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Sustainability in the Balance: Issues in Sustainable Agriculture

Title

Sustainability in the Balance: Raising Fundamental Issues

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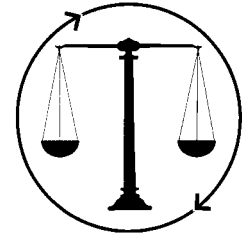
Agroecology Program (now the Center for Agroecology and Sustainable Food Systems)

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SUSTAINABILITY IN THE BALANCE

RAISING FUNDAMENTAL ISSUES



AGROECOLOGY PROGRAM

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This report summarizes social issues critical to sustainable agriculture which were identified at a recent University of California, Santa Cruz conference. The following discussion is organized around twelve issues, each described briefly and followed by a series of questions. We hope it will provoke thought and further discussion among those working on scientific, policy, educational, and practical dimensions of agricultural sustainability.

INTRODUCTION

A few years ago, “sustainable agriculture” was a little-known term used by a small group of people. Today the sustainability concept has entered mainstream thinking and become a major agricultural theme. This broad engagement of the concept deepens the need to clearly identify the goals we attach to it.

Addressing this need was the purpose of a conference sponsored by the Agroecology Program at the University of California, Santa Cruz in June 1990. The conference, *Sustainable Agriculture: Balancing Social, Environmental, and Economic Concerns*, sought to expand the discussion of agricultural sustainability, both in terms of the issues considered and the diversity of those involved in the discussion. The conference was a working meeting designed to elicit the ideas of the participants – 160 researchers, farmers, farmworkers, policymakers, educators, public interest group representatives, consumers, and others involved in the food and agriculture system.

Ongoing sustainability efforts continually deepen our understanding of agricultural sustainability and strengthen its implementation. They also indicate areas in which much remains to be learned and integrated into current activities. In this context, conference participants affirmed that the next step is to formulate the questions – sometimes overlooked – most important for clarifying sustainability goals and translating them into action. The following discussion reflects their perspectives.

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DO WE NEED TO FURTHER DEFINE SUSTAINABILITY PRIORITIES?

A number of sustainability concepts are in use today. Many center on farming practices such as biological control or organic farming methods. Some concentrate on food safety; others on better working conditions. Some emphasize land stewardship and restoration of the family farm. Others focus on access to land and food security. Still others stress economic profitability. The diverse groups working toward sustainability frequently do not agree on which goals are most important.

Although there is a tendency to want to “get to work” on sustainability rather than taking more time to discuss its goals, a clear meaning of sustainability is basic to future work. How we conceptualize sustainability forms the framework essential for establishing objectives, defining problems, posing questions, and deriving solutions. Until we define clearly what and whom we wish to sustain, efforts toward sustainability will lack the coherence needed to make effective changes.

Questions to Explore:

- How do we determine our top sustainability priorities?
- How much should we emphasize conserving soil and safeguarding wildlife?
- Should we focus on preserving family farms and rural communities?
- Should maintaining production capacity and ensuring farm and other agricultural business profitability be a priority?

How much should we emphasize ensuring safer labor conditions and nourishing human beings?
 Should we focus on all of these issues?
 Are any of these goals mutually exclusive?
 How are they complementary or interdependent?
 How can we obtain greater consensus on sustainability priorities?

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WHO AND WHAT DO WE WANT TO SUSTAIN?

At the root of clarifying and prioritizing sustainability goals is specifying who and what we want to sustain, and at what levels. Only then do “how” and “where” questions become relevant. While the what is generally agreed to be production capabilities and the environment, the who needs further exploration.

Many at the conference argued that we should sustain all human beings, both present and future generations, without degrading natural ecosystems. Implicit in this is identifying how we can live within our ecological means, that is, what standard of living and dietary patterns allow adequate food and shelter for everyone without using unsustainable amounts of resources.

Questions to Explore:

How can we change production and distribution methods which increase pressure on natural resources?
 How can we abolish hunger?
 Beyond feeding people, how do we ensure a decent quality of life for all?
 Are inhumane and damaging conditions for living beings as undesirable as environmental problems?
 How can we determine what standards of living the biosphere can support?
 How do we globally adopt those standards in ways that are equitable and respectful of human rights?

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WHAT SHOULD BE THE GEOGRAPHIC DIMENSIONS OF SUSTAINABILITY?

It is important to define how far we need to extend our boundaries of concern for sustainability. The possibilities for developing sustainable agriculture in one region are dependent on other parts of the world. Today agriculture is a global system—food is often produced on one continent and consumed on another, with resources imported from yet another. Regionally located resources such as germ plasm, rainforests, and mineral resources are important to all nations, not just those that house them.

The actions of one nation directly affect others. For example, U.S. businesses often promote resource-intensive technologies for export agriculture in the Third World. The benefits of this include diverse agricultural imports for First World consumers, a steady market for First World agricultural inputs, and much-needed foreign exchange for developing countries. But there are costs. As resource-intensive export farms take over the best land in developing countries, small farmers who once grew food for themselves and their community are forced to marginal lands where it is more difficult to grow adequate food. Often they then must work on the export farms under dangerous conditions for low wages. The results include increased poverty and hunger, eco-destruction, pesticide-related worker illnesses and deaths, the import of pesticide-tainted food into the U.S., and increased expense to the Third World for technological inputs.

In this context of geographic interconnectedness, we need to know how to live in ways which do not unwittingly contribute to poverty, hunger, environmental degradation, or cultural destruction in other societies.

Questions to Explore:

Given that agriculture is fundamentally global, how can we effectively broaden our concept of “community” to include all those living in the world?
 How can trade relations be altered to foster more equitable distributions of costs and benefits among the world community?

How should sustainability efforts on local, national, and global levels be coordinated with each other?

Bioregionalism is often advanced as a solution to agricultural sustainability problems, but what are the practical implications of a bioregional orientation?

Where should the geographical boundaries of self-reliant areas be drawn?

In what ways should they be self-reliant: food production, food distribution, financing, resource provision?

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HOW CAN WE EQUITABLY SHARE THE BENEFITS AND COSTS OF SUSTAINABLE AGRICULTURE?

We presume that a more sustainable agriculture will yield greater environmental and social benefits than we have at present. Many active in developing agricultural sustainability have targeted growers and those able to purchase organic food as the primary beneficiaries of their efforts. Less frequently considered are farmworkers, low-income consumers, and people in other countries.

We also expect that a sustainable agriculture will involve lower environmental and social costs than conventional agriculture. Some agricultural expenses are private (such as the cost of inputs) while others have traditionally been social (such as the cost of public research). Currently, some social costs are considered externalities (for example, costs of groundwater contamination, resource depletion, and human health problems related to pesticide exposure), and are paid by society rather than individual businesses. While the goal of sustainable agriculture is to eliminate many of these social costs, some, such as the costs of research and pesticide monitoring programs, