

A Sustainable Society: What Is It? How Do We Get There?

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I would like to offer a definition of a sustainable society.

A sustainable society is one that ensures the health and vitality of human life and culture *and* of nature's capital, for present and future generations. Such a society acts to *stop* the activities that serve to destroy human life and culture and nature's capital, and to encourage those activities that serve to *conserve* what exists, *restore* what has been damaged, and *prevent* future harm.

"Nature's capital" is the stock that yields the flow of natural resources, for example, the population of fish that regenerates the flow of caught fish that go to market, or of the trees that reproduce to provide timber over time. The natural income—that is, the yield of nature's capital—includes both natural resources (air, land, water, minerals, etc.) as well as nature's services (e.g., as when it acts as the sink for our wastes). Nature's capital is both renewable (fish and trees) and nonrenewable (oil, coal, and minerals). Nature's capital includes inputs into the economy, in terms of resources, and relates to the outputs of the economic system, in terms of the assimilation of wastes.

Under the present paradigm, we have allowed neo-classical economics to become the language of politics, a language without a moral sense

(despite its origins) and with limited relevance to real economic circumstances. In the process we have ignored values and ethics. Yes, conventional economics has an ethic, of sorts: the devil take the hindmost. But it is politics, not economics, that must reflect what we value in society. Governments and corporations speak as if the "laws" of economics are irrefutable, yet these "laws" show no concern for ecology or for equity. What is needed is a new politics and a new economics—an ecological economics—that serves as a bridge between the economy and the environment, between people and nature.

This definition of sustainability differs from many of the others that have become fashionable in that it does not focus solely on the ecological. While recognizing the primacy of the ecosystem, we must also recognize the spe-

cial role that the human species occupies within that system, and, as a result, the importance of human life and culture, justice, and equity.

Six signs of unsustainability

1. The human economy now consumes 40% of the mass of plant material produced each year by photosynthesis using energy from sunlight—the net primary productivity of the earth. The rate of increase in human use is about 2% per year, meaning a doubling in 35 years. Since humans are but one of between five million and 30 million species on earth that make use of these materials, this is ecologically impossible.

2. Global warming.

3. Ozone depletion over temperate zones.

4. Thirty-five percent of land is already degraded, and the degradation is largely irreversible in a human time scale. Soil loss exceeds soil formation rates at least tenfold.

5. Loss of biodiversity is reflected in the decline of the world's richest species habitats—tropical forests, 55% of which have already been destroyed. Present-day extinction is placed at 5,000 species per year; a rate 10,000 times higher than pre-human extinction rates.

6. The numbers of poor in the world continue to grow in spite of extensive official assistance efforts, and a quintupling of the output of the global economy since 1950. Even in the wealthy, market-oriented industrial economies of the world, 100 million people still live in poverty.

The signs of unsustainability know no political boundaries nor are they

limited to a particular economic, social, or political system.

Sources of unsustainability

How did we get here? There are no simple explanations, but a number of factors come into play.

- We have failed to accept the fact that the economic system is an open system in a closed and finite ecosystem. Until recently the *scale* of the economic system was relatively small as compared with the ecosystem as a whole and we were less aware of its impacts.
- We have been focused on resource constraints (e.g., Will we run out of oil or gas?) which are more susceptible to substitution and technological innovation. We are now noticing sink constraints—the problems of disposing of the wastes of affluence.
- We have failed to recognize that the environment is the basis for all life and for all production. It is not an interest competing with other interests, rather it is the playing field upon which *all* other interests compete.
- We have failed, as a result, to accept nature as a model and a mentor; rather, we exhibit disdain for nature and nature's forces, and a belief that we can manage it and master them.
- We have failed to examine our love affair with technology, despite the fact that today's problems are all too often yesterday's solutions. Led by scientists and engineers we have begun to believe, as one scientist put it recently, "there is nothing that we cannot do!" Or, as the

former President of Rice University observed on the editorial pages of *Science*: “There is a strong strand in our system, that is, science, that ties together the gathering of all added understanding of nature’s materials, forces, space, and time with the use of the biosphere for the support of the human race through technology” (Hackerman 1993). However, as Jerry Mander observes in his recent book, *In the Absence of the Sacred*: “All new technologies are introduced in terms of their utopian possibilities. The downside of the story is left for a later generation to discern and experience, when the technology is much more difficult to dismantle.”

