Sustainability Indicators in the Vermont-Regional Food System

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University of Vermont

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SUSTAINABILITY INDICATORS IN THE VERMONT-REGIONAL FOOD SYSTEM

A Thesis Presented

by

Rachel Schattman

to

The Faculty of the Graduate College

of

The University of Vermont

In Partial Fulfillment of the Requirements
for the Degree of Master of Science
Specializing in Natural Resources

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Accepted by the Faculty of the Graduate College, The University of Vermont, in partial fulfillment of the requirements for the degree of Master of Science, specializing in Natural Resources.

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ABSTRACT

Food systems are inherently complex areas of interaction between economic, environmental, and social factors. The local food movement in Vermont presents new opportunities to shape the local and regional food systems according to the values of stakeholders. In order to create the spaces necessary for reflexivity and ethical concerns it is necessary to understand food system stakeholder values. Through coding interviews with 17 stakeholders, the study identified values of producers, processors, chefs, food purchasers, distributors, advocates, state agencies, and other stakeholders. The five most commonly cited, strongly felt stakeholder values in the Vermont-regional food system were: promotion of the local food economy, financial viability, environmental integrity, community wellbeing, and quality of service or product.

Understanding these values was central to the second portion of this research, which addressed the need to communicate information about the Vermont-regional food system. Indicators were selected as the most appropriate tool for this task, specifically because indicators have proven to be useful tools for communicating information in complex systems. Indicators also allow information about these systems to be framed by stakeholders, who are often the end users of the information as well. The methodology of this research was designed to integrate stakeholder and expert feedback to produce a robust and defensible indicator set tailored to the environmental, social, and economic context of the Vermont-regional food system. Each of the five most common stakeholder values were assigned three proposed indicators (condition, pressure, policy response) in order to describe critical dimensions of the food system.

Finally, data behind the indicators were compiled to show trends in the Vermont-regional food system related to sustainability. Areas of missing data were identified to show what information is still needed in the Vermont-regional food system in order for this system to more towards sustainability.
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CHAPTER ONE: INTRODUCTION

Food systems are complex areas of interaction between many individuals and groups. From soil stewardship to seed production, food consumption to waste disposal, the many actors and interests that impact the state and shape of food systems are motivated by personal and community values. There is much to be learned from close examination of these values. Specifically, action that leads to sustainability in food systems on global, national, regional, and local levels cannot be pursued without acknowledgement of stakeholder priorities and concerns. Values are communicated in many ways, including through the construction and use of indicator sets. Indicators are quantitative or qualitative representations of the world around us. They serve to simplify and represent the complex interactions between the social, economic, and environmental components of food systems (Maclaren, 2004). Construction of indicators sets can facilitate social learning and communication, and also support business, policy, and scholarly efforts related to food system sustainability.

How food system stakeholders come to hold particular values is a function of their access to information (through indicators or other mechanisms) and their individual and community supported moral beliefs. The process of adjusting values based on new information sometimes results in new behaviors. When a significant percentage of a community or population demonstrates these new behaviors, it is referred to as a social movement. In food systems, these movements often have implications for markets, the environment, and social institutions (Polanyi, 1957).

Examples of past social movements that focus on sustainability in food systems include: homesteading (in the 1960s and 1970s), organic agriculture, fair trade, and local
food. These movements focus on specific aspects of sustainability (such as self sufficiency, environmental stewardship, fair labor practices, or sourcing proximity) at specific scales (such as global, national, state, or local food systems.) What they have in common is a general agreement that the industrialized, commodity food system of the 20th century is not sustainable. To varying degrees, social movements that address food systems seek to challenge the values associated with commodity agriculture including convenience, standardization, and conformity (Sassatelli, 2004). Local food is the most recent of these social movements to create opportunities for the integration of moral consideration into food systems, a process known as reflexive decision making. This process creates possibilities for enhancing food system sustainability. As the local food movement grows, its success will be determined by the degree to which it opens the door for the integration of new information and social values, as framed by the needs of specific communities (DeLind, 2002; Lyson, 2004).

1.1. Research questions and objectives

The goal of this research was to articulate how the values of expert stakeholders in the Vermont-regional food system frame their understanding of sustainability, and to select a defensible, accurate method by which to communicate that understanding. To meet this goal, this research had three primary objectives, and thus three research questions.

The first objective was to better understand the concerns of stakeholders in the Vermont-regional food system though examination of their values related to the food system. For this purpose, 14 interviews were conducted with 17 individuals identified as
experts in the food system including producers, processors, chefs, food purchasers, distributors, advocates, and employees of state agencies. These interviews were designed to answer the first research question in this study, which was:

1. **What are the values that influence stakeholder decision-making related to sustainability in the Vermont-regional food system?**

Based on interview analysis, definitions of commonly shared and strongly felt values were created. These definitions were critical to the second research objective, which addressed the need to examine the food system through the framework of stakeholder values, and communicate the information that resulted from this process.

Indicators were selected as the most appropriate tool for this task because of their ability to incorporate stakeholder values and communicate information in complex systems (including food systems) (Pirog, et al., 2006). Though there have been several indicator projects conducted in Vermont in the past (Boldoc & Kessel, 2008), none has focused exclusively on the food system and included stakeholders in the construction process. The rapid growth of local food movement in Vermont necessitates the creation of an indicator set (or some comparable tool) that incorporates both of these qualities.

Stakeholders are often the end users of the information communicated by indicators. Therefore, stakeholder inclusion in the construction of those indicators ensures that the information is usable and relevant (Reed, Fraser, & Dougill, 2006). Specifically, communities are less likely to use indicators that they have not participated in crafting, and if indicators are not used they cannot facilitate adoption of sustainable practices or policy (Carruthers and Tinning, 2003; Reed, Fraser, Morse, & Dougill, 2005; Reed, Fraser, & Dougill, 2006). The methodology of this research (based on Hagan and Whitman, 2006) was designed to integrate stakeholder and expert feedback to produce a
robust and defensible indicator set tailored to the environmental, social, and economic context of the Vermont-regional food system. Following the construction of the indicator set, the second research question of this study asked:

2. What do indicators drawn from these values tell us about the Vermont-regional food system?

Based on the information communicated by the indicator data, summaries were developed that described the Vermont-regional food system in selective detail. These were intended for use by food system stakeholders in an effort to further inform their ethical considerations, thus reinforcing the cycle of reflexive decision making.

Much of the information behind the indicators was available and easily accessible. This was not true for all of the data, however, which led to the third and last research question in this study:

3. What information is still needed in order to address sustainability more effectively in this food system?

In order to truly understand the state of sustainability in the Vermont-regional food system, it will be necessary to address these data gaps through consolidation of data, increased transparency, or further research. In addition, indicator sets are most useful when they collect data over an extended period of time (Sustainable Seattle, 1998). This study should be revisited in three to five years in order to determine (1) if stakeholder values have changed based on new information or social pressures, and (2) to update indicators to see if the Vermont-regional food system has changed. This re-visitation will also help inform further information gathering and reflexive decision making, thereby contributing to sustainability.

Increasing sustainability in the Vermont-regional food system will require support from a diverse array of stakeholders including producers, processors, consumers,
advocates, policy makers and many others. It is, therefore, absolutely necessary to identify what these stakeholders care about and how they make decisions. Once the guiding values held by stakeholders have been identified, group learning, dialogue, and research can provide relevant information to inform food system efforts geared towards increasing sustainability. Indicators are one way to communicate the data gathered during this information gathering, and will be presented in detail in the literature review section of this thesis.

1.2. Drivers of the local food movement

Previous studies (Nickerson, 2008; Timmons, 2006) point to several reasons that food system stakeholders support the local food movement. Four commonly identified reasons are (1) consumer preferences for fresh, nutritious food, (2) desire to support the local economy, (3) increased food traceability, and (4) concern about greenhouse gas emissions associated with long distance food transport.

First, according to Nickerson (2008), consumers prefer fresh food. This preference is attributed to consumer perceptions that fresh or lightly processed foods are more aesthetically pleasing and flavorful (Melton, Huffman, Shogen, & Fox, 1996) or more nutritious than other foods (Holloway & Kneafsey, 2000; Ragaert, Verbeke, Devlieghere, & Debevre, 2004). There is a strong association between local and fresh food, though it should be noted that this association is not true in all local food systems. Rather, local food systems are often characterized by short supply chains that increase the number of opportunities for consumer access to fresh, seasonally available food (Newby, Muller, Hallfrisch, Qiao, Andres, & Tucker, 2003).
Second, local food systems are thought to benefit local economies to a greater degree than national or global food systems (Shuman, 1998). This economic benefit is primarily attributed to local job creation in rural areas, which helps to protect rural economies and communities from fluctuations in global markets (Seyfang, 2006). In addition, local currency circulation is thought to increase the levels of goods and services available in these areas (Norberg-Hodge, Merrifield, & Gorelick, 2002). Studies have shown that consumers who purchase local food believe that by doing so they positively contribute to their regional or local economy. Specifically, consumers believe they are helping established, though struggling, members of their community: farmers (Winter, 2003). The lauding of the local food movement for these economic benefits has been both praised and criticized in the literature. Critical arguments emphasize the insular qualities of the movement, citing localism as a form of protectionism that deserves close scrutiny (Winter, 2003). This argument is primarily based on the opinion that localism does not secure justice or fairness in food systems. Rather, defensive localism can potentially insulate social norms and behaviors that are fundamentally unjust (as determined by an unspecified universal standard). In addition, market exclusion (or the impact on agricultural economies outside of the local area) has social justice implications that are not often addressed in the promotion of the local food movement. Considering these points, efforts to support local economies should be approached critically and with due consideration for their unintended economic impacts (Hinrichs & Allen, 2008, Holloway & Kneafsey, 2000; Winter, 2003).

Third, local food systems have short supply chains compared to those used in the national and global food system. Food that is sold through local markets is therefore
thought to be more traceable (Halweil, 2002). Traceability contributes to the safety of the
domestic food supply, which is of particular concern since September 11, 2001
(Timmons, 2006). On a community level, food traceability is also linked to a concept
Murdoch & Miele (2004) call *relational food*, or food that represents a certain level of
trust between food system stakeholders. The association between localness and
traceability implies that local food is trustworthy and non-local food is not as trustworthy.
Trust, in turn, is identified as a crucial ingredient in the creation of an embedded, resilient
food system (Goodman, 2003), thus supporting the popular belief that local food systems
are inherently more sustainable than other food systems. O’Hara & Stagl (2002) suggest
that while concerns related to risk, food safety, and traceability may initially motivate
consumers to seek out local foods, they will continue to purchase locally produced foods
because of the increased level of community trust.

Fourth, stakeholder concerns about greenhouse gas (GHG) emissions and climate
change increase support for local food sourcing (Timmons, 2006). These concerns are
seen in the voluminous number of popular articles that cite a 2001 study by researchers at
Aldo Leopold Center for Sustainable Agriculture at Iowa State University. This study
found that the average distance that food in the conventional US food system travels is
1,546 miles (Pirog, Van Pelt, Enshayan, & Cook, 2001). The less frequently noted
findings of this study show that these “food miles” are responsible for approximately
only 11% of all greenhouse gas emissions in the food system. The sector that is
responsible for the greatest percentage of food system related GHG emissions
(approximately 28%) is food processing. This implies that if food system localization is
not accompanied by dietary shifts (from highly processed to whole or lightly processed
foods), eating locally will have a limited effect on reducing GHG emissions (Pirog, Van Pelt, Enshayan, & Cook, 2001).

Furthermore, the degree to which local purchasing is effective at mitigating GHG emissions is largely unknown. Recent studies that examine the release of GHG emissions by marketing method show that consumers driving to purchase food (if the distance is greater than 6.7 km round trip) can result in more emissions than consolidation, refrigeration, and delivery of food through a regional food hub (Coley, Howard, & Winter, 2009). This shows that, while anecdotal information suggests that local food systems reduce GHG emissions compared to national and global food systems, more research on regional and local food systems is needed before this can be confirmed.

These four factors (consumer preferences for fresh, nutritious food, desire to support the local economy, increased food traceability and trust among stakeholders, and concern about GHG emissions), are just a selection of reasons stakeholders support and participate in the Vermont local food movement. To develop a deeper, more meaningful understanding of the benefits and disadvantages associated with pursuing a sustainable local food system, a closer examination of stakeholder values is needed. In addition, it is important to examine the mechanisms by which socially supported values are employed in food system related choices. The reflexive cycle is one such mechanism.

1.3. Reflexivity: The slow revolution

The work of sociological theorist A. Giddens shows that as ecological and economic environments change, modern society continuously becomes more aware of itself, thereby bringing about social change in a gradual manner. The process of reflection
and the impact this reflection has on individual and social action is called *reflexivity*. Reflexivity is a self-reinforcing pattern with the overall effect changing of communities and cultures through gradual shifts in social values (Beck, Giddens, & Lash, 1994). Historically, the reflexive process has been applied to food systems with the result of dramatically changing production practices as well as economic policy. For example, concerns over the long term health effects of genetically modified organisms (GMOs) in the European Union led to policy changes that limit the use and availability of products that contain GMOs (Fonte, 2002).

The process of reflexive decision making and its impact on social, environmental, and economic systems is illustrated in Figure 1, on the following page. The process is shown as a self-reinforcing loop in which the primary ingredients (information and moral reflection) are continuously influenced by new information and other pressures. These factors then influence the food choices made by food system stakeholders, which in turn impacts the market to varying degrees. If the market is affected in a significant way, the system will respond by providing an alternative consumption choice that meet stakeholder demands. This change in the market often results in the availability of new information, either in printed form or through social dialogue, which in turn facilitates another round of reflection.

To illustrate this process, consider a typical supermarket shopper in the northeastern United States. This shopper is looking for vegetables to make for supper when she remembers something she heard the other day about how most vegetables travel long distances to reach her part of the country. This shopper has also heard about greenhouse gas emissions from her friends, and last winter she saw a film about global
climate change that featured well-known celebrities. The shopper starts to think a little bit about how her food choices may contribute to these big problems. But what vegetables can she buy for supper that haven’t traveled such a long distance, and thus contributed to the emission of all those nasty greenhouse gases? There is a bag of potatoes from Maine on the shelf, but it’s hard to tell where any of the other vegetables come from. The shopper buys the potatoes (and decides she needs to learn more.) This is one reflexive cycle.

Figure 1: Reflexivity in action

The next reflexive cycle begins a few weeks later, when the shopper goes to a farmers’ market with one of her friends. At the farmers’ market the shopper talks with some of the vendors. She notices that the vegetables at the farmers’ market seem fresher
and than those at her supermarket. She may purchase some vegetables, some eggs, or whatever else she may need for the next couple of days. She asks the farmers why they sell at the farmers market instead of the grocery store, and learns that some of them like to see all the different people who come by their stands, and some of them appreciate that they can earn just a little bit more money at this venue (because they sell directly to customers). The festival atmosphere of the market is also very appealing to the shopper, and she finds that after she has finished at the market, she’s had many more social interactions that she would usually have on an average trip to the supermarket.

Through this process the shopper takes in new information and develops an opinion based on available information and personal preferences. If she and her friends and her family all engage in the same process and, as a result, change their purchasing behavior, this will in turn pressure the market to provide them with more agreeable purchasing options. With new purchasing options comes new information (for example the conversation with the vendor at the farmers’ market) and new opportunities for ethical reflection, thereby beginning the reflexive cycle again. When this process leads to place-specific or geographically aware choices, this food movement creates what M. Goodman (2004) calls a “moral geography” (p. 891). A critical mass of people engaged in similar, reinforcing reflexive cycles results in a social movement.

In order to continue growing and being responsive to changing situations, social movements must have access to current information. The ways in which this information is communicated is of great importance to the study of social movements, including those that address sustainability and food systems. This research focuses on exploring place-specific stakeholder values, the mechanisms by which information about values is
communicated, and the implications this has on the future development of the Vermont-regional food system. Specifically, I did this through the identification of expert stakeholder values and development of food system indicators.
CHAPTER 2: LITERATURE REVIEW

2.1. Values and food movements

Social movements that address food system related concerns seek to change these systems in tangible ways. Food movements are distinguished from one another by their diverse, though sometimes overlapping, goals and values. They also differ according to the type and amount of information they provide to food system stakeholders, a factor that impacts the amount of space for reflexive decision making and capacity to work towards food system sustainability.

This review examines the values and type of reflection practiced in four food related social movements: Back to the land (of the 1960s and 1970s), organics, fair trade, and local food. As the newcomer to this group, the Vermont local food movement will be examined in some detail with special attention to how specific programs and efforts impact stakeholders’ ability to access information and make decisions based on personal and social moral preferences. In addition, indicators will be presented as tools for communicating information about food systems as guided by stakeholder values.

Homesteading

In the history of the United States, there have been several back to the land, or homesteading movements. The latest reincarnation of this movement took place during the 1960s and early 1970s. Individuals or families who practiced homesteading were motivated by their desire to remove themselves from mainstream culture, often sacrificing (to varying degrees) conveniences and public services such as grocery stores and public schools (Gould, 2005). Many members of this movement practiced gardening
and small scale farming following what would later be known as organic practices (Roth, 1999). They undertook these efforts in the interest of increasing their own self-sufficiency, raising a diversity of crops and animals for family use. Values associated with this movement included living and eating seasonally and close to home, voluntary simplicity, and selective use of technology (Gould, 2005; Jacobs, 2006).

Not all homesteaders went “back to the land” to the same degree. Some attempted to remove themselves from society as much as possible, living in remote areas and growing most of their own food. They would occasionally travel into towns to acquire what they could not grow or make themselves, but would afterwards retreat to their homesteads (Jacobs, 2006). Other members of this movement chose a less reclusive lifestyle, living in small towns and holding full or part time jobs while growing as much of their own food as they could. Still others joined together to establish communes (Jacobs, 2006).

Communes established during this era often incorporated food production and other farming practices. The food produced on communal farms was sometimes sold to generate income for the community. More often than not, however, it was used to feed the commune members themselves (Moss Kanter, 1972). In fact, food production often proved to be a significant challenge for these groups. Often commune members had little or no practical experience with growing vegetables or raising animals. Instead, romantic ideals about the connection between labor and the human spirit fueled many commune farms. R. Edington (2008) writes that this lack of practical knowledge meant that commune members were ill prepared to “deal with the difficult realities of rural life and
the arduous nature of communal labor facilitated structural breakdown in most countercultural communal ventures” (p. 282).

