The Economics of Hunger:[1]
Challenges and Opportunities for Future Food Systems

John Ikerd[2]

At the time of the industrial revolution, in the late 1700s, threats of hunger were commonplace throughout the world. Most people lived their often-short lives in a continuous struggle to meet their basic needs for food, clothing, and shelter. Industrialization brought about tremendous increases in productivity and wealth, through its specialization, mechanization, standardization, and consolidation of control. Many farmers willingly traded the labor of the fields for the drudgery of the factory in their quest for greater security. They abandoned their subsistence farms to escape the ever-present threats of hunger, in nature's inevitable ravages of their crops and livestock. They willingly sacrificed personal sovereignty for greater economic security. Hunger would soon be a specter of the past, the industrialists reasoned, as industrialization would eventually make its way through economies around the world. None would be without food, clothing, or shelter; new industrial economies would produce more than enough for all.

But industrialization never made its way around the world and significant pockets of hunger have persisted even in the wealthiest industrial nations of the world. Somehow, the people of the world lost their way on the road to utopia. Far too many people have been left behind – poor and hungry – to feel any sense of victory over poverty and starvation. In terms of total productivity and wealth, industrialization far exceeded the expectations of even the most optimistic. The people of the late 1700s could not possibly have imagined all of the material wealth in the world today. But neither could they have imagined that so few people would claim so much of the world's wealth and so many others would be left with so little. The dreams of the American industrial revolution were not just dreams of a world of wealth but also of a world of equity and justice, a world in which all people would share in the wealth.

The fundamental flaw was not in the productivity of industrialism but instead in the economics of industrialism, in the means by which resources were allocated among the competing needs of people. For most of two centuries, capitalism and communism struggled for economic supremacy among the industrial nations of the world. With the fall of the former Soviet Union, however, political leaders around the world declared global victory for capitalism. Free market capitalism quickly spread around the world. Even the Peoples Republic of China, while still clinging to political socialism, turned to free markets to guide its economic boom. Admittedly,

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[2] John Ikerd is Professor Emeritus, University of Missouri, Columbia, MO – USA; author of, *Sustainable Capitalism: A Matter of Common Sense*, http://www.kpbooks.com; web site: http://faculty.missouri.edu/ikerdj/.

capitalism has resulted in impressive economic growth and prosperity. But as we enter the twenty-first century, serious questions are emerging concerning the sustainability of capitalism.

Serious questioning of capitalism began in the 1960s, with the emergence of the environmental and civil rights movements. Growing environmental degradation and persistent social discrimination were linked directly to the industrialization of capitalistic economies. The energy crisis of the 1970s raised concerns about the extractive nature of capitalistic economies and the dependence of industrialization on finite supplies of non-renewable resources. The "trickle down economics" of the 1980s raised further questions of social equity, with large and growing gaps between the "haves and have-nots." The U.S. economy languished after the "economic bubble" of the 1990s burst at the turn of the century. Today's "robust" economy is propped up by record-large federal budget and trade deficits. Corporate profits were restored only by exporting America's middleclass jobs to lower-cost foreign labor markets, notably China and India. Many Americans are now questioning not only the ecological and social sustainability of capitalism, but also its economic sustainability.

Persistent hunger, in America and around the world, is not simply a reflection of social equity, although today's hunger most certainly is inequitable. Hunger is an inevitable consequence of an economic system that lacks both ecological and social integrity. Persistent hunger is rooted in the economy – in the means by which we manage complex relationships with each other and with nature. The economy determines who gets to manage the resources needed to produce food, clothing, shelter, as well as the non-necessities of life. The economy determines who receives the benefits and who pays the costs – how the bounties of industrial production are shared. An economy cannot be sustained if it extracts wealth from nature and society but fails to distribute that wealth equitably, both within and among generations. Persistent hunger, in the U.S. and around the world, is a direct consequence of an unsustainable global economy. If we are serious about alleviating hunger, we must be willing to work for sustainability.

