

The Arts and Sciences of Sustainable Community-based Food Systemsⁱ

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Sustainability will be the defining question of the twenty-first century. During the past two hundred years, the industrial era, the emphasis of global society has been on improving the material well-being of humanity through economic growth. At the beginning of the industrial era, most people lived relatively short lives of drudgery and deprivation as hunters and gatherers or subsistence farmers. Industrialization brought incredible growth in economic activity, and with it, tremendous advancements in the material well-being of humanity. No one would willingly choose to go back to the living conditions of pre-industrial times. Today, however, there are growing questions concerning the sustainability of economic growth.

Concerns about the growing negative ecological and social consequences of industrial economic development spawned the environmental and civil rights movements of the 1960s. Natural resources were being degraded and the environment polluted, and there were glaring inequities among those who were benefiting and those who were bearing the costs of relentless economic growth. Society took actions to address these issues during the 1960s and 1970s through new public policies, but then retreated into denial during the 1980s, after ecological and social public policy constraints began to limit economic growth. More recently, the questions of sustainability have arisen in regard to global climate change, depletion of fossil energy, growing economic inequity, and resource related wars. All these issues raise serious questions regarding whether our society or even humanity is sustainable, if we continue on the path of the past two-hundred years.

Sustainable development has emerged to challenge economic growth as the guiding paradigm or model for future human advancement. Sustainable development is most commonly defined as development that meets the needs of the present without compromising opportunities for the future. This definition is based on a 1987 report of the United Nations Commission on Environment and Development, commonly referred to as the Brundtland Commission.¹ Although definitions of sustainability may vary with respect to specific wording, more than a decade of dialog has led to a consensus among its proponents that sustainable development must meet the needs of both present and future generations. In addition, there is general agreement that such development must be ecologically sound, socially responsible, and economically viable, as each is interdependent with the others. Lacking in any one of the three, continued human advancement simply is not sustainable.

Some people see sustainable development as an oxymoron, mistakenly considering development to be synonymous with growth. Others see it as passing fad or simply the latest

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environmental buzzword. All types of organizations are making claims for the sustainability of their processes, products, and services. Admittedly, much of the current corporate hype about social responsibility and environmental integrity is simply “green-washing,” attempts to create an image or illusion of sustainability. However, the growing popularity of the concept of sustainability reflects the fact that consumers and taxpayers are beginning to understand the fundamental importance of the growing questions of sustainability. Within the larger question of sustainable development are questions concerning sustainable societies, sustainable economies, sustainable agriculture, sustainable forestry, sustainable fisheries, and sustainable communities. All are based on the same ecological, social, and economic principles of sustainability.

A movement to develop sustainable, community-based food systems reflects a realization that local food systems enhance the sustainability of both communities and farms that are located in geographic proximity. A sustainable farm must be capable of maintaining its productivity and value to society, including consumers and farmers, indefinitely into the future. A sustainable community must be capable of meeting the needs of the present without compromising opportunities for those who might choose to live and work in the community in the future. Everything of economic value is derived either from natural or human resources – from nature or from society. The economic development of a sustainable farm or sustainable community must not diminish the productivity of its natural and human resources – its land and its people.

A community may be defined as a group of people who share a common vision for their preferred future. Without some shared vision or sense of common purpose, there is no common commitment to keep people working or living together. Different people obviously have different dreams and aspirations but lacking a common subset of shared dreams and aspirations there is no reason for people to cooperate or collaborate as they work toward the visions of their preferred futures. Communities may be either virtual communities of interests or physical communities of place. To sustain communities of place, people with common interests must also have a purpose for choosing to live and work in a particular place. Otherwise, the people who share common interests will simply move to places better suited to their purpose.

Perhaps no sustainable community development initiative is more important or more unifying than is the development of local, community-based food systems. For many American communities, land is the still most important natural resource linking people to place, and agricultural land provides both a purpose for and possibility of sustaining people in a particular place. Sustainability does not suggest a return to natural resource based economies or societies. However, by linking economic and socio-cultural development to geographically fixed resources, sustainable connections are established among people, purpose, and place. Location-specific resources of economic value also include topography, landscapes, and climate, as well as land that can support community-based food systems. Sustainable, community-based food systems have the unique advantage of providing dependable access to the nourishment necessary to sustain the physical health of a community while nurturing social relationships, protecting the environment, conserving natural resources, and anchoring the local economy.