- We have failed to distinguish between “growth” and “development,” perhaps driven by our belief in technology as savior. We use the words interchangeably, based explicitly or implicitly on the assumption that there are no limits or that they are far off and therefore largely irrelevant. “Of course, growth will end some day,” observed Robert Fri, president of Resources for the Future, “but this conclusion is only a troubling curiosity if technology gives us ample time before the limits are reached.” However, as a recent World Bank report notes: “Following the dictionary distinction ... when something grows it gets quantitatively bigger; when it develops it gets qualitatively better. Our planet develops over time without growing. Our economy, a subsystem of the finite and nongrowing earth, must eventually adapt to a similar pattern of development” (Goodland et

al. 1992:2-3). The phrase “sustainable growth” is an oxymoron, because growth cannot, by definition, continue in a closed system. Sustained growth in the economy, as in the human body, is a cancer to be feared.

- We have failed to recognize that growth does not automatically lead to equity and justice within and among countries, regardless of the political or economic system. Sadly, there is no evidence to prove the assertion that “trickle-down” works. And, it must be clear that there cannot be any conservation of nature’s resources without justice and equity.
- We have failed to examine our faith in the market system to deal with the public good, especially ecological sustainability and justice. And the market system by creating “desires and wants” above and beyond our needs, places greater strains on the ecosystem.
- Finally, we, as a people, as well as our present economic system, have failed to consider future generations, whose well-being defines the core of a sustainable world—which itself must be at the core of any conceptualization of a sustainable world.

Principles of sustainability

Now let us project ourselves well into the twenty-first century. Let us envision what a sustainable society would look like. What will be the principles upon which our sustainable society is built?

- Nature is understood to be a source of knowledge, a model to emulate, and a mentor.

- Issues of environmental deterioration, oppression, and violence are linked in analysis and action. Gender and racial oppression and efforts to dominate nature are understood as having a common psychological root. There is also be recognition that violence, in all of its manifestations—child and spouse abuse, war, disregard for the environment—are, at the core, the same. Environmental justice is a fundamental concern.
- Humility, restraint, and understanding that there are limits guide our actions, as befits good stewards. We question whether we are capable, in the words of the *Scientific American* in 1990, of “Managing the Planet,” when, as Oberlin environmentalist David Orr has suggested, “we have enough trouble managing the back 40!”
- We appreciate the importance of “right scale.” Place and locality are regarded as the foundation for all durable economies, and as the locus of action for problem-solving. Where scale is appropriate, we gain confidence in moving ahead, proceeding with the assumption that knowledge is adequate. As the former Massachusetts commissioner of agriculture, Greg Watson, observed, “we come to scale as the most powerful method for dealing with the tendency not to want to practice restraint.”
- Sufficiency has replaced economic efficiency. Acceptance of the finiteness of the earth has called upon us to recognize “enough-ness.” Wendell Berry has suggested that “we will have to learn to live more poorly.” We have learned that living within our means leads to greater fulfillment. We understand the distinction between needs and wants, and consider the impacts of our “wants” on equity and the ecosystem. As ecological economist Herman Daly suggested in 1989, this means that we use renewable resources at rates that do not exceed their capacity to renew themselves; we use nonrenewable resources at rates that do not exceed our capacity to substitute for them; and no resources are used at rates that exceed the capacity of the natural world to assimilate or process the wastes associated with their use.
- Community is understood to be essential for survival. As Martin Buber had argued in the mid-twentieth century, “society is naturally composed not of disparate individuals, but of associative units and associations between them.” Accepting this vision led to a new vision of citizenship and accountability at all levels. This has led to new and strengthened definitions of democracy and participation. Individual liberty and community are balanced, as rights are balanced by responsibilities. Equity and justice within and between communities have been recognized as central to a sustainable society. The “global community” is a community of communities, reflecting and encouraging diversity.

- Diversity—both biological and cultural—is preserved, and encouraged. As in nature, a polyculture has strengths lacking in monocultures. Diversity is an index of human and environmental health, a measure of resiliency and will provide the margin of safety.