Nothing is more important in understanding the root causes of hunger than is understanding the nature of sustainability. Sustainability ultimately depends upon our use of energy because anything that is useful in sustaining life, including food, ultimately depends upon energy. Energy is critical not only in producing food but in every aspect of our lives. All material things that are of any use to us – our food, clothes, houses, automobiles, – require energy to make and energy to use. All human activities that are of any use to us – working, managing, thinking, teaching, – require human energy. This human energy is extracted from the things we eat, wear, or use. Physical scientists lump all such useful activities together and call them "work." Thus, all *work* requires energy. And most important, any time we use energy to perform work, some of the *usefulness* of the energy is lost.

In performing work, energy is always changed from more-concentrated to less-concentrated forms. In fact, this natural tendency gives energy its ability to perform work. Material things, such as food, gasoline, wood, plastic, and steel actually are concentrated forms of energy. Matter can be changed into energy, as when we eat food or burn gasoline. Usefulness can also be gained by changing the form of energy, as in using heat to make electricity and electricity to produce light. Whenever energy is used to perform work, it always changes form, becoming more dispersed and disorganized; however, no energy is lost. Matter can be changed to energy and

energy changed to matter, but the total energy embodied in matter and energy always remains unchanged. This is the first law of thermodynamics, the law of energy conservation, as in Einstein's famous $E=MC^2$. At first, it might seem that we could simply go on recycling and reusing energy forever. If so, sustainability would be inevitable.

However, once energy is used to perform work, before it can be used again, it must be reconcentrated, reorganized, and restored. This basic problem arises because it takes energy to reconcentrate, reorganize, and restore energy. The energy used to reconcentrate, reorganize, and restore energy, is simply no longer available to do anything else. It has lost its usefulness; meaning it has lost its ability to perform work. This is the law of entropy, the second law of thermodynamics; the tendency of all closed systems to tend toward the ultimate degradation of matter and energy; a state of inert uniformity of component elements; an absence of structure, pattern, organization, or differentiation.[i] As a burning log releases radiant energy, for example, the log turns to ashes; its structure, pattern, and organization is lost as it tends toward entropy. The barren surfaces of the Moon or Mars are scenes about as close to entropy as any of us have seen. Since this loss of useful energy is inevitable, it might seem that sustainability is impossible. And in fact, life on earth would not be sustainable without the daily inflow of solar energy. Sustainability ultimately depends upon the use of solar energy to offset the effects of entropy.

The law of entropy is so important that it should be understood by every adult in the world. Everyone needs to understand that all productive uses of resources inevitably dissipate, disperse, and disorganize the physical energy, or natural capital, embodied in the resources used. Everyone also needs to understand that capitalistic economics are very efficient in using and reusing both natural and human energy, *because they do nothing to offset the inevitable loss of usefulness of energy due to entropy.* It makes no economic sense to invest in renewing resources for the benefit some future generation. Capitalists don't "waste" energy on resource renewal or regeneration. When they use energy from renewable sources, they sell it for current consumption, for profits, rather than invest it to offset the energy lost to entropy. That's why capitalism is so efficient. But, that also is why capitalism, by the logic and reason of the most fundamental laws of science, is not sustainable.

But what does entropy have to do with hunger? Capitalism not only uses up physical energy, it also uses up human energy. The law of entropy applies to social energy as well as physical energy. All human resources – labor, management, innovation, creativity – are products of social relationships. No person can be born or reach healthy maturity without the help of other people who care about them *personally*, including their families, friends, neighbors, and communities. People must be educated, trained, civilized, and socialized before they can become productive members of complex societies. All organizations – including businesses organizations and economies – also depend upon the ability of people to work together for a common purpose, which in turn depend upon the sociability and civility of the society in which they were raised.

