diverse **food system**, it will be necessary to facilitate a legal environment that allows **food actors** to thrive. The Law Lab will provide legal services based on a sliding scale to participants of the **local food system**, especially during the transition from the current **industrialized food system** to a more localized food system.

[*side bar* Financial Structure – Operates within the Food Shed’s umbrella 501c3 Non-Profit

Revenue comes in part from fees collected from for-profit clients within the foodshed, such as the Gatherer or the Local Grocer, etc. Sliding Scale will be used with customers. ]

The Law Lab will exist as **The Food Shed’s** legal service provider. It will help farmers, local businesses, food actors, institutions housed in The Food Shed, etc., navigate any legal issues. The costs of services offered by The Law Lab will be based on a sliding scale. The Law Lab will work to establish a working relationship with local legal professionals. Pro bono legal counsel will be a public service offered by the Law Lab in addition to a staff lawyer.

### **What the Law Lab Does (Activities)**

- Establishes working relationships with local legal institutions
- Provides legal counsel for issues such as: regulations, zoning, environmental standards and compliance, worker’s rights, land easements

### **What the Law Lab Accomplishes (Outcomes)**

***Collaborative working relationships-*** The Law Lab will draw on already existing community resources. By utilizing pro-bono work, the Law Lab will encourage investment in a localized food system by the local community. Legal professionals who otherwise may not be involved will have the opportunity to shape the future of the local food system.

***Allows food actors more freedom-*** Food actors, such as farmers, will have the ability to focus more of their time and energy on their work, as legal services often prove too expensive for those with a low-income. The Law Lab will ameliorate this issue by providing sliding scale legal services housed within The Food Shed.

***Enables a smoother transition from the current food system to a localized food system-*** The Law Lab will help to anticipate any legal problems before they arise. The Law Lab will keep a detailed database of all cases to ensure detailed documentation and publicly accessible information. As the current food system progresses to a more localized food system, The Law Lab will adapt to the changing legal climate and create awareness within the community.

### **Key Partnerships:**

- Existing local legal institutions
- Land Trusts
- Farming Associations
- The Catalyst

## **THE PROPONENT**

### **What is the Proponent? (Characteristics)**

Mission – In order to advocate for a more **localized food system** and foster changes to the public dialogue and policy necessary to successfully localize, the Proponent will act as the marketing and political arm of the Food Shed. It will help to form lasting relationships between **producers**, consumers and political officials.

[*side bar* Financial Structure – an **L3C** business]

The Proponent will be responsible for helping to raise support for the shift from our current **industrialized food system** to a more localized food system. Local campaigns will help to raise awareness throughout the community. The Proponent will also work directly with producers; it will help producers learn how to appropriately market their products. Finally, the Proponent will work to assemble political support for the movement from the current food system to a localized food system.

### **What the Proponent Does (Activities)**

- Conducts awareness and promotional campaigns to support the shift to a more localized food system. The campaigns will not be “one size fits all,” but rather, will be tailored to differing demographics. These campaigns will help to stimulate demand for local products.
- Assesses the needs of consumers and helps producers fill their market niche.
- Provides marketing and public relation education to producers. Producers will learn how to create a business plan, how to market their products appropriately and how to create a strong public image.
- Advocates for necessary changes to local, state and national policies to enable the successful localization of the food system. The Proponent will work to garner public support, lobby government, create partnerships with other political actors, and interface with local media and encourage public officials to support local food systems

### **What the Proponent Accomplishes (Outcomes)**

***Creates community awareness-*** Campaigns conducted by the Proponent will help to promote the idea of a localized food system and will also promote local products. The campaigns will be educational in nature, identifying key arguments for localization.

***Assesses supply and demand-*** The Proponent will assess the needs of producers and consumers and will engender conversation about how to meet the needs of both parties while creating a more localized food system.

***Allows producers to become more market-savvy-*** By providing producers with the knowledge to successfully market their products, the Proponent helps to ensure the livelihoods of the producers and satisfaction of the consumers.

***Places the localization of food systems on the political agenda-*** The Proponent will help to create not only community awareness, but also political awareness. By interacting directly with public officials, the Proponent will strive to gain political support for the localization of the food system.

### **Key Partnerships**

- The Law Lab
- Governing officials
- The Gatherer



## **THE CERTIFIER**

### **What is the Certifier? (Characteristics)**

Mission—The mission of the Certifier is threefold: 1) To ensure the safety of food grown and processed within the **foodshed**; 2) to monitor, evaluate, rate and disseminate information on the impacts from production of the agricultural **producers** and processors within the foodshed; and 3) to ensure the legitimacy of a **localized food system**.

### **Organizational Structure**

The Certifier will be a Government Chartered Independent Organization, charged with monitoring and regulating the local food actors within the foodshed. Much like the Federal Reserve, it will be an independent organization charged with a function on behalf of the public, but is independent from government control. **To ensure impartiality, it would be located outside the Food Shed** multi-tenant non-profit center.

**Food Shed Forum Oversight Board**—A board of representatives from local government, a democratic selection of food producers and other **food actors** as well as public citizens will provide oversight to the Certifier, ensuring its authority is not for any other purpose than ensuring public safety, and will provide a more informed basis for future decision-making.

**Revenue Stream**—Revenue to support the monitoring operations of the Certifier will be generated by a point-of-sale tax on all food goods sold within the foodshed. An endowment may provide the basis for ongoing operational research. Over time, the public goods generation of monitoring the food products sold outside the foodshed would justify state funding. As local food systems gain in number, scale and coverage, local Certifiers will supplant some existing FDA activities, and may justify national funding.

### **What the Certifier Does (Activities)**

- Health and Safety Inspection and Certification of Local Producers & Distributors
- Life Cycle Impact Research into the local foodshed and its food system
- Operational Research into best practices in monitoring and evaluation of local food systems

### **What the Certifier Accomplishes (Outcomes)**

**Informational Feedback**—Any successful complex adaptive system requires a built-in feedback or mechanism for self-evaluation. The Certifier provides a clear instrument for providing such self-evaluation, giving the citizens in the foodshed and actors within the food system a clear basis for making informed decisions about how to manage the existing food system, and prepare for the future.

**Legitimacy**— In order for a local food system to be allowed to thrive in a nation in which national authority has the ability to smother local experiments, the Certifier offers the ability to prove and ensure 1) the safety of foods grown and sold within a local system; 2) the improvements achieved in terms of quality and nutrition by sourcing processing and selling foods locally; and 3) the reductions in greenhouse gasses and other aspects of the environment footprint from a localized food system.

Each of these components are critical to establishing and preserving the legitimacy of a local food system. The Certifier is the well, pumping up data and irrigating a field of transparency and trust. The monitoring activities of the Certifier lend confidence to consumers about what they are purchasing, and place local produce on a level playing field with “USDA certified” produce coming in from a global supply chain. The life cycle analysis activities provide the basis for actors within the food system to make informed choices. For instance, if a local producer is considering growing oranges in a greenhouse, the Gatherer can compare the impacts of local greenhouse oranges to sourcing them from Florida. Without an established, outwardly verifiable system of monitoring and system feedback, a local food system will be seen as a threat to the existing “safe” and sufficient food system rather than a valuable alternative **paradigm**.