To understand the challenges of sustainable community development today, it's helpful to understand why people of the past have chosen to live in particular places. The indigenous people of North America lived in places where they could hunt and gathered food and materials

for clothing and shelter. European immigrants brought a distinctly different culture, but they settled in particular places for the same basic purposes, to realize the inherent value of natural resources located in those areas, including wildlife, timber, and minerals, but perhaps most important, fertile farmland. European settlements sprang up all across America in areas with local resources to support fur trading, logging, mining, and farming. Unlike earlier hunting and gathering cultures, the agricultural and industrial culture of the Europeans allowed rural people to produce surpluses of fur, lumber, minerals, and food. Surplus production could be traded to acquire other goods and services, which supported the emergence of trading and business communities.

Most people in rural communities today remain dependent on the productivity of *local* resources. As the fur-bearing animals were killed off, the timber logged off, and the minerals mined out, the most persistent of America's rural populations proved to be in its farming communities. A few logging and mining communities remain and some rural communities today are supported by recreational or residential developments, linked to local natural attractions or nearby urban employment centers. However, most rural communities in America today are farming communities – rural centers of economic and social activity, which still support and are supported by families on nearby farms and ranches.

Farming communities can be thought of as *remnant* communities, because like the fur trading, logging, and mining communities before them, the communities that remain dependent on farming today are being abandoned. The productivity of both farmland and farmers is being systematically extracted and exploited for the benefit of outside investors, leaving the local people with no sustainable source of economic development. As agriculture has adopted the industrial development strategies of mining and manufacturing – specialization, standardization, and consolidation of control – agricultural productivity has increased, but rural communities are being left in decline and decay.

Urban centers have a different but related history. Most started out as trade or transportation centers linked to early natural resource development. During the twentieth century, however, most urban communities turned to manufacturing and related business activities to maintain economic growth as resources of the surrounding areas were killed off, logged off, and mined out. Today, even industries dependent on natural resources, such as iron, coal, or timber, have few qualms about importing resources from distant locations if they can get a better deal elsewhere. Most industries today are owned by widely dispersed stockholders who have no common connection to any particular place. Lacking a commitment to place, industries have moved from higher-wage to lower-wage communities within the United States and increasingly to other lower-wage countries of the world, such as Mexico, China, and India. Many urban communities, like rural communities, are becoming places without a purpose.

Sustainable communities must be built on a different conceptual foundation than the natural resource communities of the past and industrial communities of the present. Sooner or later, we must confront the fact that development driven solely by the economic bottom line, quite simply, is not sustainable. This lack of sustainability is a matter of science and reason, as it is derived from the most fundamental laws of science. Sustainability ultimately is a question of energy use. Everything that is of use to humanity – our houses, clothes, food – requires energy to make,

energy to use, and in fact, is made of energy. All useful human activities – working, thinking, managing – also require energy. And equally important, the usefulness of human energy is a product of society. We are not born as productive individuals but as helpless babies. We have to be nurtured, socialized, and educated by society before we are capable of being of economic use to society.

According to the most basic laws of physics, the laws of thermodynamics, energy inevitably changes form whenever it is used to do anything useful, which physicists call *work*. Although energy is never created or destroyed, each time it is used and reused, some of its usefulness is lost. Whenever energy is used, it always changes in form, specifically from more concentrated, organized forms to more dispersed, disorganized forms. Before energy can be reused, it has to be reorganized, reorganized, and re-stored, all of which requires energy. This is the essence of the law of *entropy*. Once energy is used, it takes energy to make energy useful again and energy used to make energy useful is no longer available to do anything else of use. Conserving, reusing, and recycling can improve the efficiency of energy use, but cannot offset the energy inevitably lost to entropy.

The only source of energy available to offset entropy is the daily inflow of solar energy. The economy provides strong incentives to use and even reuse energy to produce things of economic value, but the economy provides no incentive to capture and store solar energy to offset the inevitable loss of energy to entropy. The solar energy collected by farms and forests, for example, is put into the marketplace in the form of products for immediate consumption. Economic benefits are inherently individualistic in nature and thus must accrue to the individual investor or decision maker within his or her lifetime. Thus, there is no economic incentive to maintain the productivity of natural resources or the civility of society for the benefit of some unknown someone of some future generation. All economic productivity, meaning useful human activity, depends on the extraction of energy from either nature or society. So, if the resources of nature and society are degraded and depleted, there will be no source of future economic productivity.