Capitalism inevitably dissipates, disperses, and disorganizes *social* energy because it weakens personal relationships. Social capital is the value embodied in the willingness and ability of people to form and maintain positive personal relationships. However, maximum economic efficiency requires that people relate to each other *impartially*, which means *impersonally*. People must compete rather than cooperate, if market economies are to work efficiently. When

people spend more time and energy working – being "productive" – they have less time and energy to spend on personal relationships within families and communities, and social capital is depleted. When people buy things based on price rather than from people they know and trust, personal relationships within communities suffer from neglect, and social capital is dissipated. Neoclassical capitalism devalues personal relationships and disconnects people and thus dissipates, disperses, and disorganizes social energy.

Capitalistic economies are so efficient because they *use* people to do work but do nothing to restore the social capital needed to sustain positive personal relationships within society. It makes no economic sense for corporations to invest in building relationships within families, communities, or society for the benefit of future generations. It's always more economically efficient to find new people and new communities to exploit. Capitalistic economies don't waste energy by investing in society, and they resist all attempts of people, through government, to tax private enterprises to promote societal well-being. That's why capitalism is so efficient. But, neoclassical capitalism inevitably tends toward *social entropy*; that's why it is not sustainable.

Industrialization did not eliminate hunger because, in devaluing personal relationships, it diminished our ability to care and destroyed our willingness to share. Hunger is a symptom of a society that is lacking in social capital. People who care and are willing to share; they don't allow others to go hungry when they have plenty for themselves. As social capital is depleted, the gap in wealth between the haves and have-nots continues to grow, as those who have increase their power to exploit those who have not. As social capital is depleted, the haves are numbed to the reality that many of the have-nots have no food; they feel no need to share.

It's not economically efficient to share with the poor and hungry. Economic efficiency demands that people be rewarded according to their productivity, not according to their need. Income redistribution and feeding the hungry penalizes those who produce and rewards those who do not; such actions promote inefficiency. The *invisible hand* of free markets is fair and just, we are told. Let the free markets work. If people get hungry, they will find work. The rising tide of prosperity raises all boats. If we become wealthy, others will surely have enough to eat. But, the *invisible hand* of Adam Smith's capitalism has been mangled in the machinery of industrialism. Today's capitalism is not fair and just. The rising tide of prosperity simply blinds us to growing poverty. Growing poverty and hunger are the inevitable consequences of social entropy.

A capitalistic economy cannot be sustained without ecological and social capital. Economies are simply the means by which we deal with individual relationships among people and between people and the natural environment in complex societies. There are obviously too many of us to barter with each other and to produce our own food, clothing, and shelter. Economies actually *produce* nothing; they simply transform physical energy and social energy into forms that can be traded or exchanged in *impersonal* marketplaces. All economic capital, meaning anything capable of producing something of economic value, is extracted from either natural capital or social capital. There are no economic incentives to restore or renew either natural or social capital. Thus, when all of the natural and social energy, or capital, has been extracted and exploited, there is no source of economic capital. Without capital, the economy loses its ability to produce anything of economic value; it reaches a state of *economic entropy*.

So where is the hope for the hungry, or for humanity? The hope is not in tinkering with public policy to try to place dollar-and-cent values on ecological and social capital. Ethical and social values are fundamentally different from economic values; we have to address them as they are rather than attempt to transform them into something they are not. The hope for the hungry and for humanity is in developing a new sustainable economy, an economy based on the paradigm of living, biological, humanlike systems. Living things by nature are self-making, self-renewing, reproductive, and regenerative.[ii] Living plants have the capacity to capture, organize, and store solar energy to offset the energy that is inevitably lost in the processes of performing work. All living things have this natural capacity for renewal and regeneration. Obviously, an individual life is not sustainable because every living thing eventually dies. But, communities and societies of living individuals clearly have the capacity to be productive while devoting a significant part of their life's energy to conceiving and nurturing the next generation, thus sustaining the life of the community and society.