**Scaling**—In the long run, the successful establishment of a certifying body is one of the most critical aspects to the development of robust interlinked local food systems. The legitimacy that comes from the close monitoring and feedback from a Certifier provides the basis for the scaling and integration of local food systems into existing large-scale

food outlet chains, and the aggregation of multiple foodsheds into a decentralized local foods network. The role of the Certifier is critical to the transition of a localized food system from simply a successful local experiment to a sweeping change in how the collective food system functions.

## **THE FOOD SCHOOL**

### **What is the Food School?**

The Food School will act as the educational branch of the Local Grocer network.

Mission – To provide education to community members about what the **local food system** offers, to foster active community member engagement around healthy, seasonal, local eating, and to offer a window into what a more **resilient** and robust food system might look like in the future.

Also vital to the educational mission of the Food School are goals for: improved access to healthy food, bringing increased ecological responsibility into the existing food system, increased community connection and greater transparency regarding products and practices within the **food system**.

[*side bar* Organizational Structure – Non-profit, under the 501C3 umbrella of the **Food Shed**]

**Revenue Stream** – Operating revenue is provided by a combination of social enterprise and grants from local/regional individuals and philanthropic organizations. Social enterprise revenue will be primarily sourced from agro-tourism, which is consistent with the educational goals of the Food School.

### **What the Food School Does:**

The Food School activities will fall into two arenas:

The first is co-managing a Local Grocer within The Food Shed as a living museum to local foods, and partnering with the Local Grocer **L3C** to design its stores and outlets to encourage healthy, seasonal, and local eating through both passive and active educational efforts.

Second, it will offer a variety of services included but not limited to: workshops and classes, providing recipes that promote local and seasonal eating, providing exposure to food growing and processing demonstrations projects, providing access to food-related goods and services outside the Food School and acting as a place of community gathering.

### **Key Partnerships:**

- The Local Grocer
- Existing food system actors
- Local schools

### **Desired Goals**

- Education
- Healthy food access
- Ecological responsibility
- Increased community connection
- Transparency for products and practices

## **Food School Goals**

### **Education**

The Food School's primary goal, making it distinct from other Local Grocer operations, would be to provide an opportunity for educating the community about what it means to live and eat healthfully in a localized food system. This educational goal would be met in a variety of ways. Educational opportunities at the Food School would be passive and

active. Awareness and knowledge about what the current and potential future food system have to offer in addition to practical skills necessary to thrive in a more localized food system would be addressed.

### ***Healthy Food Access***

The Food Store, as a partner with the Local Grocer, would prioritize opening stores in food deserts, in distressed communities, and in other markets where grocery chains have been unwilling or unable to operate. Its coupling with a decentralized distribution system would allow it to reach financial solvency at a small scale, meaning it can meet market demand by opening many smaller stores, increasing coverage and decreasing the barriers to access for local residents. The L3C structure would also allow the grocery to keep margins low, providing local foods as the lowest cost possible.

### ***Ecological Responsibility***

Ecological responsibility will be an indispensable goal achieved through the Food School's sourcing guidelines which mandate procuring foods and goods that are grown by responsible caretakers of land, animals and people, as well as through transparent product labeling allowing consumers to understand the journey of their food from 'soil to plate.'

### ***Community Connection***

The Food School would draw deeply from the wells of local community knowledge and culture to inform everything from its staffing choices to the recipes it uses to plan prepared meals available at the store hot bar. A cafeteria space would allow community members to share a meal and conversation with each other, reinforcing a culture where food is inextricably linked to social interaction. Workshops and classes co-run by community members and other community organizations would impart knowledge and skills for thriving within the local food system that strengthen personal and community connection, driving further food system localization.

### ***Transparency***

The Food School will implement various methods of sharing information regarding store policies and guidelines, product information, nutrition and farmer information. These methods may include detailed product labeling, literature and pamphlets about growers and farmers, displayed guidelines, policies and harvest information.

## **Desired Outcomes**

***Creation of an engaged and active citizenry that helps lead the way towards a more localized food system*** – The process of localizing a food system will require enormous time, energy and collaboration within a community. The more active participants who believe that localizing their food system is a worthwhile venture, the more smoothly and quickly this transition will occur. The Food School will aim to meet this outcome through its primary goal of community education.

***Responsible stewardship of the land, animals and people*** through information-rich, direct relationships between **producers** and consumers that encourage quality, responsibility and accountability. The Food School will foster responsible stewardship through reflecting 'ecological responsibility' in its food sourcing policies and in-store practices.

***Community food security*** – Community food security will be addressed as the Food School will aim to increase healthy food access to all citizens through its product selection at affordable prices. Educational opportunities on how to grow food in one's own backyard will provide an additional source of community food security outside of grocery store walls.

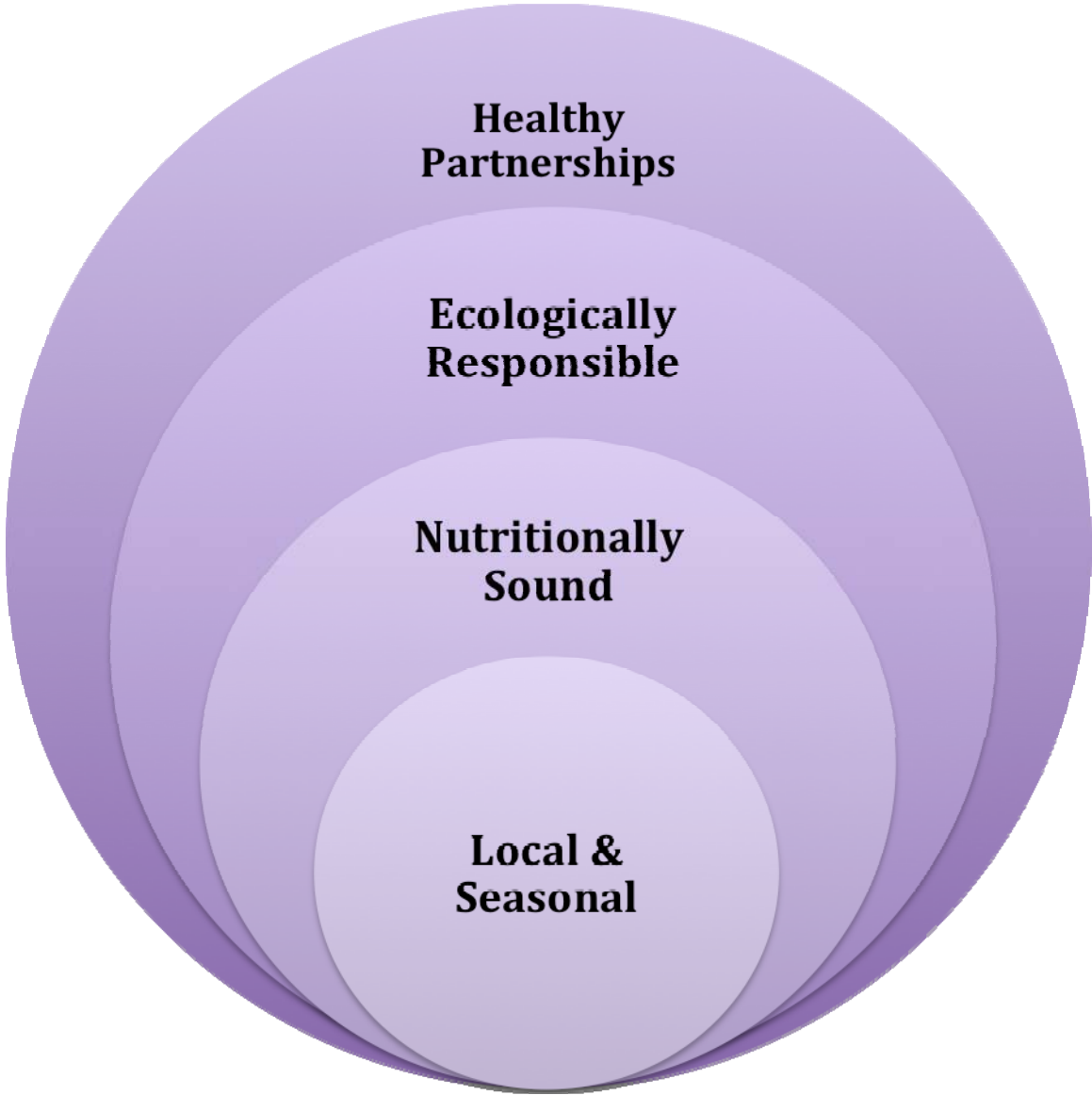
***A healthy food culture*** – The Food School will serve as a community gathering place and educational opportunity to learn how to reincorporate food into our social lives in a way that encourages healthier choices for our bodies and our communities. Increasing community connection through interaction within the store and through learning more about how to become an active member of the local food system will work towards this outcome.