Despite the collapse of many communes, other homesteaders were more successful in producing food for themselves and their community or families. For these individuals and groups, self sufficiency through food production was a central value (Jacobs, 2006). R. Gould (2005) writes,

—however troublesome the term (and the achievement of) self sufficiency might be, the ideal persists as a model to strive for in many homesteading projects. The ideal is expressed in the desire to grow one’s own food, reduce spending, and ‘make do or do without.’” (p. 21-22)

Homesteaders found instructional and philosophical support through a variety of homesteading manuals (such as the Whole Earth Catalogue) and magazine publications (such as Mother Earth News) (Edington, 2008). This information, both practical and philosophical, increased the capacity of homesteaders to engage in ethical reflection, which in turn influenced their lifestyle choices and impact on larger food systems.

The line between the back to the land movement and the organic movement is a blurry one. This is primarily due to the shifting preferences of homesteaders. As time passed, many of the original back to the land families practiced home food production less and less, necessitating their increased participation in food markets. Despite this shift, homesteaders retained their preferences for foods that were produced using low input methods and ecological awareness. The demand for what would later become known as organic food had profound economic and political impact on the character of the United States food system (Edington, 2008).
Other former homesteaders turned their efforts to providing organically produced food to these emerging markets either through retail or production ventures. They started cooperative food stores that featured organically grown food, or they grew food and processed foods and other products. Some companies founded during the decline of the back to the land movement, such as Tom’s of Maine and Celestial Seasonings, became multi-million dollar businesses in the 1970s and 1980s. Their success was due to what Edington (2008) calls “environmental consumerism” or “alternative forms of consumption that wedded the health of nature with that of the human body” (p. 300). The transformation of the back to the land movement into the environmental consumer movement shows how reflexive cycles can have dramatic impacts on food systems (DuPuis, 2000; DuPuis & Goodman, 2005; Guthman, 2003). While the decisions made by food system stakeholders may vary (growing an apple versus purchasing an organic apple for example,) the reflexive cycle is still in play for individuals, social groups, and communities.

Organics

The organic food movement began as early as 1943, as marked by the publication of Lady Eve Balfour’s influential book The Living Soil (Callon, Meadel, & Rabecharisoa, 2002). Standards for organic production were developed during this time by a British organization called the Soil Association (SA). Despite the early evolution of the organic food movement in Europe, organics did not gain popularity in the United States until the mid 1970s. By this time, mainstream US agricultural production and research was heavily focused on integrating pesticides and herbicides into conventional production practices,
while biotechnology loomed on the horizon (Lyson, 2004). The US organic movement continued in the footsteps of the homesteading movement, growing largely in opposition to these conventional practices. Like the homesteading movement, environmental concern and ethical restraint were central values for those who supported organics (Vos, 2000). In the 1970s, organic was not a defined term, but rather a collection of commonly understood values and practices. Members of the organic movement generally believed that food production was part of a complex and holistic system. Emphasis was placed on the importance of food in a social or community context, place and tradition, the cultivation of trust, and the integration of ecological diversity (Raynolds, 2004).

For several decades, the US organic movement was decentralized and unregulated. Though there were several regional and state scale efforts to legally recognize and certify organic food production in the early and mid 1970s (California Certified Organic Farmers and Oregon Tilth are two notable examples), it was not until 1979 that the first federal Organic Food Act passed. This act was amended in 1982 to legally define the term organic, though the US declined any enforcement responsibilities related to use of the term in this legislation (Guthman, 2004). The first federal act to address the enforcement issue was through the 1990 Organic Food Protection Act (OFPA). The intention of this legislation was to use certification standards on a national level to open up larger markets for organic food and make certification an attractive option for large-scale producers (Klosky, 2000). This process was initiated in 1992 when the USDA appointed the National Organics Program (NOP) advisory board to create a
draft set of organic standards. Four years later, in 1997, the first draft of the standards was released for public comment (Shulman, 2000).

The dialogue that ensued can be framed through two related, though significantly differing frameworks. Allen and Kovach (2000) argue that by integrating ethical consumption practices (in this case the purchasing of organic products) into the industrial food system, organic certification contributed to what Karl Marx identified as commodity fetishism, or the embedding of social relationships in the production and sale of commodity products (Allen & Kovach, 2000). This concept has negative connotations, primarily due to the degree to which the social relationships that determine certification standards are often obscured to the public. This charge was the exact one levied against the USDA following the initial release of NOP standards 1997 (Shulman, 2000). Related to, but also diverging from the theory of commodity fetishism is the theory proposed by Karl Polanyi (1957). Polanyi also acknowledged that markets are influenced by not only economics, but also by social and cultural institutions, but that this embeddedness creates opportunity for the incorporation of many different concerns into the market. The difference between embeddedness and commodity fetishism is therefore the level of transparency around social relationships, especially those that influence the creation of official standards or accepted practices.

Following the public unveiling of the first draft of NOP standards, the USDA received large amount of criticism for rejecting the explicit recommendations of the NOP board and bending to the wishes of agricultural industry interests (Shulman, 2000). The publicly unacknowledged relationship between the USDA and biotechnology firms led to overwhelming public outcry and scathing newspaper editorials. In response, the USDA
opened up the NOP for public comment. This was the first time a federal agency used
the internet to do so, a tactic strongly supported by the Clinton administration. The use of
the internet in this process is credited with increasing the capacity of social dialogue
around the NOP standards dramatically, thereby undermining commodity fetishism and
contributing to embeddedness (Allen & Kovach, 2000; Polanyi, 1957).

By late 1997, the USDA had received 275,000 faxes, emails, and letters about
NOP standards. This was the largest number ever received by the federal agency on any
issue prior to this date. The final version of the NOP was highly responsive to the will of
the public as demonstrated by its prohibition of the use of biotechnology crops,
irradiation, antibiotics, and the use of sewage sludge as fertilizer in organic production
(Shulman, 2000). These prohibitions were not present in the standards prior to the public
comment period. By demonstrating responsiveness to public opinion, the USDA
effectively increased transparency around their decision making process, and as a result
won the support of many NOP skeptics.

Despite the efforts of the USDA, not everyone agrees that the NOP revisions are
in keeping with core organic values. J. Guthman (2003; 2004) has written extensively
about the organic movement in the United States. She maintains that the legal definition
of organic combined with the federally supported certification process were instrumental
in transforming the organic movement into the organic industry. Though the creation of
organic standards has been responsible for the dramatic increase in sales of organic food,
Guthman (2003; 2004) and others maintain that the shift has compromised the
movement’s deeper values including trust, personal relationships, ecological diversity,
after the introduction of large-scale *industrial organic* agriculture, consumers’ relationship with organic food shifted. Eating organic food no longer necessitates a direct relationship between consumers and food producers or production practices. Instead, information about organic food is now limited to a set of national standards that do not demonstrate sensitivity to ecological context, the needs of specific communities, or consideration of place. Allen and Kovach (2000) also note that, prior to the NOP, organic practices were thought to be highly responsive to the ecological practices of individual climate and micro regions. They argue that by standardizing organic practices on a national level, producers whose primary concern is accessing the market can use the label while not demonstrating concern for in supporting organic values.

**Fair trade**

Though younger than the homesteading and organic agriculture movements, the fair trade movement also seeks to introduce a specific set of values into the food system. The goals of the fair trade movement depart from homesteading (whose focus is self sufficiency and environmental impact) and organics (production practices and environmental impact) and instead seek to address justice in economic relationships (Goodman, 2004; Renard, 2003). How the reflexive cycle manifests in the fair trade movement differs from the homesteading and pre-NOP organic movements. This is primarily due to the way in which information is communicated in the fair trade movement (Adams & Rainsborough, 2008; Goodman, 2004).

The international fair trade movement began in the early 1960s as a project of Oxfam UK, though the first fair trade label was not produced until 1988 (Renard, 2003).
There are currently 17 national level certifying bodies for fair trade, all housed under the umbrella of Fair Trade Labeling Organizations International (FLO). Today, the fair trade label is used to communicate to consumers the economically and socially just production practices of many types of products, though the majority (70%) of all items certified are food items (Callon, Meadel, & Rabeharisoa, 2002). The movement spread to the United States in the late 1990s and early 2000s, a period of time also marked by a dramatic increase in fair trade sales worldwide (Adams & Rainsborough, 2008).

The goals of the fair trade movement are to improve producer communities and agricultural ecosystems (which are primarily located in the global south) through certification agreements and an increased return for production. Additional benefits to these communities include the development of professional networks, opportunities for information sharing, and an increased ability to navigate international markets. By going through the certification process, producers agree to follow environmental best practices, run their production collective democratically, and use the return from price premiums for the benefit the collective members (Goodman, 2004). All this is communicated to consumers (who are generally assumed to be middle class residents of the global north) through descriptive packaging, company websites, and informational literature. By spotlighting producers and providing information about fair trade agreements, these informational campaigns attempt to convince consumers that by purchasing fair trade products they can actively support ethical economic development (Adams & Rainsborough, 2008).

M. Goodman (2004) argues that by making this information accessible (in quantity) to consumers, the fair trade movement facilitates many opportunities for
consumer reflections on food choices. He states that this facilitation distinguishes fair trade certified products from those sold under the organic label, which is shrouded in a certification process that is opaque to many consumers. Adams & Rainsborough (2008) take issue with this assumption on the grounds that the degree to which consumers can reflect on food systems choices differs depending on whether or not they see themselves as part of a global or localized community. Local communities allow for information to be communicated through social interactions, thereby embedding moral values in the marketplace. Globalized networks (characterized by limited, if any, face-to-face interaction) depend on written, electronic, or video media to communicate information, which results in what Adams & Rainsborough (2008) call disembedded reflexivity. This type of reflexivity is limited in the degree to which they can address the needs of communities.

This limitation has led to the emergence of a domestic fair trade movement in the United States. The Domestic Fair Trade Association (DFTA) is one of the organizations responsible for advocating for the fair treatment of US farm workers, and also for exploring the creation of a domestic fair trade certification process. The efforts towards certifying domestic fair trade are supported by studies that show consumer willingness to pay a price premium (Howard & Allen, 2008) and producer willingness to accept that premium (Strochlic, Wirth, Fernadez Besada, & Getz, 2008) for improved working conditions for domestic farm workers. Critiques of the voluntary certification processes address the degree to which these concerns are prioritized and how the fair trade movement may be compromised by absorption into the commodity food market (Brown & Getz, 2008a; 2008b). While the degree to which certification and labeling practices
enhance food system sustainability is contested, the social justice values associated with domestic fair trade present opportunities for reflection for food system stakeholders.

**Local food**

L. DeLind (2006) identifies the local food movement as a “second generation response to food system issues” (p. 123). Local food has drawn heavily from the homesteading, organic, and fair trade movements, both by adopting and often reinterpreting specific values and also by continuing the tradition of creating opportunities for individual and social reflexivity. In the US, local food became a topic of conversation in the late 1990s, though it has increased in popularity dramatically only in the past several years. According to Hinrichs & Allen (2008), the first buy local campaign was started by a Massachusetts based nonprofit organization called Community Involved in Sustaining Agriculture (CISA) in 1999. The campaign used the slogan: *be a local hero/buy locally grown* in a variety of advertising and media efforts to increase the level of sales interaction between farmers and producers in Massachusetts. This proved to be a very successful campaign, which drew the attention of FoodRoutes, a national level organization. Together, CISA and FoodRoutes developed the marketing slogan *buy fresh, buy local*. This marketing tool has been utilized by many buy local campaigns in the US to convince consumers that locally produced food is morally preferable or has superior attributes to other products (Hinrichs and Allen, 2008).

The qualities of locally produced foods are presented as morally preferable in a variety of scholarly frameworks as well. An abbreviated sampling of these frameworks includes *food sheds* (Kloppenberg, Henrickson, & Stevenson, 1996), *civic agriculture*
(DeLind, 2006; Lyson, 2004), community food systems (Feenstra, 2002), and food citizenship (Wilkins, 2005). An overview of the values highlighted by each of these will illustrate how local food is both similar to and divergent from the homesteading, organics, and fair trade movements.

Scaling foods systems to the needs of specific communities is often highlighted as a signature quality of the local food movement. J. Guthman (2003) writes that scale is a central concern of the local food movement primarily in reaction to a sense of placelessness associated with commodity industrial agriculture. Food sheds, as introduced by Kloppenberg, Henrickson, and Stevenson (1996) suggest a way of conceptualizing food systems by being sensitive to place and community. The term food shed is defined as “the sphere of land, people, and business that provide a community or region with its food” (Halweil, 2002, p. 14). Food sheds are based on five primary values: (1) moral economies, including qualities of mutuality, reciprocity, and equity; (2) commensal communities, which describes a relationship in which one members of a community receives food from other members without causing harm to them, and in which the discovery and reclamation of meaningful relationships is cultivated; (3) self-protection, secession, and succession, which implies a need to gradually disengage from the global food system in the interest of maintaining food-safety and security; (4) proximity, which denotes that food sheds are inherently tied to physical places through physicality itself, as well as the social, economic, and ethical aspects of place; and (5) the use of nature as measure, which implies that sustainable food systems function within the bounds of replenishable resources, and members of these systems must practice moral
restraint when the opportunity to use unrenewable resources arises (Kloppenberg, Henrickson, & Stevenson, 1996).

These values clearly articulate the importance of scale and a sense of social and physical place in sustainable food systems. The emphasis on moral restraint is reminiscent of the homesteading movement, while the importance of natural processes harkens back to the early days of the organic movement. While these values also refer to the social justice values espoused by fair trade, an important distinction must be made. Unlike fair trade, which uses written and other media to create a sense of globalized social connection, the food shed framework assumes that proximity leads to transparency around food issues on a local level. This attention to proximity supports reflexive decision making for individuals and social groups, creating opportunities for increasing sustainability in local food systems. Other literature addressing the local food movement arrives at the same conclusion: C. Sage (2007) writes that face-to-face interaction between producers and purchasers facilitates a greater sense of trust which in turn leads to opportunities for the “remoralization of the food economy” (p. 149). D. Goodman (2003) also supports this when he notes that increased “trust, tradition, and place support more differentiated, localized, and ‘ecological’ products and forms of economic organization” (p. 1).

The assumption that local food systems are inherently transparent and fair is questioned by several critics. These studies seek to show that values of the local food movement should be examined closely, and perhaps altered in response to the place and community in which they are applied (DeLind, 2002; 2006; Hinrichs & Allen, 2008; Seyfang, 2006). This suggestion supports the view that communities and social groups
are ultimately responsible for practicing reflexive decision making based on information that relates to their specific context.

Despite the capacity of the local food movement to be sensitive to context and community, scholarly literature often assumes efforts in different parts of the country share universal ethical concerns. While my own personal experience and anecdotal evidence does not find this to be an accurate description of the local food movement, some of the concerns raised in this literature can still serve to guide the movement towards sustainability. This is particularly true when considering literature that stresses the importance of *place* over *localness*. According to DeLind (2002), *local* refers only to the proximity of food sourcing to the point of consumption. While this is an important concept, it can only support sustainability in the food system if qualities of *place* (specific to the environmental, social, economic, and cultural context) are given equal consideration. These factors are also cited as being important in *civic agriculture*, a framework attributed to T. Lyson (2004). DeLind (2002) defines *civic agriculture* as “— a diverse and growing body of food and farming enterprises fitted to the needs of local growers, consumer, rural economies, and communities” (p. 217). This framework emphasizes the need for spaces conducive to spiritual, cultural, and civic growth. DeLind & Bingen (2007) argue that the degree to which the local food movement integrates the values of the civic agriculture framework will determine its effectiveness in increasing sustainability in food systems.

Because the local food movement is still relatively young and decentralized, it is still possible emphasize the importance of place in a meaningful way. The following section examines the Vermont local food movement as an example of how efforts to
enhance the food system have either cultivated a place for stakeholder reflexivity, or have been motivated by alternative goals and values.

2.2. Local Food in Vermont

Before the phrase local food gained popularity in Vermont, a variety of statewide, regional and community efforts were committed to supporting and sustaining the Vermont-regional food system. This is indicated by the numerous non-profit organizations and their leagues of supporters that continue to conduct research, advocacy, and action to support the resiliency and health of farming in the state. Other efforts include the joining of individual business and groups of businesses to form new non-profits, associations, or co-ops to better secure financial viability, social justice, sustainability, or to share information. In addition, colleges and universities, (including the University of Vermont and the extension service) have focused on supporting the development of small scale enterprises around the state including small ruminant dairy and cheese making, oilseed crops for biofuels production, and many others. The established nature of some farmers’ markets, coops, and community supported agriculture ventures (CSAs) also indicates that consumers have been interested and involved in the Vermont food system since before local food became popular. Efforts to enhance the Vermont-regional food system are diverse in their actors, missions, and intents.

Since the early 1990s the growth of the local food movement in Vermont has increased and focused consumer and producer interest and legislative support for innovative agricultural production and marketing methods. This review introduces a
variety of commonly spotlighted groups from around the state, and briefly addresses whether or not their efforts increase opportunities for individual or social reflexive behavior in the local food system, or if they are motivated by an alternate value or goal.

**Grassroots efforts**

Community level efforts to support and enhance the local food system range from the efforts of businesses to sell to the community through direct markets, localvore groups that share resources and information, community gardens, and many other specialized activist groups (Nickerson, 2008). Of these, direct marketing opportunities (such as farmers markets, CSAs, farm stands, etc) have perhaps had the most noticeable impact on the Vermont food landscape. This can be seen by the dramatic increase in farmers markets in the United States and in Vermont, as seen in Figure 2 (Brown, 2001; Sawyer, 2007), and in the rising popularity of CSAs. These methods of marketing are characterized by a high degree of interaction between consumers and food producers, which Sage (2007) presents as a mechanism for developing trust between members of a community. He writes that this trust is necessary for the development of a moral food economy. Wilkins (2005) echoes this when she explicitly identifies direct marketing as a tool for developing what she calls *food citizenship*. Farmers’ markets in particular are credited with providing a social space for members of communities, a necessary component of sustainable food systems (Feenstra, 2002; O’Hara & Stagl, 2002).
One of the primary characteristics of farmers’ markets and CSAs is that they are highly diverse in their organizational structures. Farmers’ markets, for example, have different levels of foot traffic, different requirements for vendors, and different governance structures. CSAs can sell food grown on the farm, they can consolidate the products from several neighboring farms, or follow a variety of other models. This diversity implies that these often grassroots-based marketing venues evolve from the needs of the community. Local food can only be a sustainable, context sensitive movement if it addresses community needs for alternative economic development, as well as civic, ecological, cultural, and social places (DeLind, 2002; DeLind & Bingen, 2007).
**Education in the food system**

Food system education has also played a large role in the development of the Vermont local food movement. Educational efforts have taken several forms, a selection of which are summarized in this section. First, farm-to-school programs are partnerships between schools and local producers that seek to give students an appreciation of fresh and nutritious local food while strengthening community ties. Educators in these programs work to develop curriculum related to the food system while simultaneously partnering with the school to shift food purchasing and preparation to include local food. There are currently 13 farm-to-school programs in the state of Vermont (Farm to School, n.d.). These vary from initiatives of individual schools (Craftsbury School, Hardwick Elementary School,) to school districts (Chittenden East Supervisory Union, Brattleboro Town School District,) to efforts by non-profit organizations (Green Mountain Farm-to-School, Vermont Food Education Every Day). Often these efforts overlap and involve cooperative efforts between multiple partners. Partnerships also vary in scope, ranging from consultation visits to multi-year partnerships that address community engagement, curriculum enhancement, and changes in school cafeterias (A. Nelson, personal communication, 2009).
Figure 3: “What is Real Food?” from the UVM Real Food Summit, 2009

What is Real Food?