Humans devote large amounts of time and energy to raising families, with very little economic incentive to do so. We are living beings with an innate need to reproduce. Individuals also choose to devote significant amounts of time, energy, and money to stewardship of nature and charity within society, even when no economic incentives exist to do so. We are inherently ethical and moral beings. The fundamental problem with today's capitalistic economy is its domination by publicly held corporations, which have no sense of ethical or social responsibility. They are not living beings; they have no family, no community, no heart, and no soul. Living things – plants, animals, families, communities, societies – are clearly capable of permanence as well as productivity. We must find ways to restore life to our economy, to restore its capacity to be both productive and regenerative, to restore its heart and soul. We must create an economy for life – a sustainable, living economy within a sustainable, moral, and just society.

The hope for the hungry in today's global economy can be seen most clearly in the emergence of a new sustainable approach to farming and food production – in sustainable agriculture. The modern sustainable agriculture movement emerged in the U.S. in the 1980s, in response to growing concerns about ecological, economic, and social consequences of agriculture industrialization. Large industrial farming operations were displacing family farmers, degrading the land, and destroying rural communities. They were extracting and exploiting, just like their manufacturing and mining counterparts, and people were beginning to realize that such farms are not sustainable.

The initial emphasis of sustainable agriculture was on ecologically and socially responsible farming methods. Organic farming received a lot of attention because organic farmers were early leaders in the movement. Low-input, chemical-free, biodynamic, holistic, ecological, innovative, and practical farming also became identified with the sustainable agriculture movement. In livestock and poultry, free-range, pastured, grass-fed, or hormone and antibiotic free served to distinguish sustainable farming from conventional agricultural production. Sustainable agriculture included all farmers who were trying to farm in ways that would sustain the productivity of the land and the quality of life in their communities, while making an acceptable economic living. Sustainability inherently depends on ecological, social, and economic integrity.

Most farmers found the ecological and social challenges of sustainability to be less difficult than the economic challenge. They knew how to take care of the land and they already cared about their neighbors and their communities. But many found they simply couldn't compete on price with conventional producers who were willing to *externalize* their environmental and social costs to reduce their economic costs of production. Niche marketing became popular strategy for solving the economic piece of the sustainable farming puzzle. Sustainable-minded farmers discovered that many like-minded consumers were more than willing to pay the full economic, social, and ecological costs of sustainably produced food, when given an opportunity to do so. Admittedly, this sustainable niche included only a minority of all food buyers, but their numbers were more than sufficient to support the even smaller minority of sustainable farmers.

Over time, sustainable farmers found even more like-minded customers through farmers markets, roadside stands, community supported agriculture organizations (CSAs), and other face-to-face marketing venues. Through direct markets, farmers and consumers sharing common concerns began developing personal relationships of *trust* to replace economic relationships of *suspicion*. A doubling of the number of farmers' markets in the last ten years and the persistent growth in CSAs and direct sales attest to the growing success of niche marketing. Most niche marketers produce organically or by other sustainable methods, but buying *local* seems to be more important than simply buying organic. Most of organic foods in mainstream supermarkets are produced by large industrial farming operations in California, Florida, or almost anywhere in the world.

Issues such as globalization, corporatization, confinement animal feeding, biotechnology, and food safety, health, and nutrition are helping to expand the demand for sustainably produced foods well beyond certified organic markets. Increasingly, American consumers want to know where their food comes from, how it is produced, and who produced it. Those in the new food culture want to know how their food was produced and how people were treated in the production process. The best way to be sure of these things is to buy food from someone they know and trust, from local farmers.

In response to growing concerns, higher-volume markets – retail food stores, restaurants, and public institutions – are beginning to focus on *locally* grown foods. These higher-volume retailers attempt to create a *sense* of personal connectedness between consumers and farmers, even though the connections obviously are less direct and less personal. Local food retailers believe these local connections give them a unique market advantage over the larger supermarket chains and restaurant franchises. These indirect connections, however, must still be considered significant by both farmers and their customers, if their strategy is to succeed. The significance of any link between farmers and eaters becomes questionable when foods move through mainstream supermarkets. An important challenge ahead, as sustainability moves into higher-volume markets, is to maintain the integrity of relationships between consumers, retailers, processors, and farmers.

The new sustainable/local food culture probably makes up as much as a third of the total food market today and is still growing.[iii] Farmers today are finding willing allies among independent food processors, distributors, and retailers who are beginning to realize they face the same kinds of challenges from a corporately controlled, global food system as do independent family

farmers. Food processors and marketers are beginning to understand that they have the same kinds of opportunities as sustainable farmers in helping to reconnect consumers with farmers. Together they are meeting the real needs that are not being met by the industrial, mass production, mass distribution food system of today. They are providing foods that are produced without degrading the land or the people involved in the process. They are providing foods that have social and ethical integrity. Together, farmers and food processors, distributors, and retailers are creating a new food value chain, based on social and ethical *values*, as well as economic value. They are creating a new social and ethical food economy.

Unfortunately, the importance of social and ethical *values* in sustainability has become lost in the media hype about organic and locally produced foods. The sustainable food culture is often portrayed as an elitist movement, inaccessible to the poor and a threat to the hungry. Corporate propaganda suggests that a transition to sustainable or organic agriculture would result in starvation for half of the world's population, would increase soil erosion, deplete soil productivity, and require clearing and cultivation of vast forests and rangelands, which are now home for many of the world's poor and hungry. Genetically engineered, high-input, high-yielding crops and livestock are touted as the new industrial solution to world hunger.

However, nothing in this propaganda actually challenges the true principles of either sustainable agriculture or industrial agriculture. Research around the world has shown that organic and low-input sustainable agriculture can be just as high yielding as high-input industrial agriculture.[iv,v] Sustainable agriculture simply requires more thinking people who understand how to work with nature, rather than try to conquer nature, and who care about their land and their neighbors. Research has also shown that sustainable agriculture actually reduces erosion, because of the use of crop rotations, cover crops, and other sustainable practices. In addition, sustainable agriculture enhances soil quality, because it relies on the natural productivity of the soil rather than commercial fertilizers. Also, sustainable agriculture is site and location specific, adapting farming systems to natural bioregions, rather than clearing land and leveling land to facilitate mechanization and thus preserves natural habitats of both people and wildlife. Sustainable agriculture respects nature, including natural connections between people and places.

Biotechnology, on the other hand, is simply the latest tool for agricultural industrialization. The magnitude of risks that genetically engineered foods pose to human health and the natural environment may not be fully known for decades. But at the very least, genetic modification represents the greatest experiment to which humanity has ever been subjected with so little justification. Genetic modification does nothing to increase crop yields; it simply makes farming easier to carry out on larger operations. It does nothing to enhance food quality that cannot be accomplished more effectively through the conscientious selection of natural foods.

Perhaps most relevant to hunger, widespread acceptance of genetic modification of foods would grant control of the world's food supply to a handful of global agribusiness corporations, under current plant and animal patenting laws. These food corporations are not charitable organizations. They will sell their products to whatever people, wherever in the world, they can generate the greatest economic return for their stockholders. Their markets most certainly will not be the hungry people of the poor countries of the world or the poor people of the wealthy

countries of the world. The goal of industrial agriculture in a capitalistic economy is to sell food for profit, not to provide food for everyone. An industrial agriculture will not feed the hungry.

Most important over the long run, industrial agriculture is highly dependent on non-renewable fossil energy. Agricultural production accounts for about 6% of the total fossil energy used in the U.S., with the industrial food system in total claiming about 17%.[vi] A growing number of petroleum geologists, including those employed by Exxon-Mobile, Chevron, and BP, are projecting a peak in global oil production within the next 5-10 years. A peak in natural gas production is expected shortly afterwards. Petroleum and natural gas supplies are projected to decline by 70-80% over the next 50 years.[vii] It would seem pretty foolish to rely on a high-fossil-energy agriculture to provide food for a 50% larger global population by 2050 with the world running out of fossil energy. If we are serious about feeding the hungry, rather than allowing them to starve, we perhaps have a fifty-year window of opportunity to compete the transformation from an industrial to sustainable agriculture.

