Local food systems and sustainable communities

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Abstract. *The long-term health of a community's food system is an important indicator of its vitality and sustainability. A logical and appropriate way to revitalize a community is by the development of a local food economy. People throughout the United States are designing and implementing sustainable, local food systems that are rooted in particular places, aim to be economically viable for farmers and consumers, use ecologically sound production and distribution practices, and enhance social equity and democracy for all members of the community. This paper reviews the existing literature on local food systems, examines a variety of strategies and initiatives that are currently underway, and identifies steps that community leaders and citizens can use to develop their own local food systems. Finally, I suggest what research is needed to support these community efforts.*

Key words: community economic development, foodshed, food policy councils, regional food guides, food self-reliance, direct marketing, community food security

Introduction

The long-term health of a community's food system is an important indicator of its vitality and sustainability. Not only does an adequate, varied diet contribute to individual health, but the *way* food is grown, distributed and eaten also profoundly affects the environmental, social, spiritual and economic well-being of the community. In many places, a logical and appropriate way to revitalize a community is by the development of a local food economy. People throughout the United States are designing and implementing sustainable, local food systems tailored to their community's needs. This does not mean they completely isolate themselves from trade, but that they adapt local food production and markets based on local environmental and community health priorities. These local food systems are rooted in particular places, aim to be economically viable for farmers and consumers, use ecologically sound production and distribution practices, and enhance social equity and democracy for all members of the community.

This paper reviews the existing literature on local food systems, examines a variety of strategies and initiatives that are currently underway, and identifies steps that community leaders and citizens can take to develop their own local food systems. Finally, I suggest what research is needed to support these community efforts.

The Historical Context

Ecological, cultural and political analyses over the last two decades hold in common the vision of a more local, ecologically sustainable, and democratically controlled food system. A seminal work that directly related individuals' dietary habits to the earth's resources and the food economy was Lappe's *Diet for a Small Planet* (1975). Lappe made a convincing case that greater food security for all people could be achieved if we ate lower on the food chain. *Food First* (Lappe and Collins, 1978) further articulated the economic and political realities of the global food system and how they are used to perpetuate the myth of scarcity and the continuation of hunger in communities worldwide. Lappe and Collins encouraged communities to take control of their own food economies. Hightower (1973, 1976) discussed issues of corporate control in American agriculture and its effect on farmers, farmworkers, consumers, and the quality of the food system. Berry's *The Unsettling of America* (1977) powerfully and poetically described the loss of community and culture that accompany the uncritical acceptance of agribusiness and mechanization in our food and agricultural system. Gussow (1978) edited a thoughtful collection of essays, *The Feeding Web*, that tied together concerns about food, nutrition, culture, and the environment. More recently, Kneen (1993) reviewed the ecological and social costs of the global food system and described a vision of more localized, sustainable food systems built on justice and community.

Others (Getz, 1991; Hendrickson, 1993; Kloppenburg et al., 1996) describe the potential for developing alternative, more local food systems through the concept of a "foodshed." According to Getz, a foodshed is the area that is defined by a structure of supply. A local foodshed not only describes a geographic area and the foods that can be grown within it, but also the social and cultural elements of a community. Investigating all these elements is essential to understanding the unique aspects of the food system in a community. The local knowledge that is gained through such observations allows us, as Crouch (1993) notes, to become native to our place, our community.

By 1980, the Cornucopia Project (1981) of Rodale Press began a systematic study of the nation's food system. It documented the fundamental problems with the food system on a national level in *The Empty Breadbasket?* (1981), and commissioned studies of the food systems of several states, including New York (Messing, 1981), Pennsylvania (Hollander, 1983), California (Pahl, 1983), Maine, Ohio, and Minnesota. These studies

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examined how much and which foods of the state's food supply were imported and exported, and considered the ecological, social and political implications. Recommendations were made for consumers, farmers, state and local governments, the food industry and the research community to regenerate and localize their state's food and agricultural economy. These studies and the Cornucopia Project outreach began to make people more aware of their food and agricultural systems and what they could do to make them more sustainable.

Since the Cornucopia projects, several local initiatives and studies have been conducted throughout the United States to examine the sustainability of food and agricultural systems and the feasibility of creating more local food economies. These can be divided into five categories: regional food system studies; manuals or models for community data gathering; educational strategies; food policy councils; and existing community food system projects. I examine prominent examples from each category to discover what insights they provide and what questions they raise.

Regional Food System Studies

The studies reviewed in this section analyze the potential for various states, regions, counties or cities to realize a more localized food supply. They provide valuable insights into the kinds of information that are helpful in developing a local food economy. These studies focus on: conducting historical reviews of agricultural production in the region to determine what foods can be produced; estimating the region's present self-reliance in food; identifying local, i.e. seasonal, foods and developing guides to them; conducting local marketing studies of producers and consumers; understanding urban agriculture and the connection with hunger; and establishing local food policy or planning councils.

Local, sustainable agriculture and seasonal diets

Some studies (Haughton, 1982; Gussow and Clancy, 1986; Herrin and Gussow, 1989; Hamm, 1993a) link local, sustainable agriculture with seasonal diets. Several studies include reviews of the history of agricultural production in the local area. They identify a rich variety of local crops and livestock that were once produced and eaten by residents. They also identify reasons for the decline in local production of these foods. Sometimes the loss of local food processing capabilities is the key factor influencing the crops that are grown and eaten.

Other studies collected quantitative data to estimate the extent of the state's present or previous self-reliance in food. Hamm (1993a) used a nutrient based approach, comparing the total nutrient production of the state with the total nutrient requirement of the people of New Jersey. Herrin and Gussow (1989) calculated production and consumption data for a variety of foods to determine the extent of Montana's food self-reliance. The most reliable studies use statewide food production and marketing data, along with extrapolations from national consumption surveys. The results reveal that food self-reliance has declined over time, but that residents *could* get more of their nutrients from local sources, especially if they changed their diets to reflect seasonally available foods.

Researchers then began to identify foods available locally, in season. Herrin and Gussow (1989) created nutritionally adequate menus using locally available foods for each season of the year. Hamm (1993a) and Herrin and Gussow (1989) also promoted the development of regional, seasonal food guides. Regional food guides now exist for British Columbia, Canada (British Columbia Ministry of Health, 1994), for Placer County, California (PlacerGROWN, 1995), and for the northeastern United States (Wilkins and Bokaer-Smith, 1996). Gussow and Clancy (1986) discuss a similar guide for a sustainable diet by analyzing the Dietary Guidelines from an ecological perspective and suggesting options for more sustainable dietary choices. All these studies intentionally link the products of local agriculture with a new type of dietary guidance based on seasonal foods instead of on food groups alone.

Marketing and consumer studies

Another important dimension of the local food economy is the marketing potential for local sustainable foods. Studies conducted by Arthur D. Little (1985), the Minnesota Project (1986), Yellow Wood Associates (1988), the Association for Agricultural Self-Reliance (Campbell and Pearman, 1994), Fricker Group and Sunflower Strategies (1994), and a project conducted by the Midwest Organic Alliance (1995) focus on developing local agricultural markets for growers in their regions. Four others conducted by Lockeretz (1986), Bruhn et al. (1992), Thomson and Kelvin (1994), and Nayga et al. (1995) examined consumer demand for locally grown foods. In these studies, researchers and community groups used surveys, focus groups and interviews to examine the supply and demand for local foods.

These marketing studies suggest that a cooperative marketing strategy with technical assistance and an emphasis on local markets may be helpful in expanding the local food economy. The studies find three key components of successful marketing strategies. First is the establishment of a regional identity based on high quality products. This includes using logos, promotional materials and celebratory events, to build support from consumers and the local processing industry.

Second is the need for cooperative marketing strategies and technical assistance to initiate cooperative efforts. The New York State study (Arthur D. Little, 1985) suggests creating a center for cooperative market development funded by the state and producers. The New York regional study (Yellow Wood Associates, 1988), the Renfrew County study (Campbell and Pearman, 1994) and the Humboldt County study (Fricker Group and Sunflower Strategies, 1994) suggest forming grower cooperatives. These cooperatives might share grading, packing and storage of regional produce. They also might exchange equipment, initiate a revolving loan fund, or coordinate workshops on low-input production techniques and on marketing and processing of local products. Another cooperative strategy suggested by the New York and Minnesota regional studies is to compile a detailed listing of buyers, commodities and farmers (a market link service) so that buyers and producers could make contacts and expand local markets. The Midwest Organic Alliance is currently strengthening regional organic growers' infrastructure through business support services and by linking farmers with processors.

The third key element mentioned by all studies is the importance of quality among buyers (both wholesale and retail) and processors. Product quality is also crucial in the consumer demand studies. These studies find that consumers would buy more locally grown products if they are of high quality, the price is competitive and they are in a "local-oriented" environment (such as a farmers' market).

Urban food system studies

The final studies in this section, by Ashman et al. (1993), the Sustainable Food Center (1995), and Joseph (1996), focus on connecting low-income city residents and local agriculture as a way to improve community food security. The studies in Los Angeles, California (Ashman et al., 1993) and in Austin, Texas (Sustainable Food Center, 1995) begin by documenting the extent of hunger and the structure of the existing food systems in their communities. They suggest improving transportation systems and encouraging more supermarkets in the inner city, and include creative solutions for putting residents directly in touch with local foods. Joseph (1996) outlines local solutions to improve food security for Massachusetts residents. Strategies include producing local food through community gardens or urban farms, encouraging residents (especially participants in the Women, Infants and Children program) to buy directly from local farmers at farmers' markets and produce stands, and encouraging government food programs to buy local foods.

All three studies recommend establishing food policy councils to coordinate the disparate elements of the city's food system and develop links between consumers and local farmers. (Food policy councils will be discussed in more detail later.) The urban focus is an important element in regional food systems studies because it intentionally expands the concept of a local food system to the poor. As will be discussed later, this is both an opportunity and a challenge.

Manuals for Data Gathering

Various food system manuals are available to help citizens ask specific questions about their food systems and gather data to guide their decisions. Two manuals, *Organizing a Local Cornucopia Project: A Manual for Changing Your Food System* (Cornucopia Project, 1982) and *The Food and Agriculture Workbook* (Cantrell, 1991) are particularly suited to help community participants systematically examine their present food system and discover its potential to become more locally based and sustainable. They might best be used together since their strengths and weaknesses complement each other's.

Both manuals include a section on community process—organizing community meetings, formulating the agenda, determining goals, and choosing specific activities. *The Food and Agriculture Workbook*, especially geared for smaller communities, is much more complete in this regard. The workbook is organized into a four-step community process, in which groups use worksheets to collect information, analyze the state of the local food and agricultural system, and identify options to revitalize their local food economy. Projects are chosen according to local knowledge and an understanding of the community's unique food and agricultural characteristics and opportunities. *A Manual for Changing Your Food System*, on the other hand, describes many more concrete ideas and specific activities, from individual activities such as composting to community ventures such as organizing a land trust. A companion manual called *Strategies for a Sustainable Food System* (Cornucopia Project, undated) lists additional activities, programs and policies.

The Hartford Food System is preparing *A Guide to the Development of Community Food Systems* (Mark Winne, Director, Hartford Food System, private communication, June 1996). The *Guide* will provide practical information on developing community food systems and assist in creating a national network of community food system practitioners. Its emphasis is on linking regional agriculture and urban food needs, food policy planning initiatives, urban food retailing, and sustainable food production.

Educational Strategies

This section includes four very different educational strategies that focus on regional food systems in the northeastern United States (Maretzki and Anderson, 1991; Nettleton, 1996), in the Pacific Northwest (Nuxalk Food and Nutrition Program, 1984) and in the Midwest (Land, Food, and Justice Committee, 1986). All four projects involve a collaboration of stakeholders in the food system, with leadership coming from different sectors: Cooperative Extension, community health clinics and the religious community. These are three potentially powerful allies in developing local food systems.

The Northeast Network for Food, Agriculture and Health Education (Maretzki and Anderson, 1991) involves Cooperative Extension, citizens and community leaders in developing a policy education program for the northeastern food system. Participants facilitate discussions and activities about how food safety, food costs and nutrition are related to agriculture, health, food processing, distribution, and marketing. The work is designed to help citizens examine the consequences of alternative food policies and make informed decisions. This project provides a model for involving Cooperative Extension and taking advantage of resources at land-grant universities to raise awareness about food system issues.

The other project in the Northeast (Nettleton, 1996) involves Cooperative Extension and several nonprofit collaborators in the New Farmers New Markets program. This program rebuilds and expands existing farmers' markets while developing new, viable markets in underserved neighborhoods. The program works with community-based organizations to educate neighborhood youth and new immigrants in market-oriented sustainable food production. Besides their educational benefits, these efforts contribute to community-based economic development and regional employment.

The Nuxalk Food and Nutrition Handbook (1984) resulted from a collaboration of the Nuxalk native people of British Columbia with nutrition and community health professionals to promote the use of native foods and understand the benefits for personal health, the household and community economies, and native cultural and spiritual life. The program was run out of the health clinic and included regular meetings with elders about the history of the food system, nutrition classes emphasizing traditional foods, food gathering demonstrations, periodic traditional feasts, and a Nuxalk food garden. The project successfully reintroduced traditional, regional foods through the health sector. Local

health clinics are often part of the network for reaching low-income and ethnic groups. Because of their economic situation and many of the food traditions they retain, people in ethnic communities may be the most receptive to becoming involved with regional food systems.

The last project in this section, *There is a Season: Cooking with Good Things Growing in Michigan* (1986), is one example of many cookbooks that emphasize regional, seasonal recipes (Tudge, 1980; St. Paul Farmers' Market, 1985). This was a project of the Land, Food, and Justice Committee of the Interfaith Council for Peace, a group that includes people from the sustainable development, anti-hunger, and religious communities. Besides providing recipes using fresh, local foods, the cookbook directs consumers to farmers' markets and discusses food preservation techniques so that local foods may be eaten year-round. These practical tools help individuals translate their values into concrete actions. Members of religious communities and others interested in environmental justice are likely allies in educating the broader public about local food systems (DeBoer and Schlabach, 1981; Granberg-Michaelson, 1984; Presbyterian Eco-Justice Task Force, 1989; Jubilee Agriculture Ministries, 1994).

Food Policy Councils

Over the last decade, more cities, counties and regions have recognized the important role local governments can play in addressing food security and its relation to local, sustainable agriculture. Food security has been defined as the state in which all persons always obtain a nutritionally adequate, culturally acceptable diet through local, nonemergency sources (Ashman et al., 1993). However, community food security means more than simply ensuring access to food for all individuals. It has also come to represent a community-based, prevention-oriented framework that includes empowerment of community members, economic development strategies and more direct relationships between producers and consumers (Gottlieb and Fisher, 1996). To ensure a more coordinated approach to community food security, nutrition, health and agricultural issues, some cities have established various forms of food policy councils (FPCs) (Minneapolis Food Policy Task Force, 1987; Dahlberg, 1994; Toronto Food Policy Council, 1992, 1995). These cities recognize that food is an important component of a healthy, sustainable community and that the food system has major impacts on employment, waste management, transportation, and the health and well-being of the larger ecosystem.

Dahlberg (1994) and Clancy (1994) analyzed the successes and failure of food policy councils nationwide and developed important insights about how these institutions contribute to the stability of regional food systems. Dahlberg's study of five cities and one county found that a strong, supportive mayor, good links with staff in local governments and competent FPC organizers all influenced the degree of formal institutionalization an FPC could achieve. The more effective FPCs were more institutionalized, with a budget, staff, and planning powers. He also found that FPCs with a very strong emphasis on hunger issues were less likely to be successful in the long-run. In contrast, the successful FPCs tended to give significant attention to broad reforms aimed at making urban systems more sustainable and equitable.

Clancy (1994) offered additional insights from the demise of the Onondaga County, New York, Food Policy Council. Barriers to success included: conservative views of farmers; the crisis-orientation of farmer participants; research and extension efforts at the land-grant university directed at helping farmers get bigger; apathetic consumers; and a lack of credibility. She made several suggestions: carefully choosing the region in which to put efforts; encouraging the involvement of Cooperative Extension in food systems issues; encouraging the development of new local markets; encouraging more community-supported agriculture (CSA); and searching for supportive, innovative farmers.

Recent food security planning efforts have been coordinated nationally by the Community Food Security Coalition, formed in the summer of 1994. The Coalition drafted the Community Food Security Empowerment Act (1995) and successfully influenced the passage of the Community Food Security Act as part of the Nutrition Title of the 1995 Farm Bill. This act will provide $16 million for the next seven years (FY 1996 - FY 2002) to community-based projects designed to meet the food needs of low-income people, increase the food self-reliance of communities, and promote comprehensive responses to local food, farm and nutrition issues.