...food which truly nourishes

Consumers

Access
Affordability, Hunger Relief

Health
Safety, Nutrition

Pleasure
Taste, Awareness, Connection to food

Control
Self-sufficiency, Food Sovereignty Community Food Security, Food Justice

Education
Youth Development, Leadership

Culture
Traditions, Relationships, Public Space, Spirituality

Economics
Urban & Rural Economies

Producers

Farmer
Fair Trade, Trade Justice

Labor
Farm Workers, Processing Plant labor, Food Service Workers

Farmers
Family farmers, Minority farmers, Immigrant farmers

Animals
Fisheries, Animal Welfare

Natural Resources
Soil & Water Quality, Biodiversity

Climate
Alternative energy, Emissions, Climate Change
In partnership with Vermont Food Education Every Day (VT-FEED), Food Works at Two Rivers also addresses the need for food education in schools. In addition, Food Works increases the educational opportunities for low-income families through their Gardens for Learning Program and their new Good Food, Good Medicine program. Both of these efforts concentrate on increasing Vermonter’s capacities to access adequate quantities of nutritionally sufficient, fresh, and local foods. This is accomplished by bringing gardens into public schools and providing gardening, cooking, and nutrition classes for parents and children in section 8 (low income) housing (Food Works at Two Rivers, n.d.).

Food system education has also found its way into Vermont colleges and universities. Middlebury College, for example, has demonstrated its dedication to incorporating local Vermont products into its food service while also supporting students to pursue projects related to food systems such as the Food Mapping Website (http://geography.middlebury.edu/applications/Food_Mapping/). At the University of Vermont (UVM) the effort to raise awareness about local foods on campus and incorporate local food into the food service has been a student driven effort with faculty and staff support. The “Real Food Summit” was a recently organized student week long event that invited outside speakers to campus and organized celebrations around local food. The students involved in this project demonstrated a growing awareness around food system complexity, as shown in their graphic depiction of the food system in Figure 3 on page 31. In addition to student led efforts, UVM has recently introduced a new opportunity for undergraduates to minor in food system studies, with hopes to expand the
program to include graduate students by 2010. Other efforts at UVM include themed residence halls, a student run CSA farm, and a growing body of research related to food systems.

Other educational efforts in Vermont that have positively contributed to bolstering the local food movement include conferences and workshops that address production and marketing techniques for farmers as well as homesteading skills (such as the NOFA-VT Winter Conference, the Grazing Conference, and the Direct Marketing Conference). The ability of farm to school efforts, college and university initiatives, conferences, and workshops to create opportunities for information sharing and social connection make them highly useful mechanisms for facilitating reflexivity in the Vermont-regional food system.

**Policy and regulation**

The Vermont Legislature and the Vermont Agency of Agriculture, Food, and Markets (VAAFM) play a significant role in developing the Vermont local food movement. Though the Vermont legislature has historically supported commodity dairy agriculture, recent years have shown an increased interest in diversified, sustainable, and local food systems in both the House and the Senate. This is clearly demonstrated in statements of legislative intent related to support for emerging agricultural industries (H.522), efforts to promote Vermont quality products (Vermont Seal of Quality), and the definition of the term *local* (the Representations of Vermont Origin Rule), to name a few. The Representations of Vermont Origin Rule (often shortened to the Vermont Origin
Rule) has the most impact on reflexivity among any of these legislative acts. By defining local, the legislature intended to clarify the term with the assumption that greater clarity would be beneficial to consumers and food producers. The rule, as adopted in Vermont Statute 9, Chapter 63, § 2465a. states that:

"Local," "locally grown," and any substantially similar term shall mean that the goods being advertised originated within Vermont or 30 miles of the place where they are sold, measured directly, point to point; except that the term "local" may be used in conjunction with a specific geographic location, such as "local to New England", or a specific mile radius, such as “local - within 100 miles”, as long as the specific geographic location or mile radius, appears as prominently as the term "local" and the representation of origin is accurate. Individual businesses have also addressed this need by labeling local food in restaurants and retail establishments. (Vermont, 2008)

While the clarification of the term “local” may serve the economic interests of the Vermont food system, this tactic does not directly serve the social and environmental components of food system sustainability. It remains to be seen how this legislative action affects the market for Vermont produced food, and if it has any impact on stakeholders’ ability to integrate individual and community values into food decisions.

Actions taken by the Vermont legislature sometimes facilitate partnerships and open spaces for dialogue in a way that supports reflexive behavior. The mandated establishment of the Sustainable Agriculture Council (SAC) in 1995 is an example of this facilitation in action. The SAC is a collaborative group representing farmers and many
food and agriculture focused nonprofits (such as NOFA-VT, Shelburne Farms, Vital Communities, the Center for Sustainable Agriculture, and others). The goal of the SAC is to “encourage the development and use of economically and ecologically sound sustainable agriculture practices” (SAC, 2009). The primary function of the Council is to provide a place for various groups to meet and share ideas about the state of the Vermont food system, thereby supporting the possibility that sustainable practices will be adopted. The Vermont legislature also dedicates funds for programs that in turn support reflexivity. An example of this is the 2007 Rozo McLaughlin Farm-to-School program, which designates VT-FEED as the distributor of funds and service to initiate new farm-to-school initiatives. For reasons previously addressed, farm-to-school programs provide ample opportunity for information sharing and social connections, two necessary ingredients for reflexivity.

The Vermont Agency on Agriculture, Farms, and Markets (VAAFM) has engaged in the local food movement by playing two primary, though sometimes conflicting, roles: (1) As critical supporter of the Vermont agricultural economy, and (2) as a state agency responsible for regulating agricultural activities. The Agency serves as the executor of many legislatively mandated changes in the Vermont food system, and is also responsible for enforcing many state and federal regulations. While it fulfills a crucial function in the Vermont-regional food system, VAAFM does not strive to create space for moral reflection on food choices.

In support of the Vermont agricultural economy, VAAFM has capitalized on the popularity of the local food movement in several ways. In 2003, the agency built upon
the successes of the FoodRoutes local food publicity efforts and initiated its own buy local campaign. This effort included the production and dissemination of printed marketing materials, press releases, newspaper inserts, radio promotions, and spots on Vermont Public Television. In addition, the Agency sponsored recipe contests and cooking demonstrations (Labun-Jordan, personal communication, 2009). The buy local effort has succeeded in raising the visibility of Vermont products and producers, and is assumed to have contributed to the increasing demand and supply of local food in the state. The buy local campaign and other VAAFM efforts have not focused on creating spaces for reflexivity in the Vermont local food movement, but rather have sought to address the economic dimension of the local food movement.

Other ways in which VAAFM has supported the local food movement are through the purchase of a mobile poultry-specific abattoir (2007) and a mobile freezing unit (2008). Both of these units were purchased by the state and are now leased and operated by private businesses. The use of the mobile units encourage poultry production and light processing by lowering barriers to market entry for small producers. If farmers find they have a market for these goods and wish to produce more than the capacity of the mobile unit can support, they can individually or collectively organize a private processing facility. While lawmakers and the agency of agriculture are responsible for enabling both of these efforts, it should be recognized that advocacy groups such as Rural Vermont and NOFA-VT, as well as research organizations such as the Center for Rural Studies and UVM extension participated in advocating for lawmakers to pass the adaptive legislation and authorize funding for these incubator projects.
Food hubs

Lastly, efforts to expand the local food movement in Vermont have moved beyond the low hanging fruit of farmers’ markets and CSAs. Nonprofit organizations, community groups, entrepreneurs and others have taken the latest recommendations of the SAC to explore the development of alternative cooperative distribution, processing, and marketing of local foods (Nickerson, 2008; SAC, 2009). Infrastructure and programmatic developments that address these recommendations are called *food hubs.* Several groups around Vermont have, in the past several years, developed food hubs that seek to expand the ability of producers to market local goods to large-scale purchasers such as universities, hospitals, prisons, and schools. These groups are currently engaged in a facilitated series of conversations to determine how food hubs should be defined in Vermont, and if these groups can coordinate efforts to meet the needs of their individual communities.

Selling to large-scale purchasers presents a set of challenges unlike those faced by growers who sell directly to household customers. Specifically, large accounts usually demand year-round access to large quantities of whole and value added products. This necessitates a great deal of processing, storage, season extension, and distribution infrastructure above and beyond what is already present in Vermont (VAFFM, 2009). A survey conducted with institutional customers (such as restaurants, schools, hospitals) in Northeastern Iowa by the Aldo Leopold Center for Sustainable Agriculture showed that 61% of these buyers did not source locally because of the inconsistent availability of
locally produced products (Pirog, 2007). While there is no comparable data available in Vermont, anecdotal evidence supports the belief that inconsistent availability constitutes a serious barrier between large-scale buyers and the local foods market. Despite this barrier, some large-scale buyers do purchase from local producers. Examples of these purchasers include Fletcher Allen Hospital, Middlebury College, and Sterling College, among others. These purchasers and others would likely purchase more local food if it were available consistently and in sufficient quantity.

Food hubs face important, though navigable challenges if they move beyond economic considerations and contribute to making the Vermont local food movement a reflexive, sustainable, and place-based. Foremost among these challenges is how to increase the levels of transparency in market and political relationships while providing spaces for social interactions for consumers and producers. Because some food hub models take producers out of contact with final consumers, information about production and context must be communicated by other means. To address this challenge, it is possible for food hubs to draw on the techniques used by fair trade collectives including descriptive labeling, media campaigns, and informational websites. Though this will potentially limit the local food movement to what Adams and Rainsborough (2008) call *disembedded reflexivity* (as discussed in the previous section), it is possible for food hubs to create new opportunities for information sharing and social interaction.
2.3. Indicators as communication tools

In the promotion of ethical food movements, it is necessary to communicate information and values effectively. Decision-making around sustainability issues in food systems necessitates that stakeholders have access to information for personal and group decision making. Indicators are one tool for consolidating dispersed information, measuring progress, and increasing transparency in these decisions (Reed, Fraser, & Dougill, 2006). Indicators serve to simplify and represent the complex interactions between the social, economic, and environmental components of food systems (Maclaren, 2004). The information provided by indicators can serve to influence policy, facilitate partnerships, define arguments, communicate information, facilitate social learning and social change, increase awareness about sustainability issues, and measure the accomplishments of past, present, and future efforts (Pirog et al, 2006; Prell, Hubacek, Quinn, & Reed, 2008; Hagan & Whitman, 2006; Sustainable Seattle, 1998). Food system related indicators are can be created to address a variety of scales, including global, national, regional, and local.

Indicator process models

According to the Aldo Leopold Center for Sustainable Agriculture in Iowa, a significant challenge in increasing the sustainability of regional and local food systems is communication between community groups, business investors, and policy makers. Communication between these stakeholder groups is imperative, and indicators are potentially suited (depending on context and methodology) to facilitate this
communication (Pirog et al., 2006). According to Reed, Fraser, & Dougill (2006), indicator projects are derived either by top-down, bottom-up, or integrated approaches. Alternately, these categories have been identified by Bell and Morse (2001) as reductionist (expert driven and scientific) or conversational (generated from stakeholder dialogue.)

The difference between these methods is intuitive. Reductionist, or top down indicators, are initiated and facilitated by experts, researchers, or policy actors. In these indicator sets, a heavy emphasis is placed on scientifically defensible, quantitative representations of systems. They do not take into account the stakeholder values, a factor that limits their application and use (Reed, Fraser, & Dougill, 2006). Perhaps the best known example of an indicator set derived from using a top down methodology is the pressure-state-response framework first used by the Organization for Economic Cooperation and Development (OECD). In 1989, member countries of the G-7 group requested that the OECD create a set of indicators of sustainable development for use on global scale. The pressure-state-response framework was designed to describe different components of complex systems: those components that drive the system, those that describe the system as it is, and those that show how actors react to current conditions. Since the early 1990s when the OECD indicator model was presented at the United Nations Conference on Environment and Development in Rio de Janeiro, the indicators have rarely been updated or disseminated (Hammond, Adriaanse, Rodenburg, Bryant, & Woodward, 1995), thereby dramatically limiting their impact.
Top down indicator projects can also be crafted at a regional or local scale. While the OECD explored globally relevant indicators of sustainability, the early 1990s was also a time when many regional farm-based indicator projects were created. These projects were designed to address environmental impact, though some went further in an attempt to address ecological sustainability. According to van der Wef & Petit (2002), the proliferation of these farm-based indicator projects was due to a general consensus that, in order to achieve sustainability in agriculture, on-farm practices and impacts needed to be measured.

Unlike top down models, conversational or bottom up indicators are characterized by acknowledgement and incorporation of diverse stakeholder viewpoints. Indicator sets that are produced using this methodology often incorporate quantitative and qualitative information specific to the local environment. They emphasize that the benefits of indicators are not limited to the utility of the final set, but that they also include the learning processes associated with group indicator selection. The primary drawback associated with indicator projects is their limited ability to provide reliable, systematically collected data (Reed, Fraser, & Dougill, 2006).

Perhaps the best examples of bottom up indicator projects are the community indicator projects of the early 1900s. In 1910, the Russell Sage Foundation began collecting what are today known as community indicators. The Foundation provided technical support for over 2,000 towns and cities as they collected local level data on education, recreation, public health and social conditions. The community activists that spearheaded these studies included church groups, civic improvement associations,
chambers of commerce, etc. (Cobb & Rixford, 1998). In the 1990s, a new wave of community level indicator projects emerged around community health issues, poverty, and food systems or agricultural production. Modern community level projects are often initiated at grassroots level, but are financially supported and encouraged by foundations, non-profits, and public agencies (Ines & Booher, 2000; Sawiki & Flynn, 1996).

In recognition of the benefits and drawbacks of top down and bottom up models, indicator projects at the regional and local level have recently used innovated, hybridized methods. As a point of particular relevance, these integrated models have been used in community indicator projects that focus on food systems. The Vivid Picture Project (Feenstra, 2005), for example, facilitated several sessions dedicated to selecting and evaluating indicators that included both experts and stakeholders. While the experts were able to evaluate the indicators based on scientific defensibility, the stakeholders were able to evaluate the indicators based on their relevance to the social, cultural, environmental and economic context (Feenstra, Jaramillo, McGrath, & Grunnell, 2005). This method was also used in a project by the Center for Sustainable Systems at the University of Michigan (Heller & Keoleian, 2000). It is assumed that hybridized methodology increases the utility of indicators through ensuring their relevance to end-users (the food system stakeholders) and improving the quality of the information they are designed to communicate.

Highly regarded frameworks such as the OECD’s pressure-state-response system have been adapted and applied to hybridized indicator selection processes for the purpose of ensuring that indicators describe critical components of complex systems. For
example, Hagan and Whitman (2006) created a comparable indicator model, called the
condition-pressure-policy response framework, and applied it to their work with
community forestry groups in the northeastern US. Due to many common factors
between community forestry projects and local food systems, this model was particularly
relevant for this review. Each of the three types of indicators outlined by Hagan &
Whitman (2006) relate to different, though equally important, information about complex
systems.

*Condition indicators* are defined by Hagan & Whitman (2006) as those that
describe and measure the current state of systems. An example of a condition indicator
for local food systems is the amount of food that is sold by producers directly to
consumers. When compared to overall agricultural sales in Vermont, this information
reveals the prevalence of direct marketing in the state. *Pressure indicators* describe and
measure the causes for system change, such as the gap between the annual net income of
Vermont farmers and the Vermont livable wage. These indicators identify the causes of
improvement or degradation in the system, and can also provide advanced warning of
future changes. Lastly, *policy response indicators* represent the plans or policies that
improve or degrade the condition of a system. These are usually identified as being
present or not rather than by scaled measurement. Use of policy response indicators
facilitates the implementation of alternative practices, and makes system issues accessible
to policy makers. An example of a policy response indicator would be a statement of
legislative commitment or allocation of funds for a program in support of the local food
system. While many indicator efforts include only one type of indicator, literature
suggests that the most successful indicator sets utilize all three (Failing & Gregory, 2003; Hagan & Whitman, 2006).

Though indicators serve as useful communication tools, they are not without fault. There are some who believe that indicators are costly to produce and mostly ineffective. Specifically, Carruthers and Tinning (2003) show that producers find sustainability indicators to be less useful in providing them with needed information than “personally relevant indicators” (p. 307). In other words, generalized indicators are less useful than those created for a specific place or context. Innes & Booher (2000) add to this critique when they address issues of application. They write that even if indicators are created with a specific context in mind, communities are often unsure of how to use them.

Reed, Fraser, & Dougill (2006) call for clarification of these criticisms, arguing that unusable indicator sets are the result of insufficient stakeholder input in the drafting process. They maintain that stakeholders are less likely to use indicators that they have not participated in crafting. They also point out that if indicators are not used, they cannot facilitate adoption of sustainable practices or policy. In addition, critiques about the end usability of indicator sets do not often take into account the learning process that results from community indicator selection. (Atkisson, 2006; Bell & Morse, 2001; Reed, Fraser, & Dougill, 2006). Reed, Fraser, Morse, & Dougill (2005) show that, while indicators are popular tools, even when they are generated in a top down fashion they are rarely used in political decision making. Rather, it is suggested that the primary function of indicators (specifically those crafted in a participatory fashion) is the community learning and subsequent feelings of empowerment and capacity to create localized
change (Bell & Morse, 2001). The actual use of indicator sets and the data they represent is therefore incidental icing on the cake.

In summary, though indicators are not perfect instruments, their primary functions are to facilitate community learning and communicate important information about complex systems. Community, bottom-up indicator methodologies are particularly useful for addressing sustainability in local food systems. Indicators that result from processes that involve food system stakeholders and experts are more defensible and resilient. To ensure that indicator sets measure what stakeholders really care about, they should be guided by an investigation of reflexive values of stakeholders in a specific community or place.
CHAPTER 3: METHODS

3.1 Research Design

This research explores indicators as tools for providing information about sustainability in the Vermont-regional food system. The selection of indicators is guided by the values of relevant stakeholders. The Vermont-regional food system is defined as Vermont and the surrounding areas where food-focused Vermont businesses and communities are engaged in collaboration with other businesses and communities. The study addressed the following research questions:

1. What are the values that influence stakeholder decision-making related to sustainability in the Vermont-regional food system?

2. What do indicators drawn from these values tell us about the Vermont-regional food system?

3. What information is still needed in order to address sustainability more effectively in this food system?

Part 1: Interviews

This research was conducted in three parts. In Part I, I conducted 14 interviews with 17 expert stakeholders in order to identify and explore reflexive values about the food system. Expert stakeholders were identified as those who had professional, in-depth understanding of food sourcing and distribution. Interviewees were selected from the Vermont Fresh Network (VFN) member database with additional interviewees included by nomination. I selected VFN as an appropriate membership to draw from for this study.
because of the diversity of their membership. Producer, processors, chefs, and distributors can all become members of VFN, and the VFN website makes the contact information of their membership easily accessible. This research was originally designed to address issues of food sourcing and distribution, therefore expert food system stakeholders that were not considered specialists in this area were excluded from the participant pool. Such stakeholders include those who specialize in waste management, seed production, marketing, etc.

During this portion of the research I interviewed a selected sample of producers, distributors, processors, purchasers, chefs, employees of state agencies, and employees of non-profit organizations, as seen on the following page in Table 1. The interviewees were stratified for gender, occupation, approximate age (as a proxy for job experience,) and location (Kasemire, Jaeger, & Jäger, 2003). I stratified the participants in this way in order to diversify the perspectives surveyed in the study. Though data resulting from this research is not sufficiently extensive to draw conclusions based on demographic or occupational characteristics of the interview subjects, it is important to acknowledge that values may have varied based on these differences. This study was designed to gather as wide a range of these values as possible, while simultaneously focusing on those stakeholders with professional expertise in the food system.
Table 1: Study participants and interview information

<table>
<thead>
<tr>
<th>ID #</th>
<th>Occupation</th>
<th>Date</th>
<th>Location</th>
<th>Gender</th>
<th>Age</th>
<th>VFN?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Producers</td>
<td>5/19/08</td>
<td>On farm, Franklin Co.</td>
<td>M,F¹</td>
<td>&lt;40</td>
<td>Y</td>
</tr>
<tr>
<td>2</td>
<td>Producer</td>
<td>6/4/08</td>
<td>On farm, Windham Co.</td>
<td>F</td>
<td>&gt;40</td>
<td>Y</td>
</tr>
<tr>
<td>3</td>
<td>Producer</td>
<td>6/5/08</td>
<td>On farm, Addison Co.</td>
<td>M</td>
<td>&gt;40</td>
<td>Y</td>
</tr>
<tr>
<td>4</td>
<td>State Agency</td>
<td>6/18/08</td>
<td>Office, Washington Co.</td>
<td>F</td>
<td>&lt;40</td>
<td>N</td>
</tr>
<tr>
<td>5</td>
<td>Non-profit</td>
<td>6/19/08</td>
<td>Office, Washington Co.</td>
<td>F</td>
<td>&gt;40</td>
<td>N</td>
</tr>
<tr>
<td>6</td>
<td>Producers</td>
<td>6/21/08</td>
<td>On farm, Orleans Co.</td>
<td>M,F</td>
<td>&gt;40</td>
<td>Y</td>
</tr>
<tr>
<td>7</td>
<td>Chef</td>
<td>6/25/09</td>
<td>Office, Chittenden Co.</td>
<td>M</td>
<td>&gt;40</td>
<td>Y</td>
</tr>
<tr>
<td>8</td>
<td>Chef-buyer</td>
<td>6/30/09</td>
<td>Restaurant, Washington Co.</td>
<td>M</td>
<td>&lt;40</td>
<td>Y</td>
</tr>
<tr>
<td>9</td>
<td>Chef &amp; sous chef</td>
<td>7/1/08</td>
<td>Office, Windsor Co.</td>
<td>M,F</td>
<td>&gt;40</td>
<td>Y</td>
</tr>
<tr>
<td>10</td>
<td>Non-profit</td>
<td>7/2/08</td>
<td>Office, Windsor Co.</td>
<td>F</td>
<td>&gt;40</td>
<td>N</td>
</tr>
<tr>
<td>11</td>
<td>Processor</td>
<td>7/2/08</td>
<td>Facility office, Washington Co.</td>
<td>M</td>
<td>&gt;40</td>
<td>Y</td>
</tr>
<tr>
<td>12</td>
<td>Kitchen Manager</td>
<td>7/17/08</td>
<td>Office, Orleans Co.</td>
<td>F</td>
<td>&lt;40</td>
<td>Y</td>
</tr>
<tr>
<td>13</td>
<td>Distributor</td>
<td>9/10/08</td>
<td>Office, Windsor Co.</td>
<td>M</td>
<td>&gt;40</td>
<td>Y</td>
</tr>
<tr>
<td>14</td>
<td>Distributor</td>
<td>8/6/08</td>
<td>Coffee shop, Lamoille Co.</td>
<td>M</td>
<td>&gt;40</td>
<td>N</td>
</tr>
</tbody>
</table>

¹Some interviews were held with two people at once, often a husband and wife or business partnership.
The interviews were in-depth and held face-to-face. I used a semi-structured interview guide, allowing for follow-up and probing of responses (Glesne, 1999; Patton & Sawiki, 1986). Pre-tests were conducted with three individuals, which led to slight revisions of the interview guide. Only one revision was needed following the first formal interview. The final guide is provided in the appendix.

In the summer of 2008, I traveled throughout Vermont to conduct the interviews. These interviews ranged between 1 and 1.5 hours in length. Directly following the interviews field notes were recorded, including initial impressions of the setting, rapport between the interviewee and myself (Glesne, 1999), and the substantive conversation (Patton, 2002).

Part 2: Indicator selection

Part II of this study, was designed to identify indicators of sustainability in the Vermont-regional food system based on the initial results of the interviews. This was originally planned as a participatory process to be conducted through a group meeting during the fall of 2008. This is an important element of the study design because issues related to sustainability are complex and unstructured. According to Tuinstra, van de Kerkhof, & Hisschemöller, (2003) the best way to approach complex issues such as sustainability is through extensive stakeholder dialogue. Specifically, the benefits of stakeholder derived, “bottom up” strategies for creating and using indicators have the benefit of including diverse viewpoints that draw upon information specific to the local environment (Reed, Fraser, & Dougill, 2006). This process has the potential to enhance
community learning and collaboration between groups. In addition, indicators are more accessible to stakeholders, and thus more useful, if stakeholders themselves are directly involved in creating them (Bell & Morse, 2001).

Because of low participant availability, the group meeting was canceled and indicators were alternately selected in four ways. First, during the interviews I reflected back to the subject one or two of their guiding values. Once they confirmed that I had correctly interpreted these values, I then asked them to articulate what they believed to be the most effective way to measure change in that value. Explicit responses from interview subjects were evaluated based on accessibility of indicator data. If information was available for these indicators, they were included in the set.

If stakeholders were unable to explicitly identify quantitative or qualitative representations of their values, I looked back at the interview data and noted where they had identified indicators in response to other questions. This method yielded the greatest number of indicators in the study. These were also evaluated based on the accessibility of data, and included in the final indicator set whenever possible.

When no indicators were available from stakeholder interviews, I looked to past studies and indicator projects with similar stated values to those articulated in Part I of this research. The study that proved most useful for this document review was the Vivid Picture collaborative research project (Feenstra, Jaramillo, McGrath, & Grunnell, 2005). The explicit relationship between values and indicators articulated in the Vivid Picture Project differentiates it from the majority of food and agriculture related indicator
projects in the United States. It is also this quality that makes it appropriate to draw upon findings from the Vivid Picture Project to support this study.

After the initial draft of these indicators was compiled, I issued a call for feedback from all interview subjects. Only one interview subject responded to this solicitation. The suggestions she provided were incorporated into a report, which was then given to the Sustainable Agriculture Council (SAC). This report was made publicly available on the website of the Center for Sustainable Agriculture, UVM Extension. In addition, the report was presented to the Vermont Legislature in 2009.

Part 3: Indicator data

The data behind each indicator was researched and evaluated in 2008-2009. The criteria used to evaluate the indicators were drawn from successful indicators published in peer-reviewed literature and organizational reports (Sustainable Seattle, 1998; Hagan & Whitman, 2006; Meter, 1999). Sources for criteria were selected for several reasons: (1) The project was of similar scale to this study, (2) the project dealt with similar stakeholders, or (3) the project used similar methodology, specifically, stakeholder values were used to drive indicator selection.

3.2. Data Analysis

To conduct data analysis of the interview transcripts I used microanalysis techniques according to Patton (2002), including coding and recoding to identify major themes, major and sub categories, and the common values among stakeholders. I created
multiple drafts of the codebook as the coding process progressed. Early interviews were coded several times to ensure important categories were not omitted from the data set. Responses were categorized by question (correlated with major and sub-code categories,) and also by interview (impression of themes.) Open coding was used to identify themes and define values, relating sub-categories to primary categories to differentiate between interviewee responses (Patton & Sawiki, 1986).

Interviewee responses were weighted based on coded categories. To weight the values articulated by respondents, I developed the criteria shown in Table 2, below. After each value had been examined, I totaled the criteria points. The five lowest scores were identified as the most important values held by the interview subjects. In addition, I determined the percentage of study participants that referred to specific values. The values were divided into 4 groups based on this ranking system.

Table 2: Value analysis criteria

<table>
<thead>
<tr>
<th>Rank</th>
<th>Statement description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The statement articulates that this value is the primary decision driver in the organization. All other values mentioned are secondary.</td>
</tr>
<tr>
<td>2</td>
<td>The statement demonstrates that this value is a significant driver, but a second or third value plays an equal or greater roll in decision-making.</td>
</tr>
<tr>
<td>3</td>
<td>The statement demonstrates that this value is mentioned as something to be considered, but is not singled out explicitly as a guiding principle.</td>
</tr>
<tr>
<td>4</td>
<td>This value is mentioned in passing.</td>
</tr>
<tr>
<td>5</td>
<td>This value is not mentioned.</td>
</tr>
</tbody>
</table>
Once the five most important stakeholder values (those in group 1) were identified, each was assigned one of the following types of indicators:

1. *Condition indicators:* Those that describe the current state of a system.
   
   (Example: Annual direct sales of locally produced agricultural goods in Vermont.)

2. *Pressure indicators:* Those that describe factors driving the system.
   
   (Example: The number of farm-to-school programs active in Vermont.)

3. *Policy response indicators:* The presence or absence of legislative support to change something in the food system. (Example: H.522, which demonstrates legislative commitment to support sustainable agriculture in Vermont.)

This framework is based on the work of Hagan and Whitman (2006), and was selected because of its ability to incorporate multiple system drivers. It is a model adapted from the “pressure-state-response” system used by the Organization for Economic Cooperation and Development (OECD) (Glossary of Environment Statistics, 1997; Rennings & Wiggering, 1997). It is, however, more appropriate for use in this study than the OECD model. This is primarily due to consideration of scale: The OECD project was designed to create indicator sets for global and national use. Hagan and Whitman’s model, in contrast, was developed for community based projects held on a regional or local level.
Table 3: Indicator selection criteria

<table>
<thead>
<tr>
<th>Indicator Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Relevance. Is the indicator relevant? Does it give us information about the Vermont-regional food system?</td>
</tr>
<tr>
<td>2 Values based. Does the indicator reflect values articulated by Vermont stakeholders?</td>
</tr>
<tr>
<td>3 Accessibility. Is the information communicated in this indicator accessible to decision makers in the Vermont-regional food system?</td>
</tr>
<tr>
<td>4 Measurable. Is the indicator statistically measurable?</td>
</tr>
<tr>
<td>5 Scientific. Is the collection of the indicator data scientifically defensible? Do measurement strategies reflect accepted scientific procedures and methods?</td>
</tr>
<tr>
<td>6 Availability. Is the information for this indicator reliably available? (This type of project is not designed to generate new data, but rather to synthesize existing information over many years.)</td>
</tr>
<tr>
<td>7 Leading. Is the indicator leading? Does it help us analyze and understand the past and current food system? Does it give us clues about the future?</td>
</tr>
<tr>
<td>8 Policy application. Is the indicator policy applicable to existing and/or emerging policy? Would it support legislative efforts to move the Vermont-regional food system towards sustainability?</td>
</tr>
</tbody>
</table>

This process produced a total of 15 proposed indicators that were then evaluated based on adapted criteria (as seen in Table 3) published in peer-reviewed literature and organizational reports (Sustainable Seattle, 1998; Hagan & Whitman, 2006; Meter, 1999). As stated, the sources for criteria were selected based on similarity of scale, stakeholders, and/or methodology of the source project to this study. Occasionally, an indicator was included in this report for which the data did not fully meet all of the criteria. If the indicator was drawn from stakeholder interviews it remained in the set accompanied by suggestions for improvement.
Validity and the role of the researcher

To address research validity I practiced “critical perspective” (Guba & Lincoln, 1989), or the combination of the following four tools: First among these is the solicitation of disconfirming evidence. This was accomplished by seeking out a stratified sample of food system stakeholders with differing opinions (Creswell, 2000). Second, research progress was submitted to peer researchers, my research and academic advisor, and members of the thesis committee for written or oral review (Creswell, 2000). Third, drafts of the report were sent to all interviewees along with a solicitation for feedback prior to submitting initial findings to the Sustainable Agriculture Council in November, 2008 (Guba & Lincoln, 1989). Lastly, in an effort to increase transparency, I will present my own values and biases in the following section (Glesne, 1999; Patton, 2002; Patton & Sawiki, 1986).

My personal experience as a native of Vermont has created a deep attachment to the rural nature of the state. The product of my personal history is a deep-seated belief that agriculture is an invaluable tool in improving our communities and ensuring the health of our natural environment. My professional bias is influenced strongly by my work and volunteer activities around agriculture and community development. I have recently joined the Center for Sustainable Agriculture at the University of Vermont as the Local Foods Coordinator, and look forward to continuing my work there to increase access to local food in Vermont. My academic bias is influenced by my studies in environmental politics and justice. Specifically, I am interested in how citizen action,
policy-making, and markets interact around issues of agricultural access and food sovereignty.

These biases inform my belief that working towards sustainability, whether it is definable and achievable or not, is an important goal for the Vermont-regional food system. This was influential in the way I chose to frame this study, specifically in the construction of the interview guide.

3.3. Study limitations

This study is simplified by the assumption that stakeholder values are perfectly correlated to stakeholder actions. While it is not the topic of this research to examine the real-life gap between the values and actions of individuals or groups, it has been shown that such a gap exists. According to Kollmuss & Agyeman (2002), reviews of the gap between pro-environmental beliefs and actions show that the subject is so complex that it “cannot be visualized through one single framework or diagram” (p. 239). Vermeir and Verbeke (2006) address this topic in relationship to sustainable food choices by examining the causes for what they call the “attitude-behavior intention gap” (p. 169). Because of the complexity inherent in predicting food system stakeholder decision-making, this research attempts only to describe values. Predictions of future stakeholder decisions based on the results of the research presented in this thesis would not be valid.

Along similar lines, this study leans heavily on the theory of reflexivity, as presented in the literature review section of this thesis. The limitation of this theory is that it does not clearly articulate how individual awareness and decision making translates
into social movements. In other words, it is unclear if the individual changes society, or if society changes the individual. A. Gouldner (1970) suggests that individuals and society influence each other as “awareness of the self is seen as an indispensable avenue to awareness of the social world” (p. 493). While individuals are shaped by society, they are simultaneously bound by it and possess the capacity to alter it. Gouldner strongly emphasizes that the goal of a reflexive society is to deepen awareness in order to develop an increasingly moral and empathic life. While society may or may not facilitate the development of personal awareness of self and society, society itself cannot be aware. This research, in its attempt to describe the individual values of stakeholders, assumes that these values are not only shaped by food movements, but are also responsible for the changing shape and character of said movements. It also assumes that these movements are strongly influenced by moral concerns that result from the ever developing empathetic capacity of stakeholders.

Lastly, it may be wrongly assumed that results of this study can be generalized to larger populations. As M. Goggin (1986) illustrates, the results of case studies such as this one often struggle to achieve external validity. Goggin presents three antidotes to the “too few cases/ too many variables” problem often associated with this type of research: (1) To decrease the number of variables to only the most critical, (2) to increase the sample size, (3) to introduce control by “selecting cases on the basis of comparability and similarity” (p. 331). Though Goggin (1986) maintains that it is possible, and even at times desirable, to strive for greater degrees of external validity in sociology and policy research, he also suggests that this validity can be compromised in the interest of
gathering highly descriptive data. Descriptive data that results from what he calls “small N” studies, is insufficient for the purposes of generalizing. However, it can serve to inform research questions and hypothesis, as well as define the parameters for statistically valid (“large N”) studies. In addition, the results of these “small N” studies can serve to ensure the validity of “large N” research results. This can be accomplished by examining two types of cases: The crucial case (in which the hypothesis or theory is confirmed), and the deviant case (in which unexpected results arise).

At the time this research was conducted, there was very little information available about the values of stakeholders in the Vermont-regional food system. Because of this, I look at a small sample of these stakeholders to better understand the complexity and depth of their experiences. In order to increase the relevance of this research, the results of my work could be used to guide the development of focused hypothesis. These could then be tested on a broader population.
CHAPTER 4: RESULTS

4.1. Stakeholder values

Understanding stakeholder values is critical to enhancing sustainability in food systems. In this research, the interview process revealed a great deal of complexity intrinsic with study participant values. This complexity was clearly apparent when stakeholder values conflicted on personal levels, or with the values of their employers or organizational group. In addition, value complexity was apparent when multiple definitions were given to single values by interview subjects.