A sustainable agriculture could feed a hungry world. Even today, nearly everyone in America could afford high quality, sustainably produced, local foods.[viii] On average, more than 80% of food costs in the U.S. are paid for processing, packaging, transportation, advertising, and other things that make food more convenient or attractive. While not everyone might be able to afford the convenience and cosmetics, even those with the lowest incomes could afford the food, particularly with our existing food assistance programs. They would simply have to buy raw or minimally processed foods in season and prepare those foods for themselves. However, people with low-incomes do not have the freedom to choose good food because they don't have access to good, locally produced food, nor do most have the knowledge or ability needed to process, prepare, and store their own foods.

Many low-income people could actually save money by buying high quality, fresh foods from local farmers and preparing more meals from scratch. Those who don't feel they have enough time to prepare their own food need to understand that more time spent with family members preparing, processing, storing, and eating good local food can reduce costs of family health care and unnecessary recreational distractions and can add to the overall quality of family life. To eliminate hunger, we must care enough about poor people to help them learn to choose healthier lifestyles, rather than just provide them with cheap food.

Our willingness to eliminate hunger, domestically and globally, depends upon our willingness to express our unique humanness. We humans have the ability to anticipate events and consequences that we have never before experienced. As far as we know, we are the only species that possesses this capacity for *abstract reasoning*. We can reason that our actions will have specific consequences in the future, not only for ourselves but also for others of both current and future generations. Our concerns for other people of both current and future generations are an expression of this ability.

Today, too many humans are behaving like animals. Those who claim that humans can replace any resource we deplete are ignoring not only the fundamental laws of science but also their innate capacity for abstract reasoning. Those who proclaim that our individual greed will somehow be transformed into societal good have lost their human capacities for empathy and

compassion. They have lost their humanness. Perhaps many people understand the consequences of their actions but simply don't care. After all, we live in a materialistic society. The philosophy of scientific materialism boldly asserts that all natural phenomena, including human life, are nothing more than consequences of physical actions and reactions, occurring according to inviolable physical laws. It denies the existence of human free will, of purpose or meaning in life, or anything else not having tangible material qualities. Materialism "stands in direct opposition to a belief in any of those existences which are vaguely classed as *spiritual*." [ix]

However, thoughtful humans know that life has purpose, otherwise choices between good and evil or right and wrong would have no meaning. We can't prove our life has purpose, but we accept it by faith; we believe in the truth of it even though it cannot be proven. Without purpose, life simply makes no sense. We also believe that life was meant to be right and good, and thus, we have a responsibility to choose wisely. This love of life, this belief in its inherent goodness, is reflected in our love of other people and of the earth. We also believe we can learn to make right choices and that life can be good, that we can be happy. We have hope. We are people of faith, love, and hope; we are *spiritual* beings.

We will not begin to address the root cause of the hunger problem until we learn to express the spiritual dimension of our humanness in everything we do. We will not be willing to work in earnest to eliminate hunger until we are willing to accept our social and moral responsibilities to work together for the common good of all people of all nations. As thoughtful, caring humans, we must accept our ethical and moral responsibilities to other people, all people, including those people of future generations.

We know what we need to do to reclaim our spirituality; we just need to find the courage to do it. We know the essential principles that underlie all positive human relationships; we just need to find the courage to live by them. The Institute for Global Ethics has conducted surveys, interviews, and focus groups with people of different cultures around the world, asking people, "What do you think are the core moral and ethical values held in the highest regard in your community?"[x] From a wide variety of responses, five values consistently ranked high in virtually every inquiry. They were honesty, fairness, responsibility, compassion, and respect. In fact, we don't need research; we know in our hearts that we cannot sustain positive personal relationships with others if we are dishonest, unfair, irresponsible, disrespectful, and uncaring.