***Expanded market for local food production*** – By providing numerous outlets that are plugged into a local distribution system, the Food School, within the Local Grocer network, provides a market outlet for local farmers and community growers. Through the passive and active education about the local food system that the Food School would provide,

community members can become more interested and engaged in what the local food system has to provide, stimulating the growth of this market.

Next you will find a **Food School Toolbox** and **Toolbox Application** section that identify some of the 'tools' the Food School will use to achieve its goals. We have also included various examples of formats to use for information sharing.

# **SOURCING GUIDELINES**



## Local and Seasonal

- From within our local foodshed
- Shifting foods and goods with the seasons

## Nutritionally Sound

- Whole foods
- Minimal processing
- Natural
- Organic

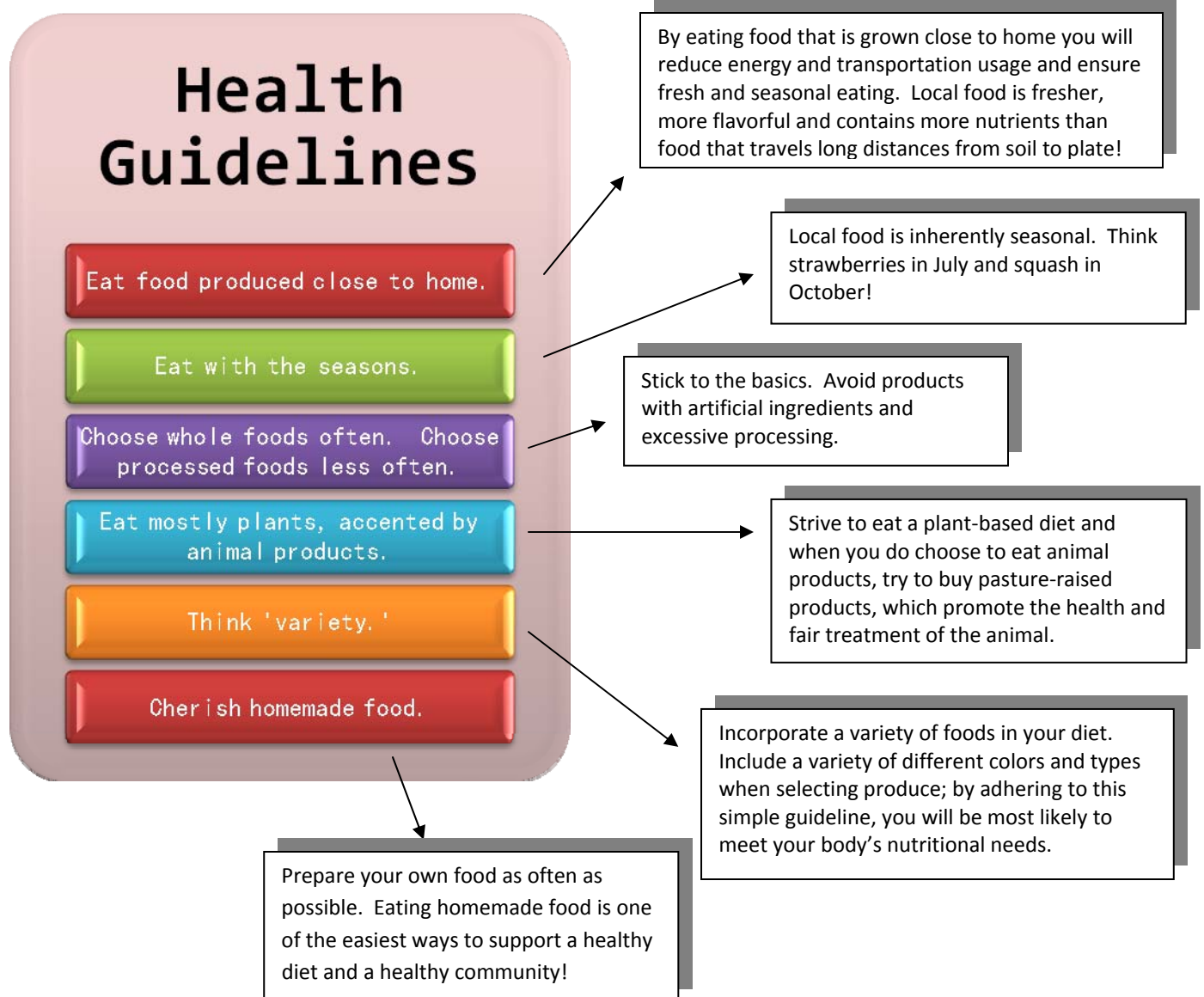
## Ecologically Responsible

- From within our local foodshed
- Natural
- Organic
- Animal products grass-fed, pasture raised

## Healthy Partnerships

- Working with growers, processors, and distributors who contribute to a healthy, thriving local food system
- Sourcing foods and goods from businesses that uphold the dignity, health and safety of workers

These six simple guidelines are the outcome of multiple conversations with individuals within the health care community and our own extensive research. We have also been influenced by the ideas presented in Michael Pollan's *In Defense of Food*.