An “ecological economics” assists us in making these principles into reality. Issue and policy-driven, it takes a holistic view of the environment–economic system and reflects wider values than the “utility” of the environmental economists, exhibiting a deep concern for moral obligations toward present and future generations. Being issue-driven, it concerns itself with sustainability, and is pragmatic. It takes a comprehensive global view over the long-term, but is also contextual. Ecological economics is concerned with the processes of institutional and individual behavior change, is tolerant of uncertainty, and is willing to ask questions for which we do not, at present, have the answers.

Characteristics and goals of a sustainable society

With this as background, what will be the characteristics and goals of our sustainable society?

Economic goals will include:

- Creation of jobs that enhance the nature of work;
- Equitable income distribution within and among countries;
- Economic stabilization and system equilibrium;
- Technology exchange, not simply technology transfer, emphasizing technologies that emulate rather than destroy nature;

- Economic self-sufficiency, at community, national, and international levels; and
- Sufficiency, rather than efficiency, since high levels of consumption are generally incompatible with the conservation and preservation of nature’s capital.

Social and cultural goals will include:

- Equity and justice, emphasizing needs over wants, especially in the North (i.e., the more industrialized countries);
- Full status for all regardless of race, gender, ethnicity, class, sexual orientation, or age;
- Maintenance of cultural diversity, including respect and support for indigenous peoples;
- Strengthened communities through participation of individuals and social groups in the conduct of their own affairs;
- Revitalization of sustainable rural communities through the development of environmentally sensitive and economically profitable agriculture, family farming, and appropriate value-added environmentally sound industrial development; and
- Revitalization of communities within urban settings.

Political goals will include:

- Political security, including community participation in defining and solving its problems;
- Strategic security, including the community’s ability to defend itself against external threats, whether economic or political; and
- Environmental security to achieve a viable balance between the com-

munity's population and the demands made upon it relative to economic endowment and performance, including its natural capital and its levels of technology. This recognizes the right to protect itself from environmental assaults generated outside the community, such as befouled air from a neighbor that destroys its forests. This right carries with it the responsibility to be protective of the rights of other communities by not transporting its wastes to them.

Ecological goals and characteristics will include:

- Ecological stability planning with emphasis on waste reduction rather than waste management and on renewable and recyclable supplies of resources, taking account of resource and sink constraints, necessitating;
- Particular attention to unintended socioeconomic, cultural, and ecological consequences of technology, management, and regulation;
- Zero toxins as a more suitable goal for production processes;
- Balancing ecological debt within and among countries;
- Maintaining biodiversity; and
- population stabilization.

Moving toward sustainability

Having shot forward from 1993 to some time in the future to envision this sustainable society, let us role play the historian of that future date to see how we got there.

The need for systemic change

During the 1990s more and more people became aware that the prob-

lems confronting the United States and other countries of the world were not subject to band-aid solutions. The demise of communism gave breathing room, allowing people to focus attention on the nature of capitalism and free-market economics, as a contributor and a possible solution to the problems of sustainability. A search began "to define a viable 'Third Way' beyond traditional socialism and traditional capitalism," in the words of political economist and historian Gar Alperovitz, that "promises to honor equality, liberty, democracy, ecological rationality—and even ... community." The problems were understood to be systemic. But this presented an opportunity. For, to quote Alperovitz again, "*a long term environment in which the proclaimed values of 'the system' are continually denied in everyday life is a potent, if slow, solvent of traditional ideas, theories and politics.*" (Emphasis in the original.) The need for a new architecture was acknowledged, and a search was begun for new institutions, and for new relations between and among community, state, regional, national, and international institutions.

A sustainability movement

A process of "grounded visioning" began, linking "expertise" and "experience" in an interactive process. This began what we now know as the "sustainability revolution," which like the agricultural and industrial revolutions was an evolutionary process.

Gradually, the environmental movement began to change. For too long it had focused on ecological issues, with little attention to economic, sociocultural, and political contexts.

As Howard Hawkins observed, “the prevailing forms of environmentalism are not really ecological because they fail to accurately connect social dynamics to ecological dynamics. They either separate environmental problems from their social roots or provide inadequate social analysis that reinforces the systemic anti-ecological structures of society. Consequently, they all too often function more as obstacles than allies in the movement for an ecological society.”