To better understand what was most important to food system stakeholders overall, I identified values during the interviews and coded them into four groups. These clusters were derived based on (1) the percentage of participants that identified specific values, and (2) strength of stakeholder association as determined using the criteria in Table 2, page 52. The lowest “ranked strength” scores indicated which values were selected for part 2 of this study, as shown in Table 4, on the following page. In this table, the values are shown in the four groups as delineated by the bolded lines.
Table 4: Frequency and strength of stakeholder values

<table>
<thead>
<tr>
<th>Value</th>
<th>Frequency (out of 14)</th>
<th>Ranked strength¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local food economy</td>
<td>12</td>
<td>28</td>
</tr>
<tr>
<td>Financial viability</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>Environmental integrity</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>Community wellbeing</td>
<td>11</td>
<td>36</td>
</tr>
<tr>
<td>Quality of service or product</td>
<td>10</td>
<td>36</td>
</tr>
<tr>
<td>Quality of life</td>
<td>8</td>
<td>41</td>
</tr>
<tr>
<td>Collaboration</td>
<td>10</td>
<td>42</td>
</tr>
<tr>
<td>Economy of the state or region</td>
<td>6</td>
<td>44</td>
</tr>
<tr>
<td>Wellbeing of Vermont farmers</td>
<td>2</td>
<td>49</td>
</tr>
<tr>
<td>Direct marketing (and associated benefits)</td>
<td>5</td>
<td>51</td>
</tr>
<tr>
<td>Health</td>
<td>6</td>
<td>52</td>
</tr>
<tr>
<td>Sustainability</td>
<td>5</td>
<td>52</td>
</tr>
<tr>
<td>Affordability</td>
<td>3</td>
<td>53</td>
</tr>
<tr>
<td>Access to market</td>
<td>3</td>
<td>54</td>
</tr>
<tr>
<td>Efficiency</td>
<td>5</td>
<td>56</td>
</tr>
<tr>
<td>Recognition</td>
<td>7</td>
<td>56</td>
</tr>
<tr>
<td>Economic justice</td>
<td>3</td>
<td>57</td>
</tr>
<tr>
<td>Food safety</td>
<td>2</td>
<td>58</td>
</tr>
<tr>
<td>Eating in season</td>
<td>2</td>
<td>61</td>
</tr>
<tr>
<td>Education</td>
<td>4</td>
<td>62</td>
</tr>
<tr>
<td>Independence</td>
<td>3</td>
<td>63</td>
</tr>
<tr>
<td>Family involvement in farms</td>
<td>2</td>
<td>64</td>
</tr>
<tr>
<td>Appropriate scale</td>
<td>1</td>
<td>65</td>
</tr>
<tr>
<td>Trust</td>
<td>2</td>
<td>66</td>
</tr>
<tr>
<td>Experience</td>
<td>1</td>
<td>67</td>
</tr>
<tr>
<td>Caution</td>
<td>1</td>
<td>68</td>
</tr>
</tbody>
</table>

¹Ranked strength was determined by using the value analysis in Table 2, p. 52.
Five values were given low scores (below 40), indicating both the frequency with which interview subjects articulated these values and the strength with which they appeared in the interviews. These values were: supporting the local food economy (28), financial viability (29), environmental integrity (35), community wellbeing (36), and the quality of product or service (36).

**Table 5: Group 1 value rankings**

<table>
<thead>
<tr>
<th>Interview number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>Total Score$^6$</th>
</tr>
</thead>
<tbody>
<tr>
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*Value codes:* $^1$Local Food Economy, $^2$Financial Viability, $^3$Environmental Integrity, $^4$Community Wellbeing, $^5$Quality of Product or Service.
*Total score = “ranked strength” values, table 4, p. 60*

Occasionally, one of these values was interpreted as the primary decision driver in the group or organization. This is indicated in Table 5 when values are scored with a “1”. More often, the interviewees demonstrated that the values in this group were significant drivers, but a second or third value played an equal roll in decision-making. This is indicated when values are scored with a “2”. When the interviewees demonstrated that a value should considered, but did not name it explicitly as a guiding principle, the value
was scored “3”. Values were scored as “4” when they were mentioned in passing, and as “5” when they were not mentioned at all. The local food economy received the lowest score (28), indicating the overall strength of this stakeholder value. However, the greatest number of stakeholders (6 out of 14) singled out financial viability as a primary guiding value.

**Table 6: Definitions of stakeholder values**

<table>
<thead>
<tr>
<th>Value</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local food economy</td>
<td>Business and social transactions between local producers and service providers that result in positive impacts on Vermont’s economic, environmental, and social landscapes.</td>
</tr>
<tr>
<td>Financial viability</td>
<td>The ability of a business to be profitable, make payments, provide services to buyers, and provide just compensation for labor (including that of the business owner.)</td>
</tr>
<tr>
<td>Environmental integrity</td>
<td>The maintained health of agricultural land, participation in conservation programs, increased efficiency of resource use and recycling, limiting sprawl, and increasing land health and productivity.</td>
</tr>
<tr>
<td>Community wellbeing</td>
<td>A food system that builds relationships, promotes honesty, openness, respect, communication, and an ethic of giving back to the community. Sufficient quality and quantity of food for all Vermonters is associated with this value.</td>
</tr>
<tr>
<td>Quality of service or product</td>
<td>The reputation associated with Vermont products and high dollar return for these premium products. Maintaining this reputation was associated with this value.</td>
</tr>
</tbody>
</table>

The definitions shown in Table 6, shown above, were created by combining individual participants’ associations with specific values. Where participants had common associations, the value definition is cohesive. Where participant associations
were diverse, the resulting value definition is more ambiguous. For example, most stakeholders used common language and demonstrated common understanding when discussing *financial viability*. In contrast, values such as *environmental integrity* and *community wellbeing* incorporated a diversity of participant concerns that were loosely related. These definitions can therefore appear somewhat confusing, though they still communicate important findings about the diversity of study participants.

The following sections look closely at stakeholder understanding of the five values defined in Table 6. Following an examination of interview data related to these values, I will also present stakeholder perceptions of sustainability in the Vermont-regional food system.

**Skepticism and support for the local food economy**

Though the local food movement was discussed in every interview during the course of this study, not all stakeholders held the same opinion about the movement and its impact on the *local food economy*. Some stakeholders articulated strong support for the movement, thus demonstrating their belief that more opportunities for purchasing of local Vermont agricultural products would lead directly to a stronger *local food economy*. A processor in Washington County attested that, “It’s smart to buy local for many reasons. Business sense—you are keeping business in the community. You are keeping your neighbors going. It’s fresher. It’s better. You know where it is coming from. There are whole messes of reasons to buy local.”
The processor related during the interview how his current employer introduced the concept of purchasing local food to him before he was hired. The local food movement had clearly become a guiding value in both his professional and personal life. He was clear, however, that he believed that processors should be recognized more frequently in the local food movement: “I think the state should sit down and say buying local does not just mean what is grown and raised here. It is what is produced here…it’s a bigger picture you have to look at and I think the state can really be involved in that.”

While this stakeholder portrayed the local food movement as an overwhelmingly positive part of the local food economy, he hoped that the benefits of the movement would extend to a greater range of food system stakeholders in the near future.

Other study participants saw the local food economy as a contemporary manifestation of historical Vermont value. A producer in Addison County described that while the local food movement has greatly improved his sales, his community has always been supportive of his farm business. He noted, “Over the years these market grew (through) word of mouth…it’s been a gradual growth over the years—but the localvore movement has really made a big difference…It’s kind of a mushrooming of what has been there all along. Ever since I moved here people in Vermont have been interested in finding out where their food came from.” While he was supportive of the local food movement, this producer saw support for the local food economy as a Vermont value that far preceded the movement.

Some food system stakeholders interviewed in this study were skeptical of the local food movement. Several interviewees suggested that supporting the movement
could potentially compromise the *local food economy*. A farmer in Windham County stated, “The buy local thing can work against us if Massachusetts, people living Boston, started saying ‘we only want Massachusetts grown fruit.’” This producer sold both directly to customers through a farm store and through a wholesale market. She described the wholesale market as being particularly important for the farm’s income, and also noted difficulty she experienced selling to local supermarkets. This difficulty was primarily due to competition with other regional growers as well as the supermarket chain purchasing system.

A farmer in Franklin County was also skeptical of the local food movement and its impact on the *local food economy*. Specifically, he addressed the issue of market saturation when he said, “I see so many more local products coming and…I think it would be very difficult because (retailers) are operating on…(principles of) efficiency and profitability. It is not always most efficient and profitable to add one other (product) to the shelf when you have ten already. So, that is the guiding principle that might hurt bringing on more local foods.” Both farmers saw the local food movement as a conditional benefit to their farms. They recognized how general support of local food has boosted sales, even in wholesale markets. However, they also expressed concern that the local food movement excludes some producers from local and regional markets, as in the experience of the Windham County farmer.
Financial viability as a conflicting value

The interviews conducted for this research show that stakeholders in the Vermont-regional food system often hold conflicting values. This was observed when individuals hold two or more incompatible personal values. Conflict also arises when personal values differ from those held by an employer or group. Both of these types of conflict were evident among the group of study participants. This was clear when study participants reflected on financial viability.

Financial viability was identified as an issue of critical importance to stakeholders. However, several subjects showed that this value competed with other personal values during decision-making processes. For example, the farmer in Franklin County stated, “Everyone needs to be profitable…you can’t be talk(ing) about other forms of sustainability, I believe, unless you talk about, first and foremost, economic financial sustainability…efficiency and financial solvency is what businesses across the board have to operate on.” Later in the interview the same subject noted that “—while it is easy to say yes, it’s very important that the economics work, and that the efficiencies work, and that we do the efficiencies a lot for financial reasons, we did not get into this for the money.” Other reasons this farmer chose his profession included quality of life, the desire to practice environmental stewardship, and the wish to produce high quality food. While these values were very important to the producer, financial viability was highlighted throughout the interview as a guiding principle. It is notable, however, that while the producer held values that potentially competed with one another, he was able to make decisions that incorporated many of his values simultaneously. Specifically, he was
able to remain financially viable by producing a value added product while protecting his quality of life and limiting his environmental impact.

This is not the case for every producer that holds competitive values. For example, a non-profit advocate in Washington County described how farmers who value financial viability and environmental integrity are often forced to choose between the two: “I can’t tell you how many farmers have cried in my presence because they are using (genetically modified organisms.) It’s the only choice they have for their farm economically speaking…They know in their heart it is not what they would choose to do…but if they start to admit that it is not what they would choose to do, they have to also admit they are not farming the way they would choose to because they are trapped in this economic system.” This further demonstrates how values compete within individuals, and how this competition can compromise stakeholders’ wellbeing.

The difference between professional and personal values can also prepare the ground for conflict. Examples of this type of conflict were minimal in this study due to the high percentage of interview subjects who were self-employed or who were in agreement with employer values. There were, however, a few subtle examples of conflict between personal and professional values among stakeholders. In illustration of this, a sous chef in Windsor County specifically cited the importance of financial viability to her organization. Several times over the course of the interview she returned to the concept of the “triple bottom line,” which calls for equal consideration of environmental, social, and financial sustainability. However, when asked about her personal vision of the ideal food system, the sous chef identified self-sufficiency as a guiding value. She described self-
sufficiency in the following way: “I think ideally everybody (should) have a little piece of land so they can have their little gardens. And enough land so they can have their chickens, and their pigs or whatever, and do what we wanted to do in the 60’s…basically living off the land to the best of your ability and taking personal responsibility to make your carbon footprint as small as you can. These are the things that I think are important.”

While she recognized that the success of her employer depends on the financial viability of the business, the sous chef’s personal values look to a future that decreases consumer dependence on food service providers.

**Diverse interpretations of environmental integrity**

Stakeholder concerns related to environmental integrity were highly diverse and loosely related. These concerns included the maintained health of agricultural land, participation in conservation programs, increased efficiency of resource use and recycling, limitation of sprawl, and increasing land health and productivity. The varied understandings of environmental integrity can be divided into two groups: (1) Those that address personal and organizational impacts such as recycling, reducing driving distances, and consumer choices, and (2) those that address statewide issues such as land conservation and development policies. Study participants demonstrated concern in both of these categories.

First, some stakeholders addressed concerns related to environmental integrity on a personal and organization level. The chef and sous chef in Windsor County commented on how their business contributes the environmental integrity in the following way: “We
recycle all of our glass, plastic, paper. We don’t use any paper cups here in the kitchen. We use all mugs, mugs, glass plates, I think everything we can virtually control, that we can compost or recycle, we do.” The interviewees noted several times the ways in which they had increased the amount of composted food and recycled waste since 2006, indicating that it was a source of pride in their organization to do so. In addition, the chef related how he cut his driving commute in half by putting his bicycle in the back of his truck and riding it the remainder of the distance to his workplace. This demonstrates how workplace or organizational values related to environmental integrity clearly overlap with personal values.

Other interviewees, including several farmers, also had personal and professional interpretations of environmental integrity. One producer in Franklin County noted, “It’s all part of the environmental stewardship. We always work towards better land management. More productive land means that we are reaping more…from our sunlight and our topsoil and things that are all…wrapped in that.” Another producer in Windham County echoed this by saying, “When you are relying on the land you want to be a good steward of the land because that is your resource.” Because these producers rely heavily on the environmental integrity of their land, they are highly invested in ensuring the lands continued health and productivity.

Secondly, several interview subjects identified concerns with environmental integrity that extended beyond their personal or professional control. Statewide policies that impact land use and conservation were specifically identified as areas of concern for these subjects. For example, a distributor in Windsor County supportively cited Vermont
legislation designed to curtail development. He said, “I don’t want to see sprawl…I think Act 250 was a great thing. When other states have these giant real estate downturns, that doesn’t happen here because developers weren’t allowed to go hog wild…the state is unbelievably beautiful.” Because the subject depended on business relationships with farmers, references to curbing sprawl made throughout the interview revealed his pragmatic concern. However, his leaning towards aesthetic landscapes and conservation ethics demonstrated the complexity of this value.

**Dimensions of community wellbeing**

Like *environmental integrity*, the definition of *community wellbeing* in the Vermont-regional food system was crafted from a diversity of stakeholder associations. The specific beliefs related to this value included the importance of long-term relationships, honesty, openness, respect, inclusion, communication, and an ethic of giving back to the community. Compared to values such as *financial viability*, there was notably less common understanding among interview subjects around the meaning of *community wellbeing*. Despite this ambiguity, it was apparent that qualities of this value were important to many of the interview subjects both in their personal and professional lives. A chef and food buyer at a hospital in Chittenden County demonstrated this by stating, “One of our goals has always been…to give back to the community. We are part of the community and (we) work as part of the community.” This interviewee related how, to meet this goal, his hospital makes extensive efforts to purchase local ingredients. The chef emphasized that before the hospital purchases a new local product, they visit the
farm where the product is grown or processed and begin building a relationship with the farmer. While this relationship was seen as key to the food purchasing arrangement, it was also noted that the benefits of that relationship were not guaranteed should the chef leave his current position at some point in time.

Some stakeholders believed that the definition of *community wellbeing* changes depending on the community. A non-profit advocate in Windsor County emphasized that her work revolved around service to her community in a way that is entirely dependent on the local context. She summarized the nature of her work by saying, “It’s a complex balance of needs and desires on the part of the people in the community that we are charged with keeping in the forefront of our mind all the time…it’s really about personal relationships, our job is to foster the relationships that make local (agriculture) a vital part of community life.” She went on to address how these relationships affect a wide range of people, and how her organization has tried to align their activities with the needs of all these community groups: “Not just farmers and consumers, but we are the prisons, we are the hospitals, we are the faith groups, we are the youth, we are the seniors, and we are the business community.”

Other interview subjects noted that food, and by strong association agriculture, plays a large role in supporting *community wellbeing*. The non-profit advocate in Washington County noted, “We are pretty lucky in Vermont already in terms of community. I think there is already a pretty strong culture of community here in the state.” The advocate identified food as a useful tool in making Vermonter’s connection to their community even stronger. She said, “I think food brings people together in a way
that nothing else does—except church. But I think a lot of the community experience at
church is because you eat at church…Sharing food is the way that humans connect with
each other.”

Lastly, community wellbeing was associated with access to food. A value-added
dairy producer in Orleans County identified the difficulty of reconciling the need for farm
financial viability with making his product affordable for consumers. This issue was
particularly salient for the farmer during the summer of 2008, when the interview took
place. The cost of production was rising during this period, while sales were decreasing.
The farmer noted, “The price of labor hasn’t gone up, but anything else that is petroleum
related has certainly doubled and tripled…we know we need to raise our price again and
it’s a hard thing to do. Because it’s going to make our stuff kind of unaffordable.” The
producer crystallized the sentiment shared by other interview subjects, that financial
access to food is a crucial dimension of community wellbeing.

**Stakeholder pride in the quality of service or product**

Interview subjects often noted the high quality reputation of Vermont agricultural
products throughout this study. The pride in this reputation was strongly felt; therefore
preservation of the reputation was identified as a distinct value. This was particularly
evident in interviews with producers and chefs, though other stakeholders also referenced
the importance of what has been called the “Vermont brand” or the “Vermont cache.”

Producers who identified a personal pride in their product were often succinct and
did not feel the need to elaborate on this value. For example, one producer stated, “Our
stuff is pretty high quality, we are blessed with a good reputation.” Another noted, “I just like to have pride in a product…it’s very rewarding.” And another, “I like to produce as high quality food as I can.” Specifically, producers highlighted the nutritional value, flavor, and freshness of their products. They cited many instances of positive feedback from customers.

Chefs also identified the quality of their food as being important, both when it came into the kitchen and when it left on a plate. This value not only informed choices these chefs made around food sourcing, but also preparation techniques. For example, one chef identified his choice to make his own marinade with pride: “We make batches for ourselves and we don’t need to put in shelf stabilizers, and we don’t need to put in chemicals…none of the marinades are made more than two or three days out. It’s all fresh ingredients.” The chef and food buyer at the Chittenden County Hospital noted that, “Our goal as a department is to produce quality food to entice patients to eat. Quality was absolutely always important to me.”

Lastly, other stakeholders also recognize the importance of maintaining a reputation of high quality in the Vermont-regional food system. The non-profit advocate from Windsor County very succinctly put this when she said, “It does not matter if ice cream is made locally if it does not taste good.” The local food movement is partially indebted to the Vermont cache. This demonstrates how values such as quality of service or product and support for the local food economy reinforce one another.
Valuing sustainability

Only 5 out of 17 interview subjects cited the sustainability of the Vermont-regional food system as a value. Of the remaining subjects, several were ambivalent about the term, while others rejected its use entirely. When asked to describe what sustainability meant to their organization, participants revealed a diversity of definitions.

Stakeholder definitions of sustainability sometimes referred to “the triple bottom line.” The chef in Windsor County described this concept in the following way: “Instead of just one financial bottom line, which is what most companies work on, the triple bottom line is whatever we do in all decisions that we make here have to be financially sound, environmentally sound, and socially sound.” Interviewing an employee of a state agency revealed a similar definition. The employee noted that if her supervisor were asked “—he (would) probably give you the triple bottom line answer of environment, social responsibility, and economic sustainability.”

Other stakeholders directly associated financial viability with sustainability in their business, though they noted that sustainability is a process rather than an end point. A kitchen manager and food purchaser at a small college stated, “When I think of sustainability I think about it as a thing where the farmer can make a living. And I don’t just mean squeak by. I mean they can really make a living and support him or herself and their families. And if we’re really lucky, other people’s families as well.” This interviewee drew upon her past experiences as a farmer and her close relationships with farmers in her community to elevate the importance of financial viability as a guiding value. She also noted that sustainability in general is “an ongoing process, and there isn’t
one right answer…it’s okay to change that definition (of sustainability) as we go.” Other subjects echoed this view. The farmers in Franklin County rejected the concept of sustainability as an attainable goal, but maintained that it was worth working towards despite this.