# Tool Box Application

Goals	Corresponding Tools
<b>Education</b>	<ul style="list-style-type: none"> <li>• Classes and Workshops (1)</li> <li>• CSK (3)</li> <li>• Demonstration Sites (4)</li> <li>• Hot Bar (5)</li> <li>• Incubator Kitchen (6)</li> <li>• Outreach (7)</li> <li>• Product Selection (8)</li> <li>• Sharing of Information (9)</li> </ul>
<b>Healthy Food Access</b>	<ul style="list-style-type: none"> <li>• Classes and Workshops (1)</li> <li>• CSA (2)</li> <li>• CSK (3)</li> <li>• Hot Bar (5)</li> <li>• Incubator Kitchen (6)</li> <li>• Product Selection (8)</li> <li>• Sharing of Information (9)</li> </ul>
<b>Ecological Responsibility</b>	<ul style="list-style-type: none"> <li>• Outreach (7)</li> <li>• Product Selection (8)</li> <li>• Sharing of Information (9)</li> </ul>
<b>Community Connection</b>	<ul style="list-style-type: none"> <li>• Classes and Workshops (1)</li> <li>• CSA (2)</li> <li>• CSK (3)</li> <li>• Demonstration Sites (4)</li> <li>• Hot Bar (5)</li> <li>• Incubator Kitchen (6)</li> <li>• Outreach (7)</li> <li>• Product Selection (8)</li> <li>• Sharing of Information (9)</li> </ul>
<b>Community Food Security</b>	<ul style="list-style-type: none"> <li>• Classes and Workshops (1)</li> <li>• Demonstration Sites (4)</li> <li>• Incubator Kitchen (6)</li> <li>• Outreach (7)</li> <li>• Sharing of Information (9)</li> </ul>
<b>Transparency</b>	<ul style="list-style-type: none"> <li>• Outreach (7)</li> <li>• Sharing of Information (9)</li> </ul>

# Michigan Food Guide

Just like other food guides, the Michigan Food Guide reflects our current understanding of the relationship between diet and health. In addition to health, food choices have important impacts on local agriculture and the environment. The Michigan Food Guide helps you select a healthful, seasonally varied diet from a wide variety of foods produced in Michigan.

In Michigan and across the country, the level of interest in local and regional food systems where farmers sell nearby consumers is increasing. A growing number of consumers are concerned about the region's farmers, farmland, and the resources used in transporting food great distances from farm to table. One market for farmers in Michigan is to eat more of the foods they grow. By using the Michigan Food Guide, you will improve the nutritional quality of your diet while supporting your agricultural producers. The guide is easy to use and can help you and your family learn more about our region's bountiful harvest.



their products to increasing. A growing number of consumers are concerned about farmland, and the transporting food from farm to table. One market for farmers in Michigan is to eat more of the foods they grow. By using the Michigan Food Guide, you will improve the nutritional quality of your diet while supporting your agricultural producers. The guide is easy to use and can help you and your family learn more about our region's bountiful harvest.

Many foods are available from regional sources year-round: milk, yogurt, and cheeses; dry beans, nuts, eggs, poultry, fish, and meats; and breads, cereals, pasta, tortillas, and whole grains. Fresh fruits and vegetables are available on a seasonal basis, with those that store well being available much of the year. Because fruits and vegetables are canned, frozen, and dried, it's possible to enjoy wonderful Michigan produce year-round!

<b>Spring</b>	Spring is the time to enjoy a wide diversity of nutritious greens, several other vegetables, and the year's first fruits.
<b>Summer</b>	Summer is the peak of the season for many fruits and a great time to enjoy a wide variety of fresh vegetables.
<b>Fall</b>	Fall, the traditional harvest season, is the time to enjoy the bounty of fruits and vegetables.
<b>Winter</b>	At this time of year a wide variety of foods can be found canned, frozen, dried and stored.

The Food Shed  
Michigan  
2009

Based on Northeast Regional Food Guide: [www.nutrition.cornell.edu/foodguide/](http://www.nutrition.cornell.edu/foodguide/)

Image sources: <http://www.localender.info/images/states/michigan.gif>, <http://www.herrs.com/Recipes/images/MyPyramid.jpg>

### Typical Crop Availability – Michigan Harvest Calendar

Fruit/Veggies	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec
Apples								X	X	X	X	
Asian pears								X	X	X	X	
Asparagus				X	X	X	X					
Beans						X	X	X	X	X	X	
Beets							X	X	X	X		
Blackberries						X	X	X				
Blueberries							X	X	X			
Broccoli			X	X	X				X	X	X	
Cabbage			X	X	X			X	X	X	X	
Cantaloupes							X	X	X	X		
Cherries						X	X	X				
Christmas trees											X	X
Cucumbers							X	X	X	X		
Eggplant							X	X	X	X		
Greens			X	X	X	X	X	X	X	X	X	X
Herbs			X	X	X	X	X	X	X	X	X	X
Nectarines							X	X	X			
Peaches						X	X	X	X	X		
Peas					X	X						
Peppers							X	X	X	X		
Plums									X	X	X	
Potatoes					X	X	X	X				
Pumpkins									X	X	X	
Raspberries							X	X	X	X		
Rhubarb					X	X	X					
Squash						X	X	X	X	X	X	
Strawberries					X	X	X					
Sweet corn								X	X	X		
Sweet potatoes									X	X	X	
Tomatoes							X	X	X	X		
Watermelons								X	X	X	X	

The light green indicates light crops at the beginning, end, or in between seasons - dark green is when the bulk of the crop ripens and picking is best. (<http://www.pickyourown.org/MIharvestcalendar.htm>)

# TODAY'S HOT BAR COMMUNITY RECIPE

*Debra Luria's*

*Sweet Potato  
Mac 'n Cheese*



## **ADJUSTMENTS MADE**

### **FROM ORIGINAL RECIPE:**

- whole wheat noodles

**INGREDIENTS:** Eden whole wheat macaroni pasta, Goetz Farm sweet potatoes, Leelenau Cheese Company cheddar cheese, Calder Dairy unsalted butter, Calder Dairy cream, Westwind Milling flour, Tantré Farm garlic, Growing Hope fresh rosemary, Zingermans bread crumbs, salt, ground black pepper

# Frozen Red Raspberries

**Natural - no spray**

**ORIGIN: Chelsea, MI**

**GROWER: Community Farm, Chelsea, MI**

**PROCESSER: Locavorious Frozen Foods**

**DISTRIBUTOR: Eat Local Eat Natural**

## The Food System Narrative

### A Localized Food System

Jenny woke up one cold January morning, rolled out of bed, trudged to the kitchen, only to realize that she was out of bread. She quickly grabbed her coat, boots and gloves and headed out the door.

After a brisk ten minute walk, with a few stops to chat with neighbors, Jenny arrived at The Food Shed's Local Grocer. Upon entering the store, Jenny passed the abundant selection of preserved produce; shelves were lined with pasta sauce, sun-dried tomatoes and canned-peaches. Small freezers were filled with frozen strawberries, blueberries and an assortment of vegetables. She remembered how they looked last summer before they were preserved.

Instead of proceeding directly to the bread section, Jenny ambled over to the hot-bar where she was overcome by the aromas of the prepared local food. Faces of the community members who provided the recipes were displayed above the dishes. "There's nothing like Mrs. Luria's cooking," thought Jenny, as she ogled the Sweet Potato Mac 'n' Cheese.

Jenny pulled herself away and continued on her quest for a loaf of bread. Finally arriving at her destination, Jenny was greeted by Ben, a store employee.

"Need any assistance?" Ben asked.

"I'm looking for a loaf of bread" Jenny said, "Any suggestions?"

"Sure." Ben replied, as he reached for a loaf, "I would recommend Kapnick Orchard's Farm Bread. It just arrived, and it's great for toast."

Jenny took the loaf and examined the simple ingredient list: unbleached wheat flour, water, organic whole wheat flour, dry yeast and sea salt....all familiar. She was sold.

Jenny began to make her way towards the cashier. She was tempted to take a detour into the root cellar to check out the apples, potatoes and various other root vegetables but her stomach began to grumble, so Jenny resisted.