Existing Community Food Systems

There are hundreds of creative projects that link individual community members, institutions and businesses directly with local farmers to improve local food economies. They include more than 1,750 farmers' markets (Lyson et al., 1995) and 550 community-supported agriculture projects nationwide (Robyn Van En, founder of CSA of North America, private communication, June 1996), and hundreds of community and school gardens, urban farms, and other community demonstration projects. This section will review a small sample of those projects that are innovative in their approaches, that attempt to employ a comprehensive strategy to localize their food economies, and that have been documented. They represent communities that range in scale from a small college campus to a large western county. Each uses the concept of local food systems to educate community members about local agriculture, address urban hunger, improve community economic vitality, and involve residents in community relationships around food.

Several colleges have researched their local food systems and implemented plans to purchase locally and sustainably produced foods. From 1986 to 1991, Hendrix College students, in cooperation with the Meadowcreek Project in Arkansas, generated thousands of dollars in the local economy by increasing in-county food purchases from 1% to 15% of total food purchases and in-state food purchases from 6% to 30% (Yazman, 1991). Other benefits included closer ties to the community, more nutritious foods, and a cooperative warehouse that now serves Hendrix College and other local institutions. The honesty with which the obstacles are documented and addressed and the slow, steady way in which the Hendrix College project phased in changes make this study a particularly useful model. Carleton and St. Olaf Colleges in Minnesota did a similar study (Aegerter et al., 1990), making recommendations that, if adopted, could boost local food purchases

from 19% to 39% of the college food budget.

Other community demonstrations have made creative urban-rural linkages between local agriculture and urban communities. Drumlin Farm's Food Project (Massachusetts Audubon Society, undated) brings together city and suburban youth to grow food for Boston area soup kitchens, homeless shelters, and farmers' markets that serve low-income neighborhoods. A project in New Brunswick, New Jersey, provides fresh, organic produce harvested from a small-scale, intensive vegetable farm at Cook College, Rutgers University to the community food bank, soup kitchens, local restaurants, a roadside stand and a CSA project (Hamm, 1993b). The Homeless Garden Project in Santa Cruz, California (1992) employs homeless people to produce fresh produce for a CSA and a farmers' market. The Stockton Food Bank in California grows food for its clientele and for a CSA on a 5-acre urban farm (Bruce Giudici, Stockton Food Bank, private communication, February 1996). Low-income people receive scholarships to participate as shareholders. Inner-city youths work on the farm and are trained in small business skills.

One of the oldest, most successful, and most comprehensive community projects that builds community-food relationships is the Hartford Food System in Connecticut. Its mission is to develop a long-term equitable and sustainable food system that can address the underlying causes of hunger and poor nutrition. Its programs have included food production, agricultural marketing, local food retailing, nutrition education/information and community economic development (Hartford Food System, 1993, 1994). In the last 15 years, the Hartford Food System has instituted a variety of innovative programs that directly link low-income urban residents with local farmers. Examples include: "Farm to Family," in which more than 50,000 Connecticut seniors and WIC participants receive farmers' market coupons, "Community Farmstands" that sell Connecticut produce in neighborhoods with limited access to fresh fruits and vegetables, a "Delivery Service" for homebound seniors, and "Food Stamp Outreach" at farmers' markets and roadside produce stands. In 1994, the Hartford Food System began a CSA project at Holcomb Farm in nearby Granby, Connecticut. Half the shares are sold to local suburban residents; the other half go to Hartford community groups that serve low-income residents. The Hartford Food System also has been active in lobbying for improvements in federal food programs, influencing the use of land for community gardens, participating in Hartford hunger studies, and establishing the Hartford Food Policy Commission in 1991. These programs have benefitted Hartford residents not only economically and nutritionally, but also socially and culturally.