Ultimately, issues of hunger must be resolved through personal relationships among people, within families and communities. Even problems of global hunger must be solved *locally*. As we find the courage to relate to each other, in our own communities, with honesty, fairness, responsibility, compassion, and respect, we will begin to reclaim our spiritual humanness. With a renewed spiritual commitment to ecological and social integrity *locally*, we can reach out to the rest of society, helping communities everywhere to reclaim their sense of community, their personal commitment to sustainability and to a life of quality for all people. As more like-minded communities link together in trusting and caring relationships, we will begin to rebuild our society and to restore integrity in our public policies.

We have the power to change our domestic and international policies, if we can find the courage to do it. We can eliminate the government subsidies for corporate agriculture. Instead, we can

help communities support local farmers who are helping to create a sustainable future for agriculture and for humanity. We can eliminate international development programs that bribe and arm other nations to help us fight our future wars. Instead, we can provide programs that support education, healthcare, and community-based agriculture, ensuring healthy food for all, and thus, eliminating the need for future wars. Through new international assistance programs, we can help people develop their own local community food systems, instead of subsidizing their exploitation.

No people, rich or poor, truly have food security until they are able to either produce their own food or can secure enough food for survival from people they know and trust. The only real food security is community food security, food produced within communities or traded between communities that share relationships of integrity and trust. Industrial capitalism has abandoned the poor and hungry people, both in developed and less-developed countries of the world. Who should we rely on to feed the hungry world in the future, multinational corporations committed to profits and growth, or local sustainable farmers who are committed to ecological, economic, and social integrity?

The economics of hunger presents many challenges but also many opportunities. In reclaiming the ethical and social integrity of our food system, we have an opportunity to show the way to a moral and just society and thus to benefit of the whole of humanity. We can help restore integrity to our society by recommitting ourselves to fundamental principles of equity and justice for all and by proclaiming equal rights for all people of both present and future generations. We can help create a new *sustainable* capitalistic economy, within the context of a moral and just society. We can learn to manage our ecological, social, and economic capital, for the well-being of all people of all generations and for the benefit of all people of the world. We can help create a new paradigm for international development that others will choose to follow, without being threatened, bribed, or coerced. We can create a new global food economy upon a spiritual foundation of faith, of hope, and of love. In addressing the issue of hunger, we can help create a new and better global society, a society of faith, hope, and love.

End Notes

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[i] For a more in depth discussion of entropy, see John Ikerd, *Sustainable Capitalism: A Matter of Common Sense,* Chapter 3 (Bloomfield, CT: Kumarian Press Inc., 2005).

[ii] For a more in depth discussion of living systems, see Ikerd, *Sustainable Capitalism,* Chapter 5.

[iii] *The Hartman Report,* a nationally respected source of market information for natural food products, estimates that two groups of consumers, the New Green Mainstream and True Naturals, represent prime markets for natural foods and make up approximately 28 percent of all American consumers. See Hartman Report: *Food and the Environment – A Consumer's Perspective,* 1999. <http://www.hartman-group.com/products/reportnatsens.html>

[iv] Nancy Creamer, *Myth vs. Reality: Avery's Rhetoric Meets the Real World of Organic*, Organic Research Foundation, <http://www.ofrf.org/publications/news/IB10.pdf>.

[v] Brenda Frick, "Can Organic Feed the World," *The Western Producer*, republished by Organic Agriculture Center of Canada, <http://www.organicagcentre.ca/NewspaperArticles/na_feed_world_bf_web.html>

[vi] David and Marcia Pimentel, ed., 1996, *Food, Energy, and Society*, University Press of Colorado, Niwot, CO.

[vii] Richard Heinberg, *The Party's Over: Oil, War, and the Fate of Industrial Societies* (Gabriola Island, BC, Canada: New Society Publishers, 2003).

[viii] John Ikerd, "Anyone Can Afford Good Food," *Small Farm Today*, March-April, 2005.

[ix] Hugh Elliott, "Materialism," in *Readings in Philosophy*, eds. John Herman Randall, Jr., Jestus Buchler, and Evelyn Shirk (New York Harper and Row, Publishers, Inc., 1972), 307.

[x] Rushworth M. Kidder, *Moral Courage* (New York: William Morrow, HarperCollins Publishers, 2005), 43.