"That'll be \$3.50, ma'am." Jenny handed the cashier her money, almost double what she paid back in the days when Wonder Bread was her bread of choice, however more than worth the expense.

Once she had paid for her bread, Jenny began her walk home. As she passed The Farm Shed Garden and Hoop-House, she thought "Only a few more months 'til growing season kicks in. I wonder what new vegetables they'll try this year..."

## Conclusion: Moving Forward...

Given that one of the key arguments that this design exercise has rested upon is the idea that establishing an alternative food system in the understory of the existing food system requires a mutually reinforcing set of actors, an important question to be addressed is how these different proposed institutions would develop, and in what order. Every **foodshed** is unique; therefore, the context within which any **Food Shed** is established will have an important role in shaping the institutions that are needed, when they become important, and how they might develop. Because of this, speculating about a general development plan or stages to development for a Food Shed and its constituent institutions should be taken with a large (contextual) grain of salt. That said, in that some of the institutions proposed for the Food Shed are reliant on presumably pre-existing institutions, we do have a few ideas about the order to which these institutions might become established in the future.

The obvious starting point is the **Food Shed** itself; it provides an anchor for existing efforts and can act as the facilitator of other new institutions taking root. Next might be both the **Local Grocer** and the **Food School**. There are few barriers to either institution getting off the ground within most communities, and their awareness-raising and food equity efforts help to facilitate future efforts, while taking care of important 'low-hanging fruit' of addressing current ills within the food system. Next might be the **Catalyst** and the **Law Lab**. Again, the Catalyst requires no fundamental changes to existing conditions to become established, has much needed work to do, and is critical to fostering the local **producers**, food processing ability, etc., that institutions like the Gatherer or the Certifier are dependent upon. Similarly, the Law Lab provides the legal grease, facilitating many parts of the transformation of our food system, and is fairly easy to implement. Next might come the more sophisticated **Proponent** and **Gatherer**. The Proponent can ride the growing groundswell of local food and local interest, can facilitate the further expansion of the local food movement, and is essential to laying the groundwork for establishing the Certifier. The Gatherer depends upon a healthy, 'about to go big' but waiting for the right distribution network scenario. This will happen at widely different times in different communities, but any community that is ready for the Gatherer is likely well on its way to establishing the aforementioned parts. Finally come the **Foundation** and the **Certifier**. While the Foundation could be instrumental in establishing many of the previous parts, it is not essential, and the capital for a local food foundation is often hard to come by. Money often follows a well-established movement, and will be necessary for addressing unexpected problems in the future. Because its mature role requires a legal departure from current policies, and because of the centrality of its role to local food governance, the Certifier must follow on the efforts of many parties. It is important that the last be not seen as least, for if a localized, decentralized food system is to ever find legitimacy and reach a transformative scale in America, it rests upon the existence of a Certifier, or a similar entity.

### What Still Needs to Happen

In this document, we have created a general *template* for localized food systems. As mentioned above, each **foodshed** will have different assets, obstacles and needs; a foodshed in Arizona will look much different than a foodshed in southeast Michigan. Therefore, in order to sync the concepts we have explored with modern realities, each foodshed must prioritize issues based on the available resources.

An additional issue that needs further attention is research and funding necessary to promote the continued profession of farming. Supportive public policy will be essential to the success of the farmer into the future. Current subsidy structures must be re-evaluated. Many people are considering 'returning to the land,' but face many obstacles that prevent them from doing so. Entry costs, equipment costs, and access to land and agricultural knowledge are some of the many issues that new farmers face. It will be important to obtain and disseminate existing traditional agriculture practices from those who have and currently apply them.

Furthermore, more emphasis will need to be placed on the human-ecological interface. We have briefly addressed the fact that our current food system operates based on efficiency; but what we hope to create is a food system that operates based on nature. Agroecology, biodynamic farming, sustainable agriculture, permaculture and low-input sustainable agriculture are some of the existing efforts to move towards an ecologically-based food system. The promotion of these types of alternative approaches to agriculture needs to be researched and increased if we are to



successfully transform our current industrialized monocultures into an ecologically diverse and localized food system; the effort must be multi-disciplinary.

Finally, the conversation cannot stop here! We must converse with and mobilize our communities. “The isolated effort, the individual effort, the purity of ideals, the desire to sacrifice an entire lifetime to the noblest of ideals means naught if that effort is made alone, solitary, in some corner of ... America, fighting against [big] government and social conditions that do not permit progress.<sup>xiv</sup>” It will be necessary to first work with what we have, a society sick (literally) of the current industrialized food system, in order to create what we desire, a healthy, resilient and equitable food system.

# Site Visits

## **East Lansing Food Co-Operative**

4960 Northwind Dr.  
East Lansing, MI 4882  
[www.elfco.coop](http://www.elfco.coop)

## **Goodrich's Shop-Rite**

940 Trowbridge Rd.  
East Lansing, MI 48823  
[www.goodrichshoprite.com](http://www.goodrichshoprite.com)

## **Chelsea Community Kitchen Steering Committee Meeting**

Chelsea, MI  
<http://localfoodannarbor.ning.com>

## **Dos Hermanos Market**

412 W Michigan Avenue  
Ypsilanti, MI 48197

## **Ypsilanti Food Co-Op**

312 N River St.  
Ypsilanti, MI 48198  
[www.ypsifoodcoop.org](http://www.ypsifoodcoop.org)

# Interviews

Our team had the good fortune to conduct interviews with a wide variety of community members involved in their local food system. We are deeply grateful for the information and wisdom that they imparted to us over the course of our project. Their names and organizational affiliations are listed here for your reference.

**Rena Basch**

Owner of Locavorious, a frozen food CSA  
Ann Arbor, MI  
[www.locavorious.com](http://www.locavorious.com)

**Ruth Blackburn**

Program Associate, C.S. Mott Group for Sustainable Food Systems  
Michigan State University  
East Lansing, MI

**Amanda Edmonds**

Executive Director of Growing Hope  
Ypsilanti, MI  
[www.growinghope.net](http://www.growinghope.net)

**Michael W. Hamm**

C.S. Mott Professor of Sustainable Agriculture  
Michigan State University  
East Lansing, MI

**Oran Hesterman**

Director, Fair Food Foundation  
Ann Arbor, MI  
[www.fairfoodfoundation.org](http://www.fairfoodfoundation.org)

**Betty Izumi**

Research Fellow, Health Management and Policy  
School of Public Health  
Ann Arbor, MI

**Molly Notarianni**

Ann Arbor Farmer's Market Manager

**Paul Saginaw**

Co-founder of Zingerman's Delicatessen  
Ann Arbor, MI  
[www.zingermansdeli.com](http://www.zingermansdeli.com)

**Sharon P. Sheldon**

Program Manager, Health Promotion & Disease Prevention  
Washtenaw County Public Health Department  
Ypsilanti, MI

**Corrine Sikorski**

Manager of the Ypsilanti Food Co-op  
Ypsilanti, MI  
[www.ypsifoodcoop.org](http://www.ypsifoodcoop.org)

**Emily Springfield**

Organizer for Preserving Traditions  
Ann Arbor, MI  
[www.preservingtraditions.wordpress.com](http://www.preservingtraditions.wordpress.com)