In time, a sustainability movement began to take shape, building upon elements of the environmental movement but distinct from it, and much broader in its orientation. It directed attention to systems rather than single issues, and was holistic rather than reductionist, focusing on longer-term trends rather than on events. Qualitative change (development) rather than quantitative change (growth) was its goal, with social justice, equity, and respect (rather than management) for nature central to its world view.

The need for deep psychological changes in individuals to achieve sustainability was apparent. The movement was also inclusive of race, ethnicity, gender, class, and age. Deciding who must be at the table, to define the nature of our problems and to determine the agenda for their solutions, was given high priority.

Consumption

A process was begun that led to the uncoupling of happiness and consumption in the affluent Northern countries. The old belief that having more material goods than others was a measure of one’s self-worth was rel-

egated to the shelf of history. Disproportionate consumption of resources and production of wastes was recognized as a serious cause of environmental and social problems. “Sufficiency” and “enoughness” became more common in our vocabulary.

Displacement

The agricultural chemical dealer in any American farming community in the 1980s saw himself as God’s servant, contributing to feeding the world. But by the end of the decade and early in the nineties people were beginning to question his role, as awareness of the impacts of agricultural chemicals became known. Farmers and consumers became increasingly concerned about farm worker safety, groundwater pollution, soil erosion, and chemicals in the food system. By the end of the century, the agricultural chemical dealer became the devil incarnate, because the dealer and the agricultural system of which he was a part failed to make the significant changes in their way of doing business that were needed to protect the environment and rural communities.

The new sustainability movement began self-consciously to help people make the transition to more appropriate livelihoods, “standing by” those who fear isolation as they changed from business-as-usual. The sustainability movement, taking a more holistic view than the environmentalists, recognized the need to assist timber people, and those in other troubled industries, in making a transition. By understanding the problems of displacement and the need to “standby,”

the sustainability movement helped to accelerate the pace of change toward a sustainable society.

We stopped blaming the poor for large-scale environmental destruction. The role of policies, put in place by and for elites, was recognized as a major factor in poor people's impacts on the environment. And we acknowledged our own profligate consumption in the North as an even greater environmental danger.

Population stabilization

Population stabilization was recognized as important to sustainability: to achieve the goal we adopted more holistic approaches. Programs were designed to serve women's reproductive health needs, including the availability of abortion and pre- and post-natal care. Above all, serious attention was directed to improving the status of women, which had salutary effects on their lives and resulted in lower fertility and better environmental quality.

There was a growing recognition in the nineties that environmental deterioration is a function not only of the size of a population, but also of the per capita demand for goods and services, the nature of technologies, and the degree to which policies, incentives, and disincentives encourage or discourage environmental sensitivity. A systemic approach to the population situation, therefore, led to a recognition that as the process of development improves the lives of people and fertility goes down, their demand for goods and services will increase at the same time or with some lag. The poor, with good reason, will want—and have a right to—more ac-

cess to the necessities of life, and even to life's pleasures. Therefore, the unanticipated consequence of population decline would be greater impact on the environment.

Poverty and focused growth

Appropriate technologies and ecologically sensitive policies were developed to accommodate the legitimate needs of people in poorer countries in the process of development with lower rates of population growth. It had become clear, as Donella Meadows and her co-authors wrote in 1992, that "a sustainable society would not freeze into permanence the current inequitable patterns of distribution. It would certainly not permit the persistence of poverty.... A sustainable society would not be the society of despondency and stagnancy, high unemployment and bankruptcy that current market systems experience when their growth is interrupted."

A sustainable society "lets go of its addiction to growth," and achieves a new kind of growth. To quote Meadows again: "A sustainable society is not necessarily a 'zero growth' society. That concept is as primitive as is the concept of 'perpetual growth.' Rather a sustainable society would ... ask what growth is for, who would benefit, what it would cost, how long it would last, and whether it could be accommodated by the sources and sinks of the earth."

Technology

In this new approach to development, technology was neither the root nor the solution to all of our problems. Technology became the fall back position, rather than the first line of defense. Having dealt with our needs

and wants, we then addressed how technologies would “reduce throughputs, increase efficiency, enhance resources, improve signals, end poverty, thereby contributing to the quality rather than the quantity of life” [Meadows et al. 1992].