People can restrain their pursuit of individual self-interests in making economic decisions by giving consideration to their social and ethical responsibilities to humanity. But as large publicly owned corporations have gained control of most investment decisions, short run economic considerations have taken precedence over social and ethical values. Such corporations have no sense of social or ethical responsibility because they are not humans; they exist only to maximize economic returns to their stockholders. Development motivated solely by economic interests eventually will use up or deplete the natural and human resources upon which all economic development ultimately depends. An economy driven by economic self-interests quite simply is not sustainable.²

Sustainable development must mimic the processes of living, biological systems. Living plants have the capacity to capture and store solar energy to offset the energy lost to entropy. Humans also are capable of sequestering solar energy by using windmills, falling water, and photovoltaic cells. In fact, all living things have both a natural capacity and natural tendency for renewal and regeneration, with or without any economic incentive to do so. For example, people

have both the capacity and natural tendency to reproduce, even though there is little economic incentive to raise children.

Obviously, an individual life is not sustainable because every living thing eventually dies. But, communities of living individuals clearly have the capacity to be productive, and at the same time, devote a significant part of their life's energy to conceiving and nurturing the next generation, thus sustaining the life of the community. Human communities, being living systems, need only utilize their inherent capacities for both production and regeneration to achieve sustainability.

Sustainable community-based food production not only links people and purpose with place but also provides a metaphor for sustainable community development. Sustainable farmers rely on green plants to capture and store solar energy and to regenerate the organic matter and natural productivity of the soil. They use crop rotations, intercropping, managed grazing, and integrated crop and livestock systems to manage pests and to maintain the natural fertility of their soils. As they build soil organic matter, they are sequestering carbon and storing solar energy in the soil. Sustainable farmers share a sense of ethical and moral commitment to preserving and protecting the natural resources of the earth and human resources of society. Sustainable farms have the capacity to be productive while renewing and regenerating resources for the future.

Sustainable community-based food systems link sustainable farmers with like-minded members of local communities. Raw or minimally processed foods marketed to local customers save much of the fossil energy use and environmental pollution associated with industrial food processing, packaging, storage, and transportation. In addition, farmers markets and community supported agriculture associations (CSAs) provide opportunities to bring local farmers and community members together through their common interests in sustainably produced food. Organizations such as Slow Food and the Chefs Collaborative are helping to promote the new "locavore" movement, which encourages people to eat food grown as close as possible to their home. Locavores promote economic viability by providing markets where local farmers can earn enough money to take care of the land and to participate fully in the economic and social life of the community. Community-based food systems are helping to create sustainable ecological, social, and economic communities.

The local food movement is supported by sound science. The science of sustainability is a living science that views the world as a self-renewing, regenerative living organism of which humans are a part and upon which humans must depend for their well-being. The science of industrialization is a mechanistic science that views the world as a big complex machine which can be manipulated to serve the unique interests of humans. The science of industrialization seemed appropriate for a world lacking in material well-being but with strong social networks, plentiful natural resources, and lots of empty spaces to dump material wastes. However, the new science of sustainability is absolutely essential in a world of material sufficiency, although poorly distributed, scarce natural resources, and few places left to dump material waste.

The science of energy, of thermodynamics, applies to both industrial and sustainable systems of economic development. Mechanistic systems inevitably disperse and dissipate energy; they are resource-using systems and inevitably tend toward entropy. Living systems are capable of

collecting and concentrating energy; they are resource-regenerating systems and have the capacity to move away from entropy. Sustainable community development must respect the fundamental principles of science. Healthy, productive natural ecosystems are holistic, diverse, and interdependent. In healthy, productive human communities, relationships are based on trust and kindness. Healthy, productive economies must use resources efficiently to create things of economic value. These are realities that cannot be changed and thus must be respected. These basic scientific principles must permeate all aspects of sustainable communities.

However, the creation of sustainable local food systems depends as much on the arts as the sciences. The current industrial food system reflects not only an outdated scientific worldview but also a view of humanity that is seriously lacking in appreciation and respect for the arts. The arts have been characterized as civilization's storehouse of felt values. Arts are abstractions of what those with powerful imaginations, profound feelings, and great mastery of expression think are most important in the cultures in which they live. However, the most powerful cultural images and most profound cultural beliefs often are not expressed and often not appreciated when they are expressed.