**Raymond Lanza-Weil**

Vice President, CARS  
Opportunity Finance Network  
[www.opportunityfinance.net](http://www.opportunityfinance.net)

**Caleb Zigas**

Director of Operations, La Cocina, an Incubator Kitchen  
San Francisco, CA  
<http://www.lacocinasf.org/index.html>  
Parks & Recreation  
Ann Arbor, MI

## References

- Akhtar, A. Z., Greger, M., Ferdowsian, H., & Frank, E. (2009). Health professionals' roles in animal agriculture, climate change, and human health. *American Journal of Preventive Medicine*, 36(2), 182-187.
- American Dietetic Association. (2007). *Healthy Land, Healthy People: Building a Better Understanding of Sustainable Food Systems for Food and Nutrition Professionals*. Chicago, Illinois.
- American Planning Association. (2007). *Policy Guide on Community and Regional Food Planning*
- Bacolor, J., Guzman, L., & Waller, A. (2007). Availability and Accessibility of Healthy Food in Ypsilanti, Michigan. *Washtenaw County Public Health Department*.
- Berry, Wendell (1987). "Six Agricultural Fallacies." *Home Economics*. North Point Press, San Francisco.
- Buck, K., Kaminski, L. E., Stockmann, D. P., & Vail, A. J. (2007). Investigating Opportunities to Strengthen the Local Food System in Southeastern Michigan. *University of Michigan - School of Natural Resources and Environment*.
- Buck, K., Kaminski, L., Stockmann, D., & Vail, A. (2007). Southeastern Michigan Community Food Profile.
- Coalition of Community Development Financial Institutions. The CDFI Fact Sheet. Retrieved from the CDFI Coalition Website: <http://www.cdfi.org/> on March 15, 2009.
- Cohen, Michael & Robert Axelrod (1999). *Harnessing Complexity: Organizational Implications of a Scientific Frontier*. The Free Press, New York.
- Davis, G., DiRamio, M., Ellis, E. M., Horigome, K., Katz, L. A., & Martin-Schwarze, A. (2004). Toward a Sustainable Food System: Assessment and Action Plan for Localization in Washtenaw County, Michigan. *University of Michigan – School of Natural Resources and Environment*.
- Eatwild. Retrieved January 7, 2009, from <http://eatwild.com/index.html>
- Field to Plate. Retrieved February 2, 2009, from <http://www.fieldtoplate.com/>
- Gell-Mann, Murray (1994). "Complex Adaptive Systems." *Complexity: Metaphors, Models, and Reality*. George, Cowan, ed. Santa Fe Institute with Addison-Wesley.
- Holland, John (1995). *Hidden Order: How Adaptation Builds Complexity*. Helix Books, Addison-Wesley Publishing, Reading Massachusetts.
- Houser, Leana. Measuring Institution Carbon FoodPrints. Presentation. Retrieved February 20, 2009. *Center for a Livable Future*, Johns Hopkins University. 2007.
- Johns Hopkins University's Center for a Livable Future. Retrieved January 7, 2009, from <http://www.jhsph.edu/clf>
- Johnson, Steven (2001). *Emergence: The Connected Lives of Ants, Brains, Cities and Software*. Scribner, New York.
- Kauffman, Stuart (1995). *At Home in the Universe: The Search for the Laws of Self-Organization and Complexity*. Oxford University Press.
- Keoleian, Gregory & Martin Heller. Life Cycle Based Sustainability Indicators for Assessment of the US Food System. *Center for Sustainable Systems, University of Michigan*. Report No. CSS00-04.

- Kimbrell, Andrew (2002). *Fatal Harvest: The Tragedy of Industrial Agriculture*. Washington, DC: Island Press.
- Kirschenmann, F., Stevenson, G. W., Buttel, F., Lyson, T. A., & Duffy, M. (2003). Why Worry About the Agriculture of the Middle?
- Lappe & Lappe (2003). "Belo Horizonte." *Hope's Edge: The Next Diet for a Small Planet*. Tarcher/Putnam, New York.
- LocalHarvest. Retrieved March 1, 2009, from LocalHarvest Web site: <http://www.localharvest.org/>
- Lyson, Thomas (2004). *Civic Agriculture: Reconnecting Farm, Food and Community*. Medford, MA: Tufts University Press.
- Mapinfo, Inc., (2006). Ypsilanti Healthy Food Access Market Analysis.
- Michigan Crop Harvest Calendar. Retrieved January 28, 2009, from PickYourOwn.org Web site: <http://www.pickyourown.org/MIharvestcalendar.htm>
- MSU C.S. Mott Center for Sustainable Food Systems. (2008). *A Food System Approach to Healthy Eating Michigan*: Ruth Blackburn.
- MyPyramid.gov. Retrieved February 16, 2009, from Dietary Guidelines Web site: <http://mypyramid.gov/guidelines/index.html>
- Natural Resources Defense Council. Retrieved February 3, 2009, from Eat Local Web site: <http://www.nrdc.org/health/foodmiles/default.asp>
- Opportunity Finance Network. The Community Reinvestment Act. Retrieved March 15, 2009.
- Pollan, Michael (2008). *In Defense of Food: An Eater's Manifesto*. New York, New York: The Penguin Press.
- Pollan, Michael (2006). *Omnivore's Dilemma: A Natural History of Four Meals*. New York, New York: The Penguin Press.
- Proceedings of workshop: A Life Cycle Approach to Sustainable Agriculture Indicators February 26-27, 1999. Center for Sustainable Systems, University of Michigan. Retrieved from the Center for Sustainable System Website February 26, 2009.
- Sustainable Food System Task Force Report. *Healthy Lands Healthy People: Building A Better Understanding of Sustainable Food Systems for Food and Nutrition Professionals*. American Dietetic Association Sustainable Food System Task Force. March 16, 2007.
- Thompson, Edward. Alethea Marie Harper & Sibell Kraus. Think Globally, Eat Locally: The San Francisco Foodshed Report. The American Farmland Trust. August 23, 2008. Retrieved from the farmland trust website on April 10, 2009.
- Walker, P., Rhubart-Berg, P., McKenzie, S., Kelling, K., & Lawrence, R. S. (2005). Public health implications of meat production and consumption. *Public Health Nutrition*. 8(4), 348-356.
- Cornell University Cooperative Extension. (2003). Northeast *Regional Food Guide*. Jennifer L. Wilkens & Jennifer Boaker-Smith, J.
- Waldrop, Mitchell. Complexity. Simon & Schuster, New York. 1992.
- Wong, N. T., Rook, A., Hall, T., Bacolor, J., & Sheldon, S. P. (2007). Focus Group Report. *Ypsilanti Healthy Food Access Initiative*.

## Glossary

**Community Development Financial Institution (CDFI):** “is a unique entity established to provide credit, financial services, and other services to underserved markets or populations. Under the general definition of a community development financial institution as set forth by the Community Development Financial Institutions Fund at the U.S. Department of the Treasury, a CDFI has a primary mission of community development, serves a target market, is a financing entity, also provides development services, remains accountable to its community, and is a non-government entity.

Nationwide, over 1000 CDFIs serve economically distressed communities by providing credit, capital and financial services that are often unavailable from mainstream financial institutions. CDFIs have loaned and invested over billions in our nation’s most distressed communities. Even better, their loans and investments have leveraged billions more dollars from the private sector for development activities in low wealth communities across the nation.<sup>xlv</sup>

**commodity crops:** “A physical substance, such as food, grains, and metals, which is interchangeable with another product of the same type, and which investors buy or sell, usually through futures contracts. The price of the commodity is subject to supply and demand. Risk is actually the reason exchange trading of the basic agricultural products began. For example, a farmer risks the cost of producing a product ready for market at sometime in the future because he doesn’t know what the selling price will be.”<sup>xlvi</sup>

**distributor:** In a food system, those who provide transportation from the place of production and/or processing to a place where food may be procured by food consumers.

**edible food-like substances:** A term coined by Michael Pollan for highly processed foods.<sup>xlvii</sup>

**emergent behavior:** The patterns and behavior that arises out of a complex system that could not have been predicted from the characteristics of the constituent parts.

**food actor:** Community members and workers who are key to the successful running of a food system, primarily including: producers, processors, distributors, retailers and consumers.

**Food Shed:** The physical space proposed for providing the forum for the informal governance of an emerging local food system.

**foodshed:** The flow of food from a farmer’s soil to a consumer’s plate in a given geographical area. A foodshed must reflect the unique features and resources that are unique to a given place. The Eastern Market located in Detroit, Michigan considers food sourced either within 150 miles of the market *or* within the state of Michigan ‘local’ to accommodate social, economic, and environmental considerations.

**food security:** The availability of and access to food.

**food system:** A food system includes all processes involved in feeding a population: growing, harvesting, processing, packaging, transporting, marketing, consumption, and disposal of food and food-related items. It also includes the inputs needed and outputs generated at each of these steps. A food system operates within and is influenced by social, political, economic and environmental contexts. It also requires human resources that provide labor, research and education. Food systems are either conventional or alternative according to their model of food lifespan from origin to plate.<sup>xlviii xlxi</sup>

**Highly Optimized Tolerance (HOT) system:** A system where design and evolution create complex systems sharing common features, including (1) high efficiency, performance, and robustness to designed-for uncertainties, (2) hypersensitivity to design flaws and unanticipated perturbations, (3) nongeneric, specialized, structured configurations, and (4) power laws.<sup>l</sup>

**industrial food system:** A food system that involves agriculture dependent on high inputs of capital, labor, or heavy usage of technologies such as pesticides and chemical fertilizers.

**Just-in-Time delivery:** Some thoughts from Wikipedia: an inventory strategy implemented to improve the return on investment of a business by reducing in-process inventory and its associated carrying costs. Quick communication of the consumption of old stock which triggers new stock to be ordered is key to JIT and inventory reduction. This saves warehouse space and costs.

**local food system:** New, consciously formed systems, which are characterized by a close producer-consumer relationship” (Vergunst 2001). Local food systems support long-term connections; meet economic, social, health and environmental needs; link producers and markets via locally-focused infrastructure; promote environmental health; and provide competitive advantage to local food businesses.<sup>iii</sup>

**localization:** A force pushing systems, such as economies or cultures, towards closer connections. See the section **Towards a Better Food System** for more information.

**Low Profit Limited Liability Corporation (L3C):** The L3C structure is Limited Liability Business Model that allows a flexible set of partnerships between a for-profit and a non-profit for the purpose of engaging in socially beneficial activities. "Like a traditional LLC, the L3C offers a flexible ownership structure, wherein each member’s management responsibility and financial stake may vary according to individual needs. Like a traditional LLC, the L3C’s members enjoy limited liability for the actions and debts of the company. And, like a traditional LLC, the L3C is classified as a “pass-through entity” for federal tax purposes."<sup>iiii</sup> Unlike an LLC however, the primary purpose of an L3C is social returns of some kind, not financial returns. In order to qualify for L3C status, there are a series of requirements that L3C businesses must be organized and operated at all times to fulfill the following requirements:

1. The company must “significantly further the accomplishment of one or more charitable or educational purposes,” and would not have been formed but for its relationship to the accomplishment of such purpose(s);
2. "No significant purpose of the company is the production of income or the appreciation of property” (though the company is permitted to earn a profit); and
3. The company must not be organized “to accomplish any political or legislative purposes.”

The L3C status provides the ability to use Program Related Investments (PRIs) from foundations. Foundations are required by law to disburse 5% or their holdings per year. This is most often done in the form of grants, but it can also take the form of a below market rate investment, or a Program Related Investment (PRI). PRIs are complicated to use, which is a large reason why they are generally avoided by foundations. The L3C tax law provides a simplification of the use of PRIs. An L3C can then use PRIs from a foundation as the base of their investment capital, leveraging its lack a requirement for returns to provide an attractive base for investment by other investors.

Due to their social mission as well as ability to provide a low return on investment, there are a wide range of expected investors for L3Cs, from socially conscious individuals to banks and financial institutions looking to diversify their holdings, to CDFIs or investment entities looking for social rather than financial returns while looking to maintain their capital for future positive investing. Since an L3C is a for-profit entity, it is not tax exempt, nor are investments made to an L3C. Like an LLC however, the organization itself is not taxed, but rather the entities that hold shares in the L3C are taxed. L3C has been called "a for profit company with a non-profit soul" by Robert Lang, the Founder of CEO of the Mary Elizabeth & Gordon B. Mannweiler Foundation, the originators of the L3C legislation. At present, only the states of Vermont, Michigan and the Crow nation have adopted the L3C standard into law.

**non-linearity:** In a linear system, the effect is always directly proportional to the cause. In contrast, in a complex system are non-linear, where a small change can cause anything from a small response to no response or an enormous response. This is often referred to in chaos theory as the “butterfly effect” but also can be a feature of complex systems as well.

**paradigm:** A set of assumptions, concepts, values, and practices that constitutes a way of viewing reality for the community that shares them.<sup>liv</sup>

**processor:** In a food system, those who are involved in altering foods from their original whole state to prepare them in a special way for market and/or consumption.

**producer:** In a food system, those who are involved in the growing of food.

**rate of repayment:** The proportion of loaners from a bank or financial institution who pay off their loans on schedule and in their entirety.

**rate of return:** For a loan, the percentage of its total value that the lender makes by the time the loan is repaid.

**real food:** Per Michael Pollan, "the kind of food your great-grandmother would recognize as food."<sup>lv</sup>

**resilient:** The physical property of a material that can return to its original shape or position after deformation that does not exceed its elastic limit.<sup>lvj</sup>

**retailer:** someone who markets merchandise. In a food system, examples include: restaurateurs, farmers market stand operators and grocers.

**sommelier:** A sommelier is a French term [describing] the individual who needs to know how to match each wine on the wine menu with the various foods the restaurant serves. Some restaurants also have the sommelier in charge of actual wine cellar stocking and replenishing.<sup>lvij</sup> The original French word stems from a transporter of food, which gradually over time evolved into an expert in food, and then finally an expert in wines.