The University of California Sustainable Agriculture Research and Education Program has funded two unique community food systems projects. First is the Arcata Farm and Education Project (Lehman, 1994). Located on a 4-acre parcel leased from the city of Arcata, the project is a student-run educational working farm with a CSA component. Students from Humboldt State University and local elementary schools learn about sustainable agriculture and marketing through direct farming experiences, labs, and on-site classes. The community is involved through their participation in the CSA, several harvest and planting celebrations, and workshops on organic gardening, composting, Integrated Pest Management (IPM), sustainable farm management, and edible landscaping. The Arcata Farm directly involves the low-income Hmong population by sharing some of its land for the families to raise gardens and keep chickens. Farm staff members and students share resources with the Hmong families, who can grow some of their food sustainably and improve their nutritional and economic well-being. The Farm has involved local farmers and Cooperative Extension by sponsoring a conference in spring 1995 on sustainable production, marketing, land use issues, and community economic development. The variety of community outreach ideas has contributed to making the Arcata Farm a visible and valuable community project that links many people with their local food system.

The second project is a countywide, cooperative agricultural marketing program in Placer County called PlacerGROWN (Junge et al., 1995). Originally funded by a grant from the Placer County Board of Supervisors, PlacerGROWN was designed and is now implemented by a diverse planning group including Cooperative Extension, farmers, ranchers, consumers, farmers' market managers, and representatives from local government. The project includes a nonprofit membership organization that promotes local Placer products within and outside the county, a research component with producer and consumer surveys to determine the need for expanding local markets, and the development of a local food guide called "A Reason for the Season." Consumer education about eating local seasonal foods is being conducted through Cooperative Extension Master Food Preservers and other trained volunteers. Restaurants, retail food stores, and farmers' markets are included in outreach. Workshops and conferences about sustainable production and direct marketing have been important in reaching local growers and ranchers. PlacerGROWN also conducts an annual tour of PlacerGROWN participants for interested consumers, other farmers, policymakers, local agricultural resource agencies, and the media. Connections with the community are widespread and are contributing to the success of PlacerGROWN.

Community Strategies and Research Needs on Local Food Systems

What can we learn from the diverse projects just described? The suggestions presented here describe some activities and research questions for communities interested in making their local food and agricultural systems more self-reliant. Each community, however, must decide for itself what will or will not work, depending on its particular capabilities.

Learning about the local food system

One of the first requirements of engaging in this work is to understand more about one's own regional food system. The following kinds of information will be most helpful.

Historical reviews of agricultural production in the region. This information helps identify the potential for creating more agricultural diversity. A historical review might also reveal the reasons that production and consumption trends have changed over time and can point to ways for

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reintroducing local processing and value-added activities. The study of Montana's and New York's food systems (Haughton, 1982; Herrin and Gussow, 1989) and the Humboldt marketing study (Fricker Group and Sunflower Strategies, 1994) included historical reviews and trends in production and consumption, although with differing degrees of detail. The Montana study's list of previous and current locally grown foods was used by Montana Cooperative Extension agents as a supporting document for local farmers attempting to secure bank loans for vegetable production. The Humboldt study was used to create a marketing strategy for fresh and processed local foods in Humboldt County, California.

Estimates of the region's present self-reliance in food. Obtaining as much actual information about which foods are produced, consumed, exported and imported helps communities get a picture of the region's food economy and how it might change. The Cornucopia studies, the Montana study and the New Jersey study (Hamm, 1993a) all used quantitative analyses to make these estimates. Gathering reliable data is difficult and time-consuming, often requiring assumptions that may compromise the accuracy of the estimates. It is much easier to collect statewide (vs. regional) data because government reports usually exist on crops, pesticide use, water, production, consumption, poverty indicators, etc. Some of these data are available at the county or city level, but regional and bioregional data are much harder to obtain. In some studies, it was necessary to extrapolate state level estimates from national data because the national data were more consistent. Similarly, county or multicounty data could be extrapolated from statewide data. However, researchers sometimes conducted their own surveys to get a more accurate picture. Before engaging in data collection, it is important for community members to be clear about the purpose of their efforts. This will help guide them in deciding how detailed their analysis needs to be and whether they can use existing data or will need to collect their own.

Conducting historical reviews and studies of a region's food self-reliance is an ideal research activity for colleges and universities. Even better are studies that combine the resources of research institutions with those of the community. The Placer-GROWN project has used resources from Cooperative Extension and the County Board of Supervisors to conduct local food production and consumption studies in Placer County. More studies that ask questions about regional food self-reliance are needed. Data are particularly lacking on the economic and social benefits that local food systems offer to communities. A first step will be to identify meaningful indicators and measurement methods. These studies not only will provide helpful information to communities, but will also validate this area of research within the academic community.