Other ways in which subjects defined sustainability in relationship to their businesses included environmental impact, degree of local purchasing, energy efficiency, and intergenerational awareness. Of these, environmental impact was most frequently referenced when discussing sustainability. This is supported by the fact that, of the values in group 1, \textit{environmental integrity} was cited in 9 out of 14 interviews as a significant driver in decision-making. Often interview subjects demonstrated their associations between \textit{environmental integrity} and sustainability when they discussed food production practices and land stewardship. The kitchen manager and purchaser in Orleans County summarized her beliefs when she said, “When we talk about sustainability we’re not talking about sowing food, or growing food that then completely depletes the ground…you’ve got (to have) diversified farms where the components of that farm are all working together.” The farmer in Franklin County also included intergenerational concerns when he defined sustainability: “We (want to) leave our land better than it was…I mean more productive, better managed in terms of the forest and pastures, so ideally…our children, if they were to farm, inherited a better, more productive, environmentally sound piece of land than we got.”

Other interview subjects also linked farming practices to environmental sustainability. A chef in Washington County identified sustainable food production
practices as a guiding value in his food purchasing. In the interview, he advocated for “doing it (cooking food) to the best of your ability with local products and the smallest amount of nonessential chemicals…It seems like a pretty basic idea to me.” The chef also included reducing the proximity of the farm to his restaurant as a guiding principle.

When addressing the issue of environmental impact related to food transportation, he related the following method for evaluating how sustainable a food product was: “What do I think of sustainability? Basically…I start with proximity to the restaurant. Organic is second to that, and then after that it is just sustainable grown from somewhere else.” This demonstrates that, while proximity plays a key role in defining sustainability for the chef, the term has other connotations that extend beyond localness.

Other stakeholders had differing opinions on how the localness of food impacts sustainability. The employee of the state agency pointed out that local food production practices are only sustainable if they are transparent. She described this concept in the following manner: “Implicit in the ‘buy local’ campaign has been a knowledge of your farmers, or at least in general where your food comes from…If I am a farmer producing locally and I am doing terrible things to the environment or I am doing terrible things to my workers, then the community is presumably going to know about that, we hope…You can’t just say local and assume that it is sustainable.” She also noted that local foods could be produced in an unsustainable manner if energy efficiency is considered. She added, “If I decide that I am going to have my same diet that I have right now and I am going to source it all locally, we are going to (have to) build greenhouses in Vermont to make sure we all have our bananas, and that is not going to be environmentally
sustainable. It’s probably not going to be economically sustainable. Local foods can be
done in a very unsustainable way.”

Lastly, several interview subjects did not find sustainability to be a useful term.
The farmer in Windham County noted, “It’s such an overused term these days, I don’t
really know what it means. It’s limiting somehow.” A food system advocate in Windsor
County echoed this when she said: “I just think the work ‘sustainability’ (is) like the
word ‘natural.’ It’s just totally useless…I think many people’s minds go blank, go to
sleep when you say ‘sustainability’ because it’s one of these horrible words.” The
advocate notes, however, that the primary goal of her organization is to “foster long term
balance of wellbeing…The kinds of wellbeing are social, economic, cultural, and
environmental.” The subject’s values were therefore not strictly in conflict with
sustainability as defined by other food system stakeholders. Rather, she felt aversion to
loose use of the term and subsequent dilution of meaning.

4.2. Indicators

This study used the five stakeholder values identified in the top section of Table
4, p. 60, to generate indicators of sustainability related to the Vermont-regional food
system. Indicator sets created by an individual or group (that do not accurately represent
a diversity of stakeholders) are often difficult for system stakeholders to use, and may not
accurately reflect stakeholder values (Bell & Morse, 2001). Likewise, indicator sets that
are created by stakeholders without guidance from subject experts and facilitators often
lack scientific defensibility (Reed, Faser, & Dougill, 2006). Therefore, this study drew on
an integrated methodology to synthesize stakeholder input and academic resources. The result is an indicator set that is intended to be accessible to stakeholders, scientifically defensible, and descriptive in nature. This tool can be used to describe the current state of the Vermont-regional food system and enable stakeholders to make decisions that increase sustainability.

As the previous section addressed, I derived the value definitions from complex, and sometimes conflicting, stakeholder understandings of terms. After determining a definition for each value, a draft list of indicators was created. I assigned each value a condition indicator (that described the current state of the system,) a pressure indicator (that described factors driving the system,) and a policy response indicator (that documented the presence or absence of legislative support to change the system.)

The indicators were derived in several ways: They were either (1) drawn explicitly from study subjects during the interview process, (2) based on general stakeholder recommendations, (3) adapted from existing literature, or (4) guided by feedback from a stakeholder review of initial results. Table 7, on the following page, shows that the majority of indicators (9 out of 15) were based on general stakeholder recommendations. Study participants explicitly recommended only 3 out of 15 indicators during the interview process. Even fewer (2 out of 15) indicators were drawn from existing literature. Though feedback was solicited following the completion of an initial report (in November, 2008), only a single stakeholder suggested change in one indicator.
Table 7: Source of indicators

<table>
<thead>
<tr>
<th>Value</th>
<th>Type of Indicator</th>
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<tr>
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<td>Condition</td>
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<tr>
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<td>Pressure</td>
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<tr>
<td></td>
<td>Policy relevant</td>
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</tbody>
</table>

$^1$Following an initial report that listed all indicators with data sources, etc.
During the interviews, I asked participants to confirm that they found a stated value to be of importance. Following the participant’s confirmation, I then asked them to tell me what they thought the most appropriate indicator of that value was. As seen in Table 7 on the previous page, this process yielded only three out of 15 indicators. An example of an indicator that was created based on explicit stakeholder recommendations is the age distribution of Vermont farmers. Specifically, the employee of the state agency suggested, “When business decisions are driven not just by returns by the type of life you live, it gets really hard to measure success. One thing that I think would indicate Vermont farms flourishing would be the next generation of farmers…is there a next generation of people who see this as a vibrant industry, as a lifestyle that they want?” This indicator is useful because it is derived from stakeholder values, accessible, measurable, scientific, available, leading, and has policy applications. However, it is also limited because it operates under the assumption that most incoming farmers are represented in young cohorts. This does not account for new producers that begin farming as part of a career change at a variety of ages. Data that described the age distribution of new farmers in Vermont does not exist at the time of this study.

Though study participants explicitly identified only a few indicators, general information from various points in the interviews yielded many more. The majority of indicators (9 out of 15) were created based on this general information. This brainstorming yielded rich material, yet few stakeholder suggestions could be completed. Completion of the many indicators derived from this process would have required extensive additional research, which was not within the scope of this project. To arrive at
a final indicator, I used what I believed was the intent of the interview subjects to guide the evaluation of existing data. As stated, data accessibility was of particular importance at this stage of indicator selection. This is important for two reasons: First, it is not within the scope of this study to conduct extensive research for each of the 15 indicators. Second, the indicator set will be most useful to stakeholders if it is updated over time (Sustainable Seattle, 1998). This necessitates that stakeholders are able to access the data needed to update the indicator set without academic or scientific access privileges.

Not all indicators selected for the report were represented by accessible data. These indicators were still included in the set because it was apparent that the information existed, just in an unorganized or inaccessible way. For example, the ratio of Act 250 permits granted to those requested in a calendar year was selected as a pressure indicator to describe environmental integrity in the Vermont-regional food system. This information was identified as important based on interview subjects’ concern about sprawling development in the state. It was assumed by subjects that Act 250 has positively impacted the Vermont landscape in the past by limiting sprawl. As the distributor from Windsor County noted, “I don’t want to see sprawl…I think Act 250 was a great thing.” Despite stakeholder beliefs that Act 250 has stemmed sprawl in the state, research shows that the legislation is not effective in this regard, nor has it had significant impact on protecting Vermont farmland or waterways (Antony, 2004; Sanford, Stroud, & Hubert, 2000). This indicator was designed to address this impact by examining the rate at which development applications were approved. It was assumed that if the permitting process actually limits sprawl, a noticeable number of permits will either be denied or
will be subject to significant revisions. Currently, however, this basic information is publicly available for a very limited number of years. In 2006 only seven out of 490 applications for permits were denied. In 2007 only four out of 428 were denied (Natural Resource Board, 2008). During the data collection period, I contacted the Natural Resource Board several times to retrieve historical data from 1999 onward. While a representative of the Board did not outright deny me access to the information, it was not delivered in a decipherable format or in a timely manner.

When stakeholder input was not sufficient to guide indicator selection directly, I looked to past studies and indicator projects with similar stated values to those used in this research. The study that proved most useful for this document review was the Vivid Picture Project (in 2005). It was facilitated by Ecotrust Food and Farms (based in Portland Oregon,) a mixed for-profit and non-profit organization founded by Spencer Beebe 1991. The explicit relationship between values and indicators articulated in the Vivid Picture Project differentiates it from the majority of food and agriculture related indicator projects in the United States. It is also this quality that makes it appropriate to draw upon results from the Vivid Picture Project to support this study.

After the initial draft of these indicators was compiled, I issued a call for feedback from all interview subjects. For several reasons that will be discussed in following sections, only one subject participant gave critical feedback. Specifically, the employee of the state agency addressed an indicator that was designed to describe community wellbeing through the level of food security in Vermont. Feedback from this interviewee was related to the source of data, which was adjusted. Her suggestion proved to be a
stronger source than the previous selection. Additional suggestions by peers at UVM and review of related literature also provided needed information for this and other indicators.

4.3. Linking values and indicators

The data behind the indicators tells the story of sustainability in the Vermont-regional food system as relevant to stakeholders. The data behind the indicators was often sourced from the United States Department of Agriculture (USDA), the Bureau of Labor Statistic (BLS), and other state and federal agencies. Other sources include published research, reports, and legal guides. The complete indicator set and data sources can be seen in Table 8, pages 84-85. This section will describe each value and associated indicator group to illustrate the connections between what stakeholders believe is important and the current state of the Vermont-regional food system. Each value/indicator group is summarized in table form with arrows indicating positive, negative, or inconclusive trends.
<table>
<thead>
<tr>
<th>Value</th>
<th>Indicator Type</th>
<th>Indicator</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pressure</td>
<td>Annual number of farm-to-school partnerships</td>
<td>University of North Carolina study to be complete in 2010</td>
</tr>
<tr>
<td></td>
<td>Policy response</td>
<td>Sec. 9 V.S.A., chapter 63, §2465a -- Legislative definition of “local.”</td>
<td>State of Vermont Legislature, Vermont Statures Online <a href="http://www.leg.state.vt.us/statutes/fullsection.cfm?Title=09&amp;Chapter=063&amp;Section=02465a">http://www.leg.state.vt.us/statutes/fullsection.cfm?Title=09&amp;Chapter=063&amp;Section=02465a</a></td>
</tr>
<tr>
<td>Value</td>
<td>Indicator Type</td>
<td>Indicator</td>
<td>Data Source</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Pressure</td>
<td>Act 250 permits granted per year/ Act 250 permits sought per year</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td></td>
<td>Policy response</td>
<td>Act 250</td>
<td>Vermont Statures Online <a href="http://www.leg.state.vt.us/statutes">http://www.leg.state.vt.us/statutes</a></td>
</tr>
<tr>
<td></td>
<td>Policy response</td>
<td>H.91 – The Rozo Mclaughlin Farm-To-School Program: Local food grant program</td>
<td>Vermont Legislative Reports and Publications <a href="http://www.leg.state.vt.us/statutes/fullsection.cfm?Title=06&amp;Chapter=211&amp;Section=04721">http://www.leg.state.vt.us/statutes/fullsection.cfm?Title=06&amp;Chapter=211&amp;Section=04721</a></td>
</tr>
<tr>
<td>Quality of Service or Product</td>
<td>Condition</td>
<td>Number of Vermont Seal of Quality Program participants</td>
<td>Vermont Agency of Agriculture, Farm, and Markets <a href="http://www.vermontagriculture.com/buylocal/marketing/soq.html">http://www.vermontagriculture.com/buylocal/marketing/soq.html</a></td>
</tr>
</tbody>
</table>
The local food economy

The first group of indicators described here are associated with participant values related to supporting the local food economy. The condition indicator for this set is the dollar value of direct sales. This indicator was explicitly defined by stakeholders to show how well Vermont producers are able to access the local food market. Direct sales are those conducted between the producer and purchaser without the intermediary involvement of food purveyors. By presenting this information along side past direct sale values, it is possible to see change in the food system over time.

The annual dollar of direct market sales in has Vermont increased steadily over the past decade. The most notable increase took place in the last five years, during which time the value of direct sales of Vermont agricultural products more than doubled (USDA, 2009a). The indicator does not, however, relate perfect information about the Vermont-regional food system. Specifically, the dollar value of direct sales does not take into account the increasing number of institutional consumers who seek to purchase large volumes of local food through distributors like Black River Produce or Squash Valley Produce. Until a tracking method for institutional purchases of local foods is made accessible, it is not possible to know the total dollar value of locally or regionally produced food purchased in Vermont (Timmons, 2006), and therefore the condition of the local food economy.

The pressure indicator in this set is the impact of farm to school programs in Vermont. This indicator was selected based on general participant input during the interviews. Specifically, some stakeholders speculated that the local food movement has
increased in popularity because of the amount of local food education that is present in Vermont classrooms. Due to the varying scope and collaborative nature of farm-to-school efforts, information related to the number of partnerships and schools served is currently unorganized and inaccessible to the general public. Advocates for farm-to-school programs in Vermont and nationwide recognize the need for impact evaluation however. A multi-year study conducted by the University of North Carolina (to be finished in 2010) is the first large-scale attempt at conducting this evaluation. Upon release of the results, the study may be replicated in Vermont (UNC, n.d.).

Lastly, the policy response indicator selected for this value was legislative definition of “local.” The term “local” was introduced to the Vermont legislature through Senate bill 322 in 2007. It was adopted by Vermont under Statute 9, Commerce and Trade, Chapter 63 § 2465a (Vermont, 2008). Defining the term “local” and standardizing the requirements for labeling food products that fit that definition has two effects. First, Vermont producers and processors can self selectively differentiate their product or services from those available through the national and global food systems. Second, consumers who prefer to purchase food in retail establishments are able to select local food in these venues.

The indicators selected for this value (as summarized in Table 10) show two positive trends in the Vermont local food economy. First, the dollar value of direct sales has increased in the state. Second, the state legislature has acknowledged the importance of differentiating local products from those produced elsewhere. The remaining indicator in this set shows that while anecdotal evidence from the interviews suggest that farm-to-
school programs have positive impacts on the local food economy, more evidence is needed before this impact is defensible.

Table 10: Local food economy indicator summary

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dollar value of direct sales (condition indicator)</td>
<td></td>
</tr>
<tr>
<td>Farm-to-school programs (pressure indicator)</td>
<td>?</td>
</tr>
<tr>
<td>Legislative definition of “local” (policy response indicator)</td>
<td></td>
</tr>
</tbody>
</table>

Financial viability

The condition indicator selected to represent financial viability was producer age distribution. The employee of the state agency selected this indicator, as previously noted. The indicator assumes that if farming is a financially viable business, there will be a significant proportion of young farmers present in Vermont in relation to the overall farm operator population. In fact, the number of farmers under the age of 25 has remained fairly constant, though very low, since 1992. In addition, the proportion of farmers between the ages of 25-44 is decreasing. The number of farmers in this age range decreased by half between 1992 and 2007, while older age cohorts increased (USDA, 2005, 2009b). This indicator is limited, however, because it operates under the assumption that the majority of new farmers are represented in young cohorts. This does
not account for new producers that begin farming as part of a career change later in life. Data that described the age distribution of new farmers in Vermont does not exist at the time of this study. This indicator would be greatly strengthened by the addition of such information.

*Net farm income of Vermont farm operators* was selected as the pressure indicator in this set. This selection was guided by general stakeholder input during the interviews, and was further developed by comparing the data to the livable wage as published by the Vermont Legislative Joint Fiscal Office (JFO). The JFO defines the annual livable wage as, “the hourly wage required to for a full-time worker to pay for one-half of the basic needs budget for a two person household with no children and employer-assisted health insurance averaged for both urban and rural areas” (Teachout, 2007, p. 1).

The average annual income of Vermont farm operators has increased in the past decade. However, there is still a considerable gap between this income and what the JFO has determined to be the livable wage for rural Vermonters. Specifically, in 2002 the gap between average annual income and the living wage was $22,042. In 2007 the gap increased to $26,869. This indicator does not take into account the cost of supporting children or health care for self employed farm operators.

Lastly, the policy response indicator chosen for this set was *House Bill 522* (2007). In this legislation, the state of Vermont demonstrated its support for the enhancement of Vermont agriculture, and by association, the financial viability of Vermont farms. The areas that are specifically identified as deserving special attention
include emerging industries, the dairy industry, and those industries associated with the Vermont Seal of Quality (including the maple industry).

Table 11: Financial viability indicator summary

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producer age distribution (condition indicator):</td>
<td>↓</td>
</tr>
<tr>
<td>Producer income and the livable wage (pressure indicator)</td>
<td>↓</td>
</tr>
<tr>
<td>H.522 (policy response indicator)</td>
<td>↑</td>
</tr>
</tbody>
</table>

Based on these indicators, financial viability in the Vermont-regional food system is a commonly held value, but trends around this it are declining. While there is strong legislative support for Vermont agriculture, farm operators struggle to earn a livable wage. The number of young farmers entering the market is low, presenting new challenges for the Vermont-regional food system in the future.

Environmental integrity

Because interview subject input around environmental integrity was quite varied, I selected a narrower stakeholder concern associated with the value for the indicator set. Therefore, this indicator set specifically addresses land use, development, and conservation issues in an attempt to describe statewide issues related to environmental integrity in the Vermont-regional food system. This selection was made based on
accessibility of data and the degree to which state policy has historically addressed these concerns. In addition, literature review of past indicator projects including the Vivid Picture Project supported the association between this value and the selected indicators.

The condition indicator selected for this value was the *acres of farm, forest, and conserved land* in Vermont. According to the USDA, Vermont farmland and woodland have decreased, albeit slowly, since 1992 (USDA, 1992). This is due to an increase in development pressure, and results in limited access to agricultural land. Also according to the USDA, acres of conserved land in Vermont have fluctuated during this time. This is in part due to the changing definition of conserved land in the USDA Agricultural Census. For example, in 1992, 1997 and 2002, conserved land included in census data was only that land which was enrolled in the Conservation Reserve or Wetland Reserve programs (USDA, 1992). In 2007, however, land that was enrolled in the Farmable Wetlands and Conservation Reserve Enhancement programs was included. These discrepancies unfortunately limit the accuracy of this indicator.