**volatile:** "Explosive: liable to lead to sudden change or violence; "an explosive issue"; "a volatile situation with troops and rioters eager for a confrontation."<sup>lviii</sup>

**whole foods:** Foods that are minimally or altogether unprocessed and/or unrefined prior to being consumed.



## Endnotes

- <sup>i</sup> U.S. Department of Health and Human Services (2007) *National Health and Nutrition Examination Survey 2003-2004*. Centers for Disease Control and Prevention.
- <sup>ii</sup> U.S. Department of Health and Human Services (2004) “Physical Inactivity and Poor Nutrition Catching up to Tobacco as Actual Cause of Death.” Centers for Disease Control and Prevention.
- <sup>iii</sup> U.S. Department of Health and Human Services (2007)
- <sup>iv</sup> Pollan, M., *In Defense of Food: An Eater’s Manifesto*, (London, Penguin Books Ltd., 2008) 117.
- <sup>v</sup> Pollan, 106-108
- <sup>vi</sup> Pollan, 106-114
- <sup>vii</sup> Halweil, B. (2005). Center on Hunger and Poverty Bulletin, Center on Hunger and Poverty, Brandeis University.
- <sup>viii</sup> Pollan, 118
- <sup>ix</sup> Pollan, 124
- <sup>x</sup> Alteri, M. (2002). “Fatal harvest: old and new dimensions of the ecological tragedy of modern agriculture.” *Journal of Business Administration and Policy Analysis* 30-31: 239-264.
- <sup>xi</sup> John Hopkins Center for a Livable Future, *What You Eat Effects Climate Change*, [http://www.jhsph.edu/clf/publications/fact\\_sheets.html](http://www.jhsph.edu/clf/publications/fact_sheets.html) (April 13, 2009), (Baltimore, MD).
- <sup>xii</sup> Conner, D. (2004). “Expressing values in agricultural markets: An economic policy perspective.” *Agriculture and Human Values* 21: 27-35.
- <sup>xiii</sup> Palan, K. M. (2005). Examining Awareness of and Support of Regional Food Systems in Iowa, Leopold Center for Sustainable Agriculture.
- <sup>xiv</sup> Conner
- <sup>xv</sup> Conner
- <sup>xvi</sup> Bostrom, M. (2005). *Digesting Public Opinion: A meta-analysis of attitudes toward food, health and farms*. Perceptions of the US Food System: What and How Americans Think about Their Food W.K. Kellogg Foundation.
- <sup>xvii</sup> Pollan 182-201
- <sup>xviii</sup> Pollan 182-201
- <sup>xix</sup> Pollan 182-201
- <sup>xx</sup> *Examining the Impact of Food Deserts on Public Health in Chicago*, Mari Gallagher Research & Consulting Group, 2006
- <sup>xxi</sup> Conner
- <sup>xxii</sup> Gussow, J. (1999). Consumption issues and barriers. 1999 NEWSAWG White Papers. N. S. A. W. Group.
- <sup>xxiii</sup> U.S. Department of Agriculture (USDA)(2003) *Agriculture Fact Book 2001-2002*. Office of Communications.
- <sup>xxiv</sup> U.S. Department of Agriculture (USDA)(2003)
- <sup>xxv</sup> Conner
- <sup>xxvi</sup> Che, D., *et al*, (2005). “Sustaining Production and strengthening the agritourism product: Linkages among Michigan agritourism destinations.” *Agriculture and Human Values* 22: 225-234.
- <sup>xxvii</sup> Lyson, T., *et al*. (2004). “Commodity Agriculture, Civic Agriculture and the Future of US Farming.” *Rural Sociology* 69(3): 370-385.

- xxviii Welsh, R. (1999). "Vertical coordination, producer response, and the locus of control over agricultural production decisions." *Rural Sociology* 62(4): 491.
- xxix Manning
- xxx Conner
- xxxi Manning
- xxxii Hendrickson, M., *et al.* (2001). Consolidation in Food Retailing and Dairy: Implications for Farmers and Consumers in a Global Food System. *Heffernan Report*. Columbia, MO, University of Missouri.
- xxxiii Natural Resources Cornell Cooperative Extension, *Modern Agriculture: Its Effects on the Environment*, <http://pmep.cce.cornell.edu/facts-slides-self/facts/mod-ag-grw85.html> (April 13, 2009), 1
- xxxiv Natural Resources Cornell Cooperative Extension, 1
- xxxv Natural Resources Cornell Cooperative Extension, 1
- xxxvi John Hopkins Center for a Livable Future, *What You Eat Effects Climate Change*, [http://www.jhsph.edu/clf/publications/fact\\_sheets.html](http://www.jhsph.edu/clf/publications/fact_sheets.html) (April 13, 2009), (Baltimore, MD).
- xxxvii Pirog, R., *et al.* (2001). Food, Fuel and Freeways: An Iowa perspective on how far food travels, fuel usage, and greenhouse gas emissions. L.C. f. S. Agriculture, Iowa State University.
- xxxviii Box, D., *et al.* (2005). "The end of cheap oil: the consequences." *The Ecologist* 35(8): 46-53.
- xxxix Murray, D. (2005). Oil and Food: A Rising Security Challenge, Earth Policy Institute. 2006.
- xl Che.
- xli Regional Food Systems Working Group (2006). [www.valuechains.org/rfswg.html](http://www.valuechains.org/rfswg.html) (April 13, 2009).
- xlii Doyle, John & Carlson, JM. "Highly Optimized Tolerance System: Design and Robustness in Complex Systems." *Physical Review Letters*. 84(11).
- xliii Raymond Lanza-Weil, Vice-President of CARS, Opportunity Finance. Personal interview, Baltimore, MD, February 25, 2009
- xliv Guevara, Ernesto "Che" (2004). *The Motorcycle Diaries*. Melbourne, NY: Ocean Press.
- xlv From Wikipedia: [http://en.wikipedia.org/wiki/Community\\_development\\_financial\\_institution](http://en.wikipedia.org/wiki/Community_development_financial_institution). April 13, 2009.
- xlvi InvestorWords.com, <http://www.investorwords.com/975/commodity.html> (April 13, 2009).
- xlvii Pollan 147-150
- xlviii Discovering the Food System - A Primer on Community Food Systems: Linking Food, Nutrition and Agriculture, <http://foodsyst.cce.cornell.edu/primer.html> (April 13, 2009).
- xlix Erickson, P. Conceptualizing food systems for global environmental change research, *Environmental Change Institute*, Oxford University Centre for the Environment, Oxford, (August 2006).
- <sup>1</sup> Maxwell, et al (2003), Food Policy Old and New, *Development Policy Review*, 21 (5-6): 531-553
- <sup>ii</sup> Doyle, John & JM Carlson. "Highly Optimized Tolerance: Robustness and Design in Complex Systems." *Physical Review Letters*, 84(11). pg 2529.
- <sup>iii</sup> Regional Food Systems Working Group (2006). Developing a Vibrant and Sustainable Regional Food System.
- <sup>iiii</sup> From Wikipedia: L3C Low Profit Limited Liability Corporation.
- <sup>liv</sup> Seradigm, <http://www.seradigm.co.nz/research/definitions> (April 13, 2009).

iv Pollan, 148

lvi WordNet Search 3.0, <http://wordnetweb.princeton.edu/perl/webwn?s=resiliency>, (April 13, 2009).

lvii Wine Intro, <http://www.wineintro.com/glossary/s/sommelier.html>, (April 13, 2009).

lviii WordNet Search 3.0, <http://wordnetweb.princeton.edu/perl/webwn?s=volatile&sub=Search+WordNet&o2=&o0=1&o7=&o5=&o1=1&o6=&o4=&o3=&h=>, (April 13, 2009).