“Living machines”, such as those developed in the 1990s by the ecologist John Todd and his associates at Ocean Arks International, became the norm rather than the exception. For example, waste water is treated with plants, bacteria, fish, and algae, obviating the use of chemicals.

Growing sensitivity to unanticipated consequences of technologies led to a more cautious approach to technology development. Assessment of the combined sociopolitical, economic, and ecological impacts of new technologies over the short, medium, and long-term became a regular part of the development process.

Environmental assurance bonding, as an extension of the “polluter pays” process, also became common. (Refunds for the return of bottles and cans are a micro-level example of assurance bonding.) Technology developers and miners of natural resources were obliged to post bonds before they began their work, limiting potentially negative impact on the environment. Excessive impact resulted in a loss of part or all of their bond, which placed the burden where it belonged—on the polluter rather than the society.

Community

The phrase “Struggle locally, dream globally,” expresses the central place of community in a sustainable society. As Alperovitz observes, “a critical re-

quirement is the reconstruction of a culture of community and commonwealth.... Only such a culture is ultimately likely to be able to sustain a subsequent larger-order politics of equity, ecological sanity, and participatory democracy.”

We began to study and refine the hundreds of community-owned and worker-owned industries already operating in the United States, as well as the fledgling efforts of places like the Highlander Center, First National Financial Project, the Rocky Mountain Institute, EcoTrust, and others to define a sustainable economy at the community level. “Trickle-up” became the model as grassroots activists networked among themselves and with other levels of the political space. Information, people, and power were recognized as one. The “blueprints for survival” handed down from above in the seventies and eighties were no longer applicable, nor acceptable as a process.

In the United States, political reform and public financing of elections became an essential element of sustainability. Campaign reforms, by taking the emphasis off fund-raising, shifted the focus of elections to the substance of the issues. As a result the quality of candidates willing to take on the difficult task of listening to people and then leading them improved. Given the role of the U.S. in “a new world order,” these changes had beneficial effects throughout the world.

The role and nature of knowledge and the universities

In April 1992 *Beyond the Limits* (Meadows et al.) was published, the

sequel to *The Limits to Growth*, which had caused such a stir twenty years earlier. The possibility of a world already beyond its limits, in “overshoot,” was reiterated. The authors concluded:

The world faces not a preordained future, but a choice. The choice is between models. One model says that this finite world for all practical purposes has no limits.... Another model says that the limits are real and close, and that there is not enough time and that people cannot be moderate or responsible or compassionate.... A third model says that the limits are real and close, and there is just exactly enough time, with no time to waste. There is just exactly enough energy, enough material, enough money, enough environmental resilience, and enough human virtue to bring about a revolution to a better world. That model might be wrong. All evidence we have seen ... suggests that it might be right. There is no way for knowing for sure, other than to try it.

This, and other works, and observation and experience, led people and scientists to recognize that windows of opportunity were narrowing. Universities were one of the slowest social institutions to respond. As the president of Harvard University, Derek Bok, observed in the eighties:

[O]ur universities excel in pursuing the easier opportunities where established academic and social priorities coincide. On the other hand, when social needs are not clearly recognized and backed by adequate financial support, higher education has often failed to respond as effectively as it might, even to some of the most important challenges facing America. Armed with the security

of tenure and time to study the world with care, professors would appear to have a unique opportunity to act as society's scouts to signal impending problems long before they are visible to others. Yet rarely have members of the academy succeeded in discovering emerging issues and bringing them vividly to the attention of the public. What Rachel Carson did for risks to the environment, Ralph Nader for consumer protection, Michael Harrington for problems of poverty, Betty Friedan for women's rights, they did as independent critics, not as members of a faculty.... Universities will usually continue to respond weakly unless outside support is available and the subjects involved command prestige in academic circles.

But in time they did. The changes took place in the universities late in the nineties and the beginning of the new century. Problem solving focused on bringing all appropriate methodologies to bear on the real world issues. Multi-, trans-, inter-, and non-disciplinary approaches became standard. Systems approaches prevailed, creating alternative ways of looking at problems.

The scholar's question “What do I need to know?” was gradually replaced, as universities sought timely and effective responses to the need for a sustainable world. “What is our tolerance for uncertainty, ignorance and ambiguity, while trying to avoid harm?” became the question most asked.

A new “science,” a post-normal science, developed that was pluralistic in its approach, problem-focused, holistic rather than reductionist, tolerant of uncertainty, and willing to ask ques-

tions which it did not yet know how to answer. It was concerned with process and had as a major concern not only understanding the nature of the world and its problems, but also ways of aiding systemic change. This post-normal science, as developed by J. R. Ravetz and Silvio Funtowicz, recognized that, in the real world, “facts are uncertain, values in dispute, stakes high and decisions urgent. . . . When research is called for, the problem must first be defined, and this will depend on which aspects of the issues are most salient. Hence political considerations constrain which results are produced, and thereby which policy implications are supported.”

This focus on real world issues and sustainability, led to a new attention to the role of science in policy making. The scientific community recognized that policy was not a linear process, but one of “muddling through.” The focus as a result changed to data quality, rather than data completeness. As had been observed: “It is better to be approximately right than precisely wrong.”

Finally, by accepting that science is neither value-free, objective, nor ethically neutral and that the goal of science is conservation, restoration, prevention and, ultimately, sustainability, scientists accepted the idea that definition of problems for study and research required greater inclusiveness. As a result, science became a tool for strengthening community.

The development of a new economics for sustainability

Since economics had become the language of politics, it was vital to revamp definitions of “economy” and

“economics.” The ecosystem could no longer be seen as external to the economic system. Traditional, new-classical economics paradigms were no longer sufficient, and had in very important ways become destructive.

The economic system could no longer be seen as a closed system, but rather as an open system within the finite ecosystem. It became clear that nature’s capital needed to be recognized and accounted for. Full account had to be taken of the value of health—of the population and of nature—in calculating a community’s, a nation’s and the globe’s eco-health. No longer could we tolerate a system where sick workers and environmental and human tragedies, such as the Exxon Valdez oil spill and the Mississippi floods of 1993, could be seen as contributing positively to our gross national product.

Prices and true costs had to be attended to. For example, the work of David Pimentel and others on the “externalities” of American agriculture, showed a cost of approximately \$250 billion per year on a total agricultural industry of some \$770 billion. Simple arithmetic helped us to understand that the costs of water and air pollution, soil erosion, worker and consumer ill health, the loss of rural community, and the like, raise the cost of a meal to something on the order of \$1,000 for each American, three times each day, 365 days each year. Calculations like that caught the attention of all but the most recalcitrant economists, most likely to be found at the so-called leading departments. The society learned the distinction between price and cost.

“Trickle-up” was joined by “trickle-ahead” as concerns for equity and distribution in both the present *and* the future took precedence with a concern for sustainability. Neoclassical economists’ discount rates worked, at best, for one generation. Thereafter they have little meaning. As World Bank economist Herman Daly observed, from a neoclassical economist’s perspective, it makes sense to kill the goose that lays the golden egg.

We began to accept that it is the political system, and not economics, that should be the reflection of a society’s values, that should decide what is to be protected and preserved for the present and the future. We recognized that not even a new economics could or should usurp that role, although a new economics could provide a rationale for the values that make a “trickle ahead” decision meaningful. Certainly the new economics did not penalize an individual for a future-oriented decision, but rather encouraged it.

Poverty reduction became a self-conscious effort and a high priority, both in the United States and in the rest of the world. The assumption that this will come about as a result of continued economic growth was finally put to bed. At the same time, explicit attention was directed to the ways that growth would in fact contribute to equity within a market economy. Designing plans and programs to achieve limited-term growth and long-term development with equity was understood to be among the most important challenges faced by societies in the last decade of the twentieth century.

The search for sustainability led to changes in the way we taxed ourselves. Rather than tax what we want to encourage—employment and income—we began to redesign our system of taxation to tax what we want to discourage, including such things as resource depletion and waste, in all of its manifestations.