The new living science of sustainability will not be widely embraced within a community until its members develop a new, shared vision for the future that includes a continuing commitment to meeting the needs of the present without compromising the future. Such a vision will not be widely embraced by those within a community until they reaffirm their common belief in the core values of sustainability. The trusting, caring relationships necessary to create sustainable communities must be built upon the core values of honesty, fairness, responsibility, compassion, and respect. The principles of human relationships are just as important as the principles of ecology and economics. The science of ecology and economics simply cannot endow a community with the ecological respect and economic restraint necessary for sustainability.

Sustainable local food systems will emerge when the imaginative abstractions of local dreamers and visionaries are transformed into ecological, social, and economic reality. Jane Smiley, the popular author, claims that societies do five things: They reproduce; they produce food; they organize to make laws; they organize to share beliefs; and they make art.³ She points out that the first four of these are about individuals conforming themselves to society whereas the last, making art, is inherently an exercise in individual tastes and freedom. So artists are in a unique position to oppose the conventional expectations of society. Artists have the intellectual freedom to challenge the conventional wisdom of economic development and to condemn the extraction of natural resources and exploitation of people in the name of economic development. Others who oppose economic exploitation invariably feel pressures to conform from their families, their employers, their peers, or from the community as a whole. But artists are not expected to conform and thus are free to challenge current beliefs and explore new visions.

The creation of sustainable communities is as much about abstraction, imagination, and culture as about reality, proficiency, and principles. In his book, *The Omnivore's Dilemma*, Michael Pollan refers to works of the Roman poet Virgil – the *Georgics* and *Eclogues*. In a recent interview, Pollan credits Virgil with starting a tradition in Western literature that celebrates the “middle landscape, the grassy, pastoral landscape with animals that represents a

kind of reconciliation of people with nature.”⁴ Virgil also offered his dramatic and mystic interpretation of revolutionary social and political changes that were taking place in Rome.

Perhaps we need a new generation of poets to create a new pastoral vision of a reconciliation of people with nature and to spark revolutionary social and political changes that would lead to the creation of sustainable communities and societies. Perhaps we need a new generation of playwrights, such as Vaclav Havel of the Czech Republic, who helped nurtured a revolution that eventually led to the breakup of the Soviet Union. Perhaps we need a new generation of sculptors and painters to create visual images that will awaken the imagination of people to the possibilities of creating new and better communities and cultures and a new and better world.

Al Gore's *An Inconvenient Truth* awakened the world to the growing risks of global climate change and placed the blame squarely on industrial development and relentless economic growth. The “slide show,” as he calls it, was as much art as science, as was validated when it received an Oscar for best documentary film of 2007. Perhaps that's the reason it succeeded in conveying a critical message that had been so long ignored. A whole host of videos, such as *The Real Dirt on Farmer John*, *The Future of Food*, and *Broken Limbs*, document the challenges and opportunities of sustainable agriculture in ways that are artistically and intellectually appealing.

True artists cannot be organized, bribed, coerced, or manipulated into serving causes in which they do not individually believe. However, artists who believe in core values that must support sustainable communities and community-based food systems can be instrumental in the transformation of those beliefs into reality. Building-sized murals are beginning to dot the townscapes of communities committed to sustainability, depicting idealized images of the ecological, social, and economic communities are trying to achieve. Local writers, who will never be best selling authors, are writing essays and poetry that create abstract mental images of the ills of industrialization and the promises of sustainability. Farmers are creating visual images of an agriculture that cares about the land and about people in their displays of vegetables, fruits, and flowers at farmers markets. Even the spatial and sequential arrangements of crops, pastures, forests, and open fields on sustainable farms are as much a matter of art as science.

Sustainability is a matter of arts and science. In creating sustainable, community-based food systems, community members, farmers, and local entrepreneurs must respect the basic principles of ecology, sociology, and economics. However, to transform the concepts of sustainability and community into reality they must be rooted in commonly held values. The lessons of the history of economic exploitation are important but no more so that are visions of a sustainable future. Artists, scientists, and just ordinary people all have important roles to play in the unfolding drama of sustainable foods, sustainable farms, and sustainable communities.

End Notes

¹ The World Commission on Environment and Development, *Our Common Future*, ed. Gro Bruntland, (Oxford, England: Oxford University Press, 1987).

² John Ikerd, *Sustainable Capitalism; A Matter of Common Sense* (Bloomfield, CT: Kumarian Press, Inc., 2005)

³ Matthew Rothschild, “The Progressive Interview with Jane Smiley,” *The Progressive*, December, 2007, 32.

⁴ Michael Pollan, “Rethinking Health,” *Acres USA*, December, 2007, 47:12, 64.