Identification of local, seasonal foods and development of food guides. A food guide can be a helpful tool for educating consumers, institutional food buyers, educators, policymakers and area farmers about the potential for eating more local foods. Research is needed on whether the food guides currently in use (British Columbia Ministry of Health, 1994; Placer-GROWN, 1995; Wilkins and Bokaer-Smith, 1996) are effective in changing consumers' knowledge, attitudes and eating habits. Although food guides are an important educational strategy, by themselves they do not significantly influence local production to meet local demands.

Marketing studies. These can be helpful in understanding food distribution dynamics, barriers, and opportunities within a specific region. They put the people who conduct them in closer touch with the reality of a particular food system, its participants, the control points, and the possible changes. They also provide reliable information about the needs of producers and buyers. The New York and Humboldt, Minnesota, marketing studies all provided very specific information about local producers and consumers and how they might be linked within their regions. Research is needed that examines the food distribution sector in other regions, analyzes barriers to local marketing, and suggests areas where opportunities might exist.

Urban agriculture. For regional food systems that encompass large urban areas, the Los Angeles and Austin food systems assessments are useful models (Ashman et al., 1993; Sustainable Food Center, 1995). These studies describe current defects and suggest alternatives for improving food security. Community or individual gardens can be a significant source of local food for urban and rural residents. Direct marketing, including U-pick and roadside operations, farmers' markets, and CSAs, are successful methods for expanding local agricultural markets. Although direct marketing represents only a small fraction of total agricultural receipts, it still is an important source of income for area farmers and can provide substantial amounts of quality food to community residents.

On the other hand, marketing in low-income neighborhoods offers a major challenge to small, family farmers. Food cost is the primary barrier. Innovative solutions have been found by programs such as the Hartford Food System, which encourages the Farmers' Market Nutrition Program and food stamp use at farmers' markets and roadside stands. Others, such as the farm at Cook College (Hamm, 1993b), use a CSA to subsidize food production for low-income people at the community food bank or soup kitchen. Here, shareholders' prices help pay the labor to harvest extra food for the food bank and soup kitchen. The Stockton Food Bank provides scholarships for low-income people to participate as shareholders in its CSA. More research and collaboration with community residents is necessary to identify barriers and find new strategies that will benefit both farmers and residents of low-income communities.

Choosing a process for gathering community food system data and strategizing

To gather information in an organized way, groups need to be clear about their goals, particularly the importance of a community economic development component in their vision of a regional food system. The manuals described earlier are available to help communities in this process. A trained facilitator often is needed to assist a strategic planning effort, particularly where groups are large or represent diverse perspectives.

Using multiple community resources for outreach and education

Besides the agricultural organizations and agencies, other excellent resources for analyzing the food system and educating

the community include institutions of higher education, the nutrition community, the health sector, and churches and synagogues. Each has its own networks and outreach potential. The creation of community food system dialogues in the Northeast Network and on a smaller scale in the Nuxalk project is one model for involving community members in food system issues. Research is needed to assess how effectively such dialogues change people's behaviors to support a more local, sustainable food system. Other educational strategies that involve consumers in food growing, processing food, purchasing food directly through farmers' markets or CSAs or cooking seasonally encourage more active participation in the food system. Research is needed to identify which educational strategies are most effective and under what conditions.

Involving the religious community in food system studies and projects builds on existing and probably untapped relationships in community food systems work. Religious organizations already commonly provide space for and sometimes staff soup kitchens, food pantries and food drives, so they have substantial knowledge of hunger and other community food system problems. Because they share common values, the formation of networks among religious, environmental, food/hunger and sustainable agricultural groups is a promising strategy.

Local food policy planning

Food policy development and planning is a critical element that links production and distribution aspects of a local food economy. Besides helping to coordinate the ways that community residents get access to quality food, a food policy also can create new linkages with area farmers, particularly those committed to sustainable production. It also can develop policies that protect prime farmland, preserve topsoil, and encourage entry-level farmers, local processors, or food-related businesses. Finally, a food policy within a local government makes the idea of a regional food system a more tangible reality for citizens and invites democratic participation.