The Vermont legislature has historically been supportive of efforts to preserve farmland. The policy response indicator for this set therefore identified the most widely recognized conservation legislation in the state, the State Land Use and Development Bill (1970), also known as *Act 250*. The legislation mandates that environmental impact, community and regional issues be given due consideration in development projects. The bill also seeks to provide opportunities for citizens and interest groups to give input into these projects through public hearings. According to Cindy Corlett Argentine, author of *Vermont Act 250 Handbook* (1998), developers are required to submit to Act 250
permitting if they propose to build a commercial or industrial building on more than one acre of land, construct more than ten housing units within a five mile radius, subdivide land into ten or more lots, certain types of road construction, or construct above 2,500 feet in elevation (Corlett, 1998).

The presence of Act 250 shows that the Vermont state government has historically been sensitive to the impacts of development on the rural and agricultural character of Vermont. This position is strongly supported by the general population, as shown in various statistically valid polls of Vermonter's. For example, a study sponsored by Vermonters for a Sustainable Population found that 75% of statewide survey participants supported “stricter land use regulation to help protect the environment” (Bolduc & Kessel, 2008, p. 33). However, the Act 250’s impact on environmental protection is in question (Antony, 2004; Sanford, Stroud, & Hubert, 2000), and Vermont’s current governor, Jim Douglas, believes that Act 250 discourages businesses in the state, thereby limiting the potential for economic growth (Dillon, 2009). A revision process is currently underway for Act 250. It remains to be seen how the revised version will impact the rate of development on prime agricultural soils, and the Vermont-regional food system.

The pressure indicator associated with *environmental integrity* was briefly presented previously. This indicator was designed to address the impact of Act 250 by examining the rate at which development applications were approved. It was assumed that if the permitting process actually limits sprawl, a noticeable number of permits will either be denied or will be subject to significant revisions. Currently, however, this basic
information is publicly available for a very limited number of years. Despite my efforts to obtain historical data from 1992 onwards, more information was not made available by the Natural Resource Board. If this indicator is to be useful, the results of Act 250 review process must be made more transparent and accessible to the general public.

Table 12: Environmental integrity indicator summary

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acres of farm, forest, and conserved land (condition indicator):</td>
<td>↓</td>
</tr>
<tr>
<td>Act 250 permits (pressure indicator)</td>
<td>?</td>
</tr>
<tr>
<td>Act 250 (policy response indicator)</td>
<td>?</td>
</tr>
</tbody>
</table>

Table 12 shows that there is a high degree of uncertainty around the environmental integrity of the Vermont-regional food system, specifically related to land use issues. The total acreage available for agriculture has declined and it is uncertain whether current legislation is effective as conserving the land. The future shape and function of the legislation itself is in question.

Community wellbeing

Similarly to the environmental integrity indicator set, those selected to represent community wellbeing in the Vermont-regional food system were drawn from general stakeholder suggestions. While a variety of indicator themes would have been
appropriate for this value, indicators related specifically to food security were chosen based on data accessibility and support from the literature.

The condition indicator selected for this set was the rate of food insecurity in Vermont. According to the USDA, food insecurity is defined as reduced quality, variety, and desirability of diet, with or without disrupted or reduced food intake, due to lack of resources (USDA, n.d.). Data showed that food insecurity fluctuated between 9.1% and 9.6% of Vermont’s population between 1999 and 2005. Between 2005 and 2007 however, this percent increased to 10.2%. This brings Vermont’s level of food insecurity closer to the national average, which has hovered around 11% for the last six years (Nord, Andrews, & Carlson, 2008). In addition, the Governor’s Hunger Task Force tells us that food shelves reported a noticeable increase in demand in the winter of 2008. This implies that the percentage of Vermonters who are food insecure is increasing, thereby negatively impacting community wellbeing in the state (Governor’s Hunger Task Force, 2008).

In the US, food insecurity occurs in many different types of households. Some of the most vulnerable groups are those with income below $21,027 (the 2007 Federal poverty line), those with children headed by single women or men (Nord, Andrews, & Carlson, 2008), refugees, the working poor, and elderly or disabled populations. Those with fixed income or those who live in food deserts are also venerable (Keller, Dwyer, Edwards & Edward, 2006). Food deserts are defined as areas where people do not have access to healthy food in sufficient quantities, often due to limited access to public transportation and retail locations (Strugnell, Furey, & Farley, 2002). According to J.
McEntree, there are 24 towns in Vermont that qualify as food deserts. The majority of these towns (18 out of 24) are in the Northeast Kingdom, a historically isolated part of the state (McEntree, 2007). Some of the reasons for the increase in food insecurity in Vermont (in food deserts and otherwise) include increasing costs of energy, rise in cost of corn related to demand for ethanol, the fallen value of US currency and subsequent increases in global demand for US produced agricultural products (McGranahan, 2008).

![Figure 4: CPI food and beverage price increase 2000-2008 (BLS, 2009)](image)

*Food prices* were selected as the pressure indicator in this set. This indicator uses the Consumer Price Index (CPI) to show how food prices have changed since 2000, as seen in figure 4, above. The CPI is a set of monthly data released by the US Bureau of
Labor Statistics (BLS) that tracks the change in “prices paid by urban consumers for a representative basket of goods and services” (BLS, 2009). These goods and services include breakfast cereal, milk, coffee, chicken, wine, full service meals, and snacks (BLS, 2009). Some may question the choice to use the CPI for urban consumers as an indicator of Vermont community wellbeing. While it is true that the majority of Vermont is rural, the CPI was chosen because the majority of food consumed in Vermont is sourced from outside of the state. National and global pricing impacts the price that Vermonter in rural and urban areas alike pay for food. According to the CPI, the cost of food has risen dramatically since 2000.

*Farm-to-school legislation* was selected as the policy response indicator for this set based on the assumption that children who live in food insecure homes receive nutritionally sufficient meals in public schools during the academic year. The 2007 Rozo McLaughlin Farm-to-School Act (6 V.S.A., Chapter 211 § 4721) clearly demonstrates legislative intent to facilitate stronger relationships between children Vermont children and farmers. This serves not only to educate students about the food system, but also gives these students access to nutritious food they otherwise may not have access to. Legislative support, and provision of financial resources (up to $15,000 per school per year), for service providers who facilitate farm-to-school partnerships is crucial for increasing access to these foods for children from food insecure households. The Rozo McLaughlin Act addresses this need. In the program’s first year $125,000 was given to 18 schools (VAAFM, 2008).
Table 13: Community wellbeing indicator summary

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food security (condition indicator)</td>
<td>↓</td>
</tr>
<tr>
<td>Food prices (pressure indicator):</td>
<td>↓</td>
</tr>
<tr>
<td>Farm-to-school legislation (policy response indicator)</td>
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</table>

Table 13 shows that if community wellbeing in the Vermont-regional food system is evaluated based on the percentage of Vermont households that are food insecure, a negative trend appears. This is partially explained by rising global food prices, also presented here as a negative trend. Legislative support for increasing food security is strong, however.

**Quality of service or product**

This final set of indicators in this study was drawn from general stakeholder suggestions related to the quality of services or products. The number of participants enrolled in the Vermont Seal of Quality program was selected as the condition indicator. This program is housed at the Vermont Agency of Agriculture, Food, and Markets, and is intended to protect and promote the association between high quality products and services and the state in which they are made. Although not all producers of high quality
goods in Vermont use this program, interview subject related that everyone benefits from the positive image the program reinforces.

There is, however, little information publicly available about enrollment in the Vermont Seal of Quality program. In order for the Vermont Seal of Quality program to serve as a useful indicator, the following information needs to be made accessible to the general public: Number of participants disaggregated by year, number of applications approved per year, number of application not approved per year, and the number of producers in each product category. Providing this information will allow food system stakeholders to evaluate the effectiveness of the Seal of Quality program, and give input related to improving the program when appropriate and necessary.

The number of technical assistance programs was selected as the pressure indicator in this value set. This indicator reflects on the assumption that an increased numbers of technical assistance programs in Vermont will increase the ability of food system stakeholders to provide high quality services or products. Some technical assistance programs represent collaboration between several partners. An example of this is the Vermont Farm Viability Enhancement Program. This program is housed in the Vermont Housing and Conservation Board (VHCB), but relies on partnerships with the Intervale Center, the Center for Sustainable Agriculture (part of University of Vermont Extension), and the Northeast Farming Association of Vermont (NOFA-VT) for the creation of business plans and evaluations of service for Vermont farmers.

This indicator is limited similarly to the previous indicator. While an up to date listing of technical assistance programs is publicly available, yearly historical tallies are
not. Therefore, the current number of technical assistance programs should serve as a baseline indicator, to be updated regularly in coming years. In addition, it is unclear how the impact of these programs is evaluated.

The most appropriate policy response indicator was determined to be the Consumer Fraud Act and the Vermont Origins Rule. First, the Consumer Fraud Act bans deceptive advertising on food products (Vermont, 1967). Second, the Representation of Vermont Origin Rule (commonly shortened to the Vermont Origin Rule,) was revised in 1997 in order to insure that businesses do not violate the Vermont Consumer Fraud Act, specifically the ban on deceptive marketing (Office of the Attorney General of Vermont, 2006). The rule prohibits the use of the word “Vermont” on products not made in the State. By passing the Vermont Origin Rule, the state demonstrates commitment to protecting the benefits of the Vermont cache for Vermont food system stakeholders. In fact, the passing of this rule even inspired the legislature to commend Attorney General William Sorrell. Specifically, Joint House Resolution (JRH) 45 stated the following:

Whereas, the state of Vermont’s name has an almost magical marketing allure for consumers both domestically and internationally, and

Whereas, a product to which is affixed the official Vermont seal of quality, or merely a manufacturer’s or agricultural producer’s own label indicating that the product originated in Vermont, enhances the item’s value, whether it is a can of maple syrup or a slice of beef, and

Whereas, Vermonters take enormous pride in their state’s good name and the many specialized products representing the state on the consumer market, and
(Be it) resolved by the Senate and House of Representatives:

That the General Assembly commends Attorney General William Sorrell for his efforts to address the issue of state-of-origin labeling which is of great importance to Vermonter. (Vermont, 2004)

Both the passing of the Representation of Vermont Origin Rule and legislative support for the rule show a great deal of enthusiasm for this value.

Table 14: Quality of service or product indicator summary

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vermont Seal of Quality program (condition indicator)</td>
<td>?</td>
</tr>
<tr>
<td>Technical assistance programs (pressure indicator)</td>
<td>?</td>
</tr>
<tr>
<td>Consumer fraud act and Vermont origins rule (policy response indicator)</td>
<td>↑</td>
</tr>
</tbody>
</table>

As the indicator summary presented in Table 14 shows, trends related to the quality of services or products in the Vermont-regional food system are unclear. This is primarily due to lack of accessible information related to enrollment in the Vermont Seal of Quality Program, the number of technical assistance programs, and impacts of both. Legislative commitment to preserving Vermont’s reputation for quality is strong, however.
CHAPTER 5: DISCUSSION

5.1. The relationship between local food and sustainability values

During this research, a number of study participants championed the local food movement as the best way to achieve sustainability in the Vermont-regional food system. While some subjects portrayed the local food movement as a powerful mechanism by which to support sustainability values, other study participants identified the local food movement as an end in itself. The later group of participants sometimes used local food and sustainability interchangeably. Regardless of nuance, this group of study participants believed that work that supported the local food movement also supported sustainability in the Vermont-regional food system.

Local food supports sustainability

This discussion highlights two values identified by stakeholders that link the local food movement and food system sustainability. These values are (1) the importance of community, and (2) the economical vitality of the Vermont food system. First, both interview subjects and the literature identified strength of relationships in communities as a key component of the local food movement and sustainability in food systems. This is relevant to discussion around how information sharing through relationships is an important component to stakeholder reflexivity. Stakeholders in this study often used descriptions of individual relationships to ascribe importance to their communities. The processor from Washington County’s depiction of his community exemplifies this. Throughout the course of the interview, this individual identified many members of his
community from whom he purchased food and other items simply because they were his neighbors. If his children and another food producer the community’s children played together, the processor stated that he was more likely to purchase a product from that producer. Even if social connections were not strong, geographic or social proximity was often enough to impact his food choices. Conversely, he also expected members of his community to support his product and employer’s brand. He related how, upon running into friends at the supermarket he often noted if they had a competitor’s product in their shopping basket. This behavior was met with disapproval and even a sense of betrayal.

The processor emphasized several times that he believes that social ties in the local food movement are key to supporting the development of Vermont agriculture and other food system related businesses. The importance of supporting local relationships and social networks in rural areas has been shown to be highly important for sustainable development (Day, 1998). Face to face interaction and direct marketing have also been suggested as ways in which to decrease levels of self-interest among individuals and increase cooperation among community members, specifically in the interest of increasing sustainability (O’Hara & Stagl, 2002). The processor presented social networks and positive relationships within the community as necessary tools for realizing sustainable development, thus demonstrating the interconnectedness between community, financial viability, and the overall economic health of an area. He emphasized that the positive effects of community bonds and local purchasing should be not just distributed to local agricultural producers, but should include other stakeholders in the food system.
such as processors (coffee roasters were given as an example), and producers of local, non-food items (such as local timber products.)

Other study participants valued community in the service of the local food movement while rejecting the term *sustainability*. According to the non-profit advocate in Windsor County, sustainability has become a diluted term with little meaning. Though she is devoted to building community relationships and supporting the local food system, the advocate prefers to indicate alternative values when she presents her work. This shows that the values some stakeholders identify as being crucial for enhancing sustainability (such as the importance of community) do not conflict with similar values of stakeholders who reject sustainability as a useful concept.

Second, study participants also strongly identified *financial viability* as a value crucial for both food system sustainability and the success of the local food movement. It is significant that many stakeholders, including producers, addressed financial viability of agriculture as a key issue in the Vermont-regional food system. This is particularly salient because the indicators in this study show us that agriculture is *not* a business where financial viability comes easily. Because agricultural production is a necessary and fundamental component of the local food system, this implies that our current and future food systems are in a precarious situation.

The term *economic vitality* is used here to encompass the overall financial viability of the Vermont-regional food system. In the course of these interviews, study participants identified the local food movement as a potential way to enhance economic viability in the state. This is supported by literature based on two primary arguments.
First, that local circulation of money through food system related mechanisms (such as farmers markets and other direct sales methods) are important for increasing the value of goods and services in a community (Halweil, 2002; Shuman, 1998). Second, local food economies also serve to insulate producers from fluctuations in national and global markets (Seyfang, 2006), thus increasing one aspect of sustainability. Taking into account the important role direct marketing plays in the Vermont-regional food system, it is easy to see how financial viability values and community wellbeing values overlap. This is because direct marketing is highly dependent on relationships and face-to-face interaction (O’Hara & Stagl, 2002). It is possible, though unproven, that successful direct marketing is correlated with the strength of social connectedness in communities.

Interview subjects emphasized the need to support venues for direct marketing in order to capitalize on the economic benefits associated with the local food system. For example, the chef and food purchaser at the college in Orleans County was adamant that these direct marketing venues be supported so the producers and their families could achieve the financial returns that would afford them a decent standard of living. Because direct marketing increases the return to farmers (per unit sold) when compared to traditional wholesale arrangements, it is thought to be a supportive mechanism that ensures producers receive just compensation for their labor.

Concern for this economic health of the Vermont-regional food system is evident as more producers concentrate on diversified production and marketing methods. It is important to note that traditional forms of direct marketing take place between producers and household consumers. Building upon this model, participants in this study revealed...
an increasing interest in pursuing direct sales to large-scale purchasers (such as hospitals and schools) and restaurants. The volume of food purchased by these stakeholders is part of the reason that the overall volume of direct sales in Vermont has increased. Greater purchasing activity implies a greater level of local currency exchange in Vermont and stronger protection for Vermont producers during periods of market volatility (Seyfang, 2006). This is assumed to contribute positively to economic sustainability in the state, though it is notably difficult to accurately evaluate the true economic impact of direct marketing.

**Local food does not (necessarily) support sustainability**

Other stakeholders interviewed during this research were not convinced that the local food movement was an adequate proxy for sustainability. To support this perspective, these stakeholders identified qualities they believe are necessary for food system sustainability, but that are not explicitly present in the local food movement. These qualities include transparency around food system related issues, the limited nature of self-sufficiency in Vermont, and exclusion of producers from local markets.

First, transparency was identified as a necessary quality of sustainability in food systems. In illustration of this point, the employee of the state agency used the examples of labor practices. If transparency around labor practices is present, consumers can make informed choices to support or not support producers who treat employees unethically. It cannot be assumed, however, that just because food is grown locally, it is grown in a sustainable way or that employees are treated well. Additional mechanisms to hold
producers and other stakeholders accountable to generally accepted practices are needed. Transparency is an important quality of such mechanisms, and it can be achieved in several ways.

On a national or global scale transparency in food systems is achieved through standardization, regulation, inspection, and certification (Joslin, Roberts, & Orden, 2004). National and international efforts to this end include the Organic and European Appellations d’Origine (AOC) certification processes (Fonte, 2002; Raynolds, 2000; Trubek 2008). This method of providing information to consumers relies on a certifying body to ensure the qualities of food, thereby limiting the need for personal interaction between consumers and producers. On a local level, transparency is facilitated though the aforementioned mechanisms (if they apply for local producers) and though social relationships (Carbone, Gaiits, & Senni, 2007). It is assumed that, if transparent information exists in the local food system, desirable and undesirable practices can be addressed through community pressure and selective patronage. This method requires interaction between consumers and producer, as well as a shared understanding of acceptable practices. If food system sustainability is desirable to a community, than increasing transparency in the food system can help move the system closer to a sustainable state through the provision of information. This makes the reflexive cycle around food and food purchasing decisions possible.

Because the public is not generally involved in large-scale certification efforts, there is a strong case for incorporating transparency into evaluation of local food system sustainability. The slowing growth of the organic movement and the rise of local food
movement can be seen through this frame. The original intent of the organic movement was to enhance low-input farming practices that were sensitive to social and agro-ecological context. As the movement was absorbed into the organic food industry, regulations and certification processes were put in place on a national scale (Guthman, 2004). This means that some aspects of organic production became more transparent (anyone can go online and read the regulations.) However, the organic market also became more accessible to large-scale producers, thus introducing a new type of “industrial organic” to the US market (Guthman, 2004). The introduction of large scale producers often decreased the amount of information around organic food production available at a community level. Those food system stakeholders who value and trust local transparency over certification systems found that purchasing organic food no longer fulfilled their ethical preferences (Callone, Meadel, & Rabeharisoa, 2002). Some of these stakeholders became interested in local food, a movement that still emphasizes a high degree of personal interaction between producers and consumers (DeLind, 2006).