The battles over the General Agreement on Tariffs and Trade (GATT) and the North American Free Trade Agreement (NAFTA) helped us to understand that trade served to undermine self-reliance, and had serious labor and environmental implications. To contribute to sustainability, trade had to serve environmental, social, and political goals of all nations and communities. This required overcoming neoclassical economic concepts that served as barriers to the sustainability, such as “comparative advantage” and “specialization,” because they contributed to the destruction of biological and cultural diversity. The vice president and chief economist of the World Bank, Lawrence Summers, demonstrated the weaknesses of traditional neoclassical economics when, in an internal memo in December 1991, he asked the question “Just between you and me, shouldn’t the World Bank be encouraging *more* migration of dirty industries to the LDCs [lesser-developed countries]? I can think of three reasons.” These were: (1) because life is less valued there, given the ways economists calculate the value of life; (2) because it makes sense to pollute that which is less polluted; and (3) because a clean environment is something for the rich, “the demands for a clean environment for aesthetic and

health reasons is likely to have high income elasticity.” While most people responded with horror and dismay, the magazine *The Economist* suggested that it made economic sense, even if Summers was “morally careless.”

For example, the Ivory Coast gained little and lost much when it was encouraged by World Bank loans to destroy its farming base to supply cacao to the world market. Its problems were heightened when the world market price for cacao fell, and they were left with neither an export crop nor food nor the money needed to buy food for internal consumption.

The need to deal with all of these, and other issues, led to the development of a problem-oriented “ecological economics,” synthesizing ecological and economic knowledge in a new paradigm for a sustainable world. Like the sustainable society it was to serve, it was holistic, systemic, and oriented to the processes of change. Because it focused on the interrelationship between the economic system and the ecosystem of which it was a part, it avoided the invidious distinctions that characterized the traditional neoclassical economics. This helped, as a result, to obviate distinctions between such alleged conflicts as jobs *or* the environment, focusing rather than on jobs *and* the environment.

The need for political and moral will

Having put forth a partial vision of a sustainable society in the next century, we are now back in the last decade of the twentieth. George

Orwell’s observation in his 1945 essay, “Catastrophic Gradualism,” reflects our day as well: “The practical men have led us to the edge of an abyss, and the intellectuals in whom acceptance of political power has killed first the moral sense, and then the sense of reality, are urging us to march rapidly forward without changing direction.”

One thing is certain. Our present trajectory as a human community is not sustainable. While our crystal ball for divining the future is cloudy, the main outlines, if not the details, of things that we need to do, are in hand.

Pessimism being a self-fulfilling prophecy, optimism is the only course: we do have the political and moral will to change directions. Wendell Berry, the poet, novelist, essayist, and farmer, has suggested that “the answers to human problems of ecology are to be found in the economy. And answers to problems of the economy are to be found in human culture and character.” We must appeal to logic and science, but not fear spirit and emotion. We need a new vision, not correction of a faulty vision. If necessity is the mother of invention, then the crisis we now face will surely be the mother of the new vision.

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References

- Alperovitz, Gar. N.d. The era of fundamental stalemate . . . and the possibility of long "reconstructive" revolution in America. Unpublished MS. Washington, D.C.: National Center for Economic Alternatives.
- Berry, Wendell. 1989. The futility of global thinking. *Harper's* (September), 16-22.
- Bok, Derek. 1990. *Universities and the Future of America*. Durham, North Carolina: Duke University Press.
- Funtowicz, Silvio, and Jerry Ravetz. 1991. A new scientific methodology for global environmental issues. In R. Costanza, ed., *Ecological Economics: The Science and Management of Sustainability*. New York: Columbia University Press.
- Goodland, Robert, Herman Daly, and S. El Serafy (eds.). 1991. *Environmentally Sustainable Development: Building on Brundtland*. Paris: Unesco.
- Hackerman, N. 1992. Science education: Who needs it? *Science* 256 (10 April), 157.
- Hawkins, Howard. 1992. On ecology. *Z Papers* 1:1 (January-March).
- Mander, Jerry. 1991. *In the Absence of the Sacred: The Failure of Technology and the Survival of Indigenous Nations*. San Francisco: Sierra Club Books.
- Meadows, Donnell H., Dennis L. Meadows, and Jørgen Randers. 1991. *Beyond the Limits: Confronting Global Collapse, Envisioning a Sustainable Future*. Post Mills, Vermont: Chelsea Green.
- Orwell, George. 1945 [1968]. Catastrophic gradualism. In Sophia Orwell and Ian Angus, eds., *The Collected Essays, Journalism, and Letters of George Orwell. Vol. IV: In Front of Your Nose*. New York: Harcourt.