The development of trusting relationships is critical to the success of a food policy council, especially among the mayor, local government staff, and FPC organizers. In more rural settings, trust must be built in the farming community so that growers also "own" the process. This can be done by working with Cooperative Extension or establishing direct marketing relationships such as CSAs. Both a key success factor and a common pitfall is to build diversity into the FPC. The community must be broadly defined so that both urban and rural participants will invest in their food system. As new food policy councils are initiated, research such as Dahlberg's (1994) will be needed to evaluate strengths, weaknesses, and opportunities for new food policy planning models. Research also is needed that links food policy with land use and agricultural policy and incorporates each into city or regional planning.

Creating harmonious urban-rural linkages

The best local food systems are characterized by a broad vision of the food economy that addresses both urban and rural concerns. These concerns, from food access to farmland preservation to community health, are seen as everyone's. The creation of regional food systems links people from urban neighborhoods with people from local farms to make one community. This community provides adequate food to residents, a sustainable farming system, a safe, clean environment, and satisfying social and cultural interactions around food.

There are three key elements to realizing this vision. The first is leadership. In each project reviewed here, identifiable leaders have built strategic relationships throughout the community. What sets them apart is their ability to build trusting relationships with diverse participants, from food service workers to farmers. This, in turn, increases the pool of volunteers committed to the work. These leaders combine a broad understanding of community food systems and a process orientation. This allows them to use resources creatively and effectively, obtaining both individual and collective investments from farmers, consumers, retailers, and others. The result is a wealth of creative ideas for community outreach and involvement.

The second key to successful projects is collaboration, reflected in diverse representation on the boards, advisory committees, and planning groups. Participant involvement also is diverse, especially in projects that include low-income people and different ethnic groups. Recently, local groups have begun linking in national networks such as the Community Food Security Coalition.

Finally, building a successful regional food system depends on fostering the politics of civic renewal. McKnight (1995, p. 61) describes this politics as "interactive—the debate of citizens regarding purpose, value, and power . . . citizens pooling their intelligence to achieve maximum human good . . . the art of the possible—a process that recognizes limits and grapples with the questions of equity imposed by those limits." In projects like the Hartford Food System and the Arcata Farm, the real meaning of community politics is being restored as citizens—farmers, urban residents, hunger advocates, policymakers, and others—struggle together to restore regional food security, enhance economic vitality, and develop the democratic capacity of local citizens. In this way, the growing network of local food systems projects is making its mark on the renewal of American public life.

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Avery's Recommendations "Fall Short," Say Professors

The policy recommendations made by Dennis Avery in an article in *Choices* magazine "fall short of resolving serious global poverty and environmental problems," according to two professors who responded to Avery's article. Both the Avery article and the response by Fred Fitzhusen and Craig Davis of Ohio State University appeared in the First Quarter, 1997, issue of the peer-reviewed magazine of the American Agricultural Economics Association. Asserting that "the biggest danger to the world's natural environment today is low-yield agriculture," Avery advocated the adoption of "advanced farming methods" and concluded that "the only food strategies likely to protect the world's remaining wildlife are further advances in sustainable crop and livestock yields, and radically liberalized trade in farm products." He also criticized the Wallace Institute's publication, *Intensive Agriculture and Environmental Quality: Examining the Newest Agricultural Myth,* as making "tiny and poorly-founded criticisms."

In their response to Avery's article, Fitzhusen and Davis wrote that "Avery's future scenario is particularly dependent on major increases in per capita income among the world's poor; significant increases in environmentally benign, yield-increasing technologies for food and fiber production on prime agricultural lands; and a global free trade regime. . . . Avery exposes his lack of understanding of biodiversity and its causes, confusing the conservation of wildlife and wild lands with the more general and critical concerns of conserving overall biodiversity. . . . The construction of social policy on the basis of selective use of what we understand about the causes of biological diversity is poor science and makes for poor policy." Their main criticisms "are that he understates the potential downstream environmental impacts of agricultural intensification, overlooks the extreme difficulty of fostering and targeting economic development to reduce extensive poverty in much of the developing world, and grossly oversimplifies the complexity of the underlying causation of species distribution and abundance."