Second, participants in this study critiqued the association between local food and sustainability, specifically identifying the inability of Vermont to produce sufficient quantities of food to meet its own needs. Currently, most of the food consumed in Vermont is not produced in the state (Timmons, 2006). It has been hypothesized that Vermont production could increase to a level sufficient to feed the population, but even if this is true, the processing and storage infrastructure does not exist in the state to make this a year round reality (Nickerson, 2008). This need is being addressed in the state in a variety of ways including through food hub efforts (as discussed in the literature review...
section), research, state policy, and some infrastructure improvements. It should be noted, however, that while these efforts may increase Vermont’s capacity to provide a greater percentage of its own food needs, self sufficiency is rarely the stated goal. These programs are often framed with an emphasis on supporting the local economy without any mention of what Kloppenburg, Hendrickson, & Stevenson (1996) call food system secession.

Third, the local food movement was identified as a mechanism that could potentially exclude local producers from regional and local markets alike. Some producers depend on out-of-state sales for their livelihood. An example of this is the producer in Windsor County who voiced her fear that if Massachusetts decided to purchase only local fruit, she would lose her primary wholesale market. A second producer noted the saturation of certain types of local products in retail venues. He emphasized that there was only a limited variety of foods that Vermont producers can grow in a sustainable way, and at some point there will be a greater supply for certain items than there is a demand. In these ways, the local food movement has the potential to exclude stakeholders (Hinrichs, 2003), even those who live in the state. For both of these reasons, it is necessary that work for a sustainable Vermont-regional food system account for how local economies interact and are dependent on the regional, national, and global food systems.

In support of these concerns, the literature suggests that the local food movement is not an end in itself, but should be considered as contributor to sustainability (DeLind, 2006; Feenstra, 2002; O’Hara & Stagl, 2002; Seyfang, 2006). Emerging thought
emphasizes that while local is an important part of place, the later is a stronger, longer lasting concept. It is also suggested that place rather than local has implications for the sustainability of food system. This is key if the ethical concerns of stakeholders are to play an intentional part in enhancing sustainability. Place implies a greater consideration of politics, culture, relationships, spirituality, etc. Local, on the other hand, represents only one component of place, and is not able to address the larger issue of sustainability without the incorporation of place related values. Only by including emphasis on place can the beneficial values and effects of the local food movement be sustained (DeLind, 2006).

It is important, however, to remember that interview subjects in this study did not share the perspective presented by these scholarly frames. Even for those stakeholders who did not feel that sustainability was a useful term, local was used to refer to very specific qualities of their communities, environment, and market. They addressed the importance of supporting their neighbors, both in business and in other aspects. They talked about the culture of Vermont and the physicality of the landscape. By integrating these values-based concerns into their understanding of the local food system, the subjects blurred the line between local and place. In addition, we do not fully understand how stakeholders come to value local or place based food systems. It is possible that the local food movement is an essential part of introducing values associated with place based food systems to a wider audience.
5.2. Limitations of the Study

At the onset of this research, I was introduced to a project by the Center for Whole Communities that used values to produce indicators of land and community health. This indicator set inspired me to think about sustainability as rooted in place, and I decided that creating a similar tool for the Vermont-regional food system would be particularly useful for facilitating the adoption of more sustainable practices and policy in the state. There were, however, several challenges that limited the study.

First, I originally framed my research to specifically address food sourcing and distribution. I did this because of what I perceived to be a glaring omission in research to date. Much had been done on food production practices, consumer preferences, and food security. An increasing amount of research is published every year on marketing practices. There was little, however, on how food traveled from producer to purchaser. I found, in my effort to raise the question of sustainability in food sourcing and distribution, that no stakeholders were able or willing to address the issue in isolation of the rest of the food system. This was a gentle and positive reminder that, while there is value in examining parts of the food system in isolation, it is necessary to also look at its complex nature as a whole. My interview subjects were entirely focused on this complexity, emphasizing again and again how choices in one part of the food system impacted everything and everyone else.

While this framing of the issue by my interview subjects yielded rich information related to values, it changed the focus of the indicator selection phase of the research considerably. This was a flexible shift to make, but other challenges arose during the
second portion of the study. Specifically, the stakeholders had a difficult time conceptualizing indicators related to their stated values. (Interview subjects explicitly identified only 3 out of 15.) The original study anticipated this difficulty by introducing participants to the idea of indicators in the interviews. The group meeting was intended to reintroduce participants to indicators, thereby capitalizing on familiarity with the topic to delve into creation of indicators more thoroughly. However, due to lack of stakeholder availability and/or interest in indicator selection, I had to rely on initial brainstorming of indicators conducted during the interviews.

There are several possibilities why stakeholders were not accessible for or interested in the refining of indicators. Though the meeting was scheduled in a central location, some stakeholders would have had to travel a significant distance to reach it. In addition, the meeting was scheduled for 9:00 am to 3:30 pm, requiring a significant time commitment. Since this study, I have worked with similar groups of stakeholders and other research projects with similar time commitments. There are two striking differences between my study and the subsequent research I have assisted. First, financial compensation in the form of travel reimbursement or a stipend is often expected by participants. Second, established trust in an organization lends credibility to the research. Though I was conducting my research with partial funding by the Sustainable Agriculture Council, it would have been advantageous for me to design my work with a service provider that interacts more closely with food system stakeholders. Ideally, a member of that organization would have been present at the group meeting to increase the level of trust between stakeholders and the research team (myself included.)
These two limitations (limited number of stakeholder derived indicators and limited participation in the group meeting) have implications for the final usability of the indicator set. As addressed previously, indicators that are crafted in a bottom-up fashion emphasis the importance of learning process associated with dialogue and personal interaction. In food system related projects, the crafting of indicators in a group leads to reflexive decision making, which in turn can leads to what Wilkins (2005) calls food citizenship. Wilkins (2005) defines these choices in the following way: “(Food citizenship is) the practice of engaging in food related behaviors that support rather than threaten, the development of a democratic, socially and economically just, and environmentally sustainable food system” (p. 269). Communities are less likely to use indicators that they have not participated in crafting, and if indicators are not used they cannot facilitate adoption of sustainable practices or policy (Carruthers and Tinning, 2003; Reed, Fraser, Morse, & Dougill, 2005; Reed, Fraser, & Dougill, 2006).

Because stakeholders’ involvement in indicator selection in this research was limited, the opportunity for socially supported ethical reflection among stakeholders was also limited. Considering this, it is unlikely that many stakeholders will use the set extensively. Subsequent experiences have led me to believe that, when seeking to address sustainability, social learning is more valuable than the indicator set itself. This opens up the possibility that indicator selection was not the best possible method by which to facilitate social learning with this specific group of stakeholders. Some possibilities of alternative methodologies to facilitate social learning include collective visioning processes, Creative Problem Solving, and Appreciative Inquiry (AI). Despite
the failure of this research to facilitate social learning to the desired extent, there are ample opportunities addressed in the literature review section of this study that support reflexive decision making in the Vermont-regional food system. So long as stakeholders have access to new information and the ability to adjust their decision making in accordance with ethical concerns, reflexive processes can contribute to sustainability.

Table 15: Missing indicator data

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Missing data</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm-to-school programs</td>
<td>Evaluation of farm-to-school program impacts on the local food economy and on food security.</td>
<td>Study not yet conducted, though it has been identified as a priority.</td>
</tr>
<tr>
<td>Act 250 permit approval rates</td>
<td>Historical rates of approval for Act 250 permits compared to those that did not receive approval. (Disaggregated by year.)</td>
<td>Data withheld.</td>
</tr>
<tr>
<td>Act 250 revisions</td>
<td>Evaluation of the projected impacts related to Act 250 revisions.</td>
<td>Revisions are incomplete.</td>
</tr>
<tr>
<td>Participants in VT Seal of Quality program</td>
<td>The number of participants of the Vermont Seal of Quality program, disaggregated by year.</td>
<td>Data not disaggregated by year.</td>
</tr>
<tr>
<td>Participants in VT Seal of Quality program</td>
<td>The number of participants in the Vermont Seal of Quality program in each product category.</td>
<td>Data not disaggregated by product category.</td>
</tr>
<tr>
<td>Technical assistance providers</td>
<td>Impacts of technical assistance assessment.</td>
<td>Data not collected.</td>
</tr>
</tbody>
</table>

Should this indicator set be used in the future, there are several gaps that should be addressed. The indicators that are incomplete to date are shown in Table 15 (shown above). As reported, all but one of these indicators were identified by stakeholders during
the interviews. For example, interview subjects showed that they believed that Act 250 has had an important impact on *environmental integrity* in the state, despite research to the contrary (Antony, 2004). The lack of public access to information about Act 250 permit approval rates demonstrates an opportunity to increase transparency and inform stakeholder decision makers. These indicators were included in the set in an effort to maintain connection to stakeholder input whenever possible, thereby maximizing the utility of the set, should stakeholders choose to use it.

### 5.3. Looking ahead

What is clear from this study is that stakeholders care deeply about the Vermont-regional food system in all its complexity. Efforts on the part of producers, consumers, processors, distributors, policy makers, and advocates all contribute to the vibrancy of the Vermont-regional food system. However, the future holds distinct challenges to enhancing sustainability. This research, in addition to other experiences working with food and agriculture, leads me to suggest four areas in which energy should be focused in the interest of increasing sustainability: Stakeholders in the Vermont-regional food system should strive to (1) conserve resources, (2) eliminate redundancy wherever possible, (3) cultivate collaboration based on shared values, and (4) expand partnerships between likely and unlikely groups.

First, it is worth noting that food system stakeholders are not the only people suffering from the shrinking pool of resources during the current recession. Increasing
rates of home foreclosure, rising unemployment, and the increasing costs of fuel and food have had (and continue to have) negative impacts on many communities in the United States. While Vermonters may not suffer from the worst of these trends, growing numbers of Vermonters are in need of assistance to meet basic needs. Therefore, it is of increasing importance that food system and agriculture groups help in any way they are able. Some argue that the best way to contain the effects of this recession is to ensure that the good work currently being done around sustainability issues continues. As financial resources shrink, this necessitates judicious and creative uses of available resources. It also necessitates that food system stakeholders reduce redundancy whenever possible. Instead, we must work to ensure that our efforts are reinforcing, complimentary, and cooperative. This goal has varying implications for different stakeholders groups including consumer groups, businesses, and advocacy organizations.

Community groups are often able to impact food systems at a grassroots level. They are well positioned to leverage citizen support (and occasionally the support of non-profit or state support as well) to further social values and goals. Due to the high degree of social interaction among members of these groups, there is also ample opportunity for individuals to practice reflexive decision making (Gouldner, 1970). As the local food movement has developed in Vermont and the surrounding region, community groups have demonstrated an increasing interest in expanding the diversity of products that they can purchase from in-state producers and processors. Consumer groups have worked to gain greater access to local food through supporting farmers markets, CSAs, and farm stands. In addition, small buying clubs and “localvore pods” have been formed in many
parts of the state (Nickerson, 2008). These “pods” support consumers to not only access local food, but also helps to create a place-based food culture. Many localvore groups are well situated to expand their efforts beyond what Hinrichs & Allen (2008) call selective patronage. If these groups are successful in incorporating a sense of place into their eating habits, this will lead them beyond purchasing behavior, and closer to using the local food movement to support broader social values. Some community groups have already begun this work through creating new community gardens in low-income areas, supporting “plant a row for the hungry” programs, holding community celebrations around food, and many other efforts.

While the terms collaboration and cooperation are often used in reference to grassroots level organizing, they also becoming popular in non-profit and for profit organizations. This is true especially among food and agriculture related businesses. For example, a significant lack in processing infrastructure is one of a few barriers to increasing market diversification. While it is prohibitively expensive for many small or medium sized producers to invest in a grain mill, an abattoir, or a cheese cave, collective ownership or other creative investment techniques can create opportunity for development in these areas. Cooperatively owned and managed packing and distribution centers such as those developed by the Deep Root Cooperative in Johnson, Vermont present additional opportunities for accessing the growing market for local food.

Advocacy organizations that address sustainability in food systems are also realizing the need for collaboration. Whether the financial support for these groups comes from federal, state, or private sources, the message has been clear: In the interest
of continuing the pursuit of sustainability (or other commonly held goals), existing and emerging advocacy organizations must minimize redundancy and maximize their impact. There are already several excellent examples of collaboration among these organizations in Vermont. Perhaps the best known of these is Vermont Food Education Every Day (VT-FEED), a partnership between Food Works at Two Rivers, Shelburne Farms, and NOFA-VT. In addition, exciting new synergies have emerged in the past year alone. The Center for an Agriculture Economy (CAE) is a prime example of this. A group that is primarily composed of producers and processors, CAE is focused on increasing the capacity to produce and sell local food in Vermont. They are a relatively new organization, but their dedication to supporting the food system in Hardwick and surrounding towns has created opportunities for them to partner with groups around the state as well as student researchers at UVM. The group hopes to pursue several projects in the upcoming years including increasing infrastructure, creating a farmer incubation program, and (pertinent to this project) developing metrics by which they can measure the success of CAE. They exemplify how, in an era of limited resources, individual producers can support one another to meet their own needs and the needs of their community.

While these current efforts are exciting, it is useful to remember that there are still alliances to be forged. It will be important for existing community, business, and advocacy groups to expand their willingness to collaborate with unlikely partners. These new partnerships can be initiated based on shared values. Agricultural business viability is an excellent example how collaboration of this sort has been initiated in the past,
specifically between subgroups of the conservation movement and subgroups of the local food movement. The Vermont Housing and Conservation Trust Act of 1986 was passed in response to threatening levels of development in the state during that decade. In this act, the Vermont Housing and Conservation Board (VHCB) was charged with assessing the growth in the state, establishing guidelines to control growth, and outlining methods for growth assessment (Vermont, 1986). The VHCB focused on housing and conservation projects with the celebrated benefits being the “preservation of landscape that is such an integral part of the state’s identity, supports the agricultural economy protects wildlife habitat, and provides public access to the state’s waterways and woodlands” (VHCB, n.d.). These values clearly link VCHB to important advocacy actors in the Vermont local food movement, including the University of Vermont’s Farm Viability program, the Intervale Center’s Success of Farms programs, the Northeastern Organic Farm Association (NOFA-VT)’s Business Planning and Technical Assistance program, and the Vermont Agency on Agriculture, Food, and Markets. Collaboration between these groups through VHCB’s farm viability program began in 2003. Since its inception the project has worked with over 150 farmers to develop business plans and enhance farm business viability. Currently these groups are exploring expanding their business planning services to cooperative producers and processors around the state.

This type of collaboration has the potential to be duplicated, especially with social movements that have had limited partnership with local food efforts to date. Transition Towns and Peak Oil initiatives are two examples of such movements. Groups within Transition Towns and Peak Oil espouse values related to local self-sufficiency, social
connectedness, and equality in the interest of reducing dependence on non-renewable resources and limiting the effects of climate change (Brangwyn & Hopkins, 2008). Currently these movements rely heavily on citizen groups and grassroots efforts, and present exciting opportunities for partnerships with food and agriculture focused advocacy organizations. While the goals and objectives of the local food movement and these groups may not be identical, there is sufficient overlap to pursue projects that would be mutually beneficial.

Efforts to eliminate redundancy, conserve resources, cultivate collaboration, and expand partnerships will potentially benefit the Vermont-regional food system in many ways. Of these, perhaps the most exciting is the degree to which food system stakeholders will be increasingly called to practice food citizenship and develop a sense of place. To collaborate effectively, it will be necessary for these stakeholders to interact with one another, encounter new information both through face-to-face interaction and printed and electronic media, and develop a greater awareness about their personal relationship to food, culture, place, markets, and citizenship. The reflexive nature of this process in turn creates space and opportunity to deepen our understanding of our social values, and to seek sustainability in an increasingly inclusive and effective manner.
LITERATURE CITED


**APPENDIX: INTERVIEW GUIDE**

*Opening:* Thank you for taking this time to sit down with me. I’d just like to tell you before we begin that this research is being done as part of my graduate degree at UVM and that it is partially funded by the Sustainable Agriculture Council. The final report will be published in part the SAC’s 2009 report, which will be made available on their website. I will also compile more extensive findings at the conclusion of the research, which I hope you will have a chance to review and approve before printing. Your responses in this interview will be kept confidential in both reports and in any presentations I give using this material. Unless you have any questions now, I will come back to logistical details of the research at the end of our interview.

I’d like to talk with you today because you are someone who has a lot of information about and experience working with the Vermont food system. Though I am interested in your personal experiences, I am also very interested in understanding your perceptions of the food system as a whole. I’m going to break this interview in to three sections. First I’d like to hear your opinion about the current state of Vermont’s food system, then I’d like to investigate what direction your think the system needs to move in order to be more sustainable. Lastly, I’d like to hear what you think would be the best way to measure progress towards sustainability in this field.

**Section 1: Opinions about the current food system**

1. I am aware that you are a ______. How long have you worked in this capacity?
2. In that time, have you seen the food system change in any important ways?
3. What do you think are the strengths of the Vermont food system, as it operates today?
4. What do you think are its weaknesses?

**Section 2: Future Vermont food systems and sustainability**

5. Can you define sustainability as it applies to the mission of (your group)?
6. Does (the group you represent) address sustainability in your long-term goals? If so, in what ways?
7. Are you currently collaborating with anyone in a formal or informal way to further your goals? If yes, do you think it would be good for more people to also collaborate in this way?

**Section 3: Needed information**

8. (If the interviewee indicates that sustainability in some form is desirable, ask the following question.) I have heard you mention ______ several times in reference to (your group)’s long-term goals. Can you take a moment to define that value and what it means to you and your organization?
9. Who do you think makes the biggest impact on the food system? Should this value factor into decisions made by these people? If yes, how so?
10. What information best informs decisions based on that value?
11. Is there any information you do not have which you could use to inform those decisions? Where do you think that information can be gathered?
12. In what ways would you ideally use this information?

Closing Question
13. Can you briefly describe to me what the ideal Vermont food system of 2050 would look like?

Closing Invitation: Thank you very much for taking the time to share this information with me. I’d like to take a moment to share with you how I will be using your input and the input of other experts in the Vermont food system.

Based on the conversations I have had with producers, processors, distributors, etc., I will be drafting a list of values related to sustainability in Vermont’s food system. I’d like to extend an invitation to you to join other “expert-stakeholders” I have interviewed for this research at a meeting in [date and place]. At that meeting, we will be looking at this list of values and deciding what indicators are available to help us measure the food system’s progress towards common end-goals. It is my hope that these indicators will be useful not only to the individual groups involved in the selection process, but can also be used to encourage policy that serves Vermont stakeholders and communities. Are you interested in attending this meeting? If not, is there someone else in [your group] that you think would be open to attending?

Whether you are able to attend the indicator-selection meeting or not, I would be happy to share the results of this study with you. Are you interested in receiving a final copy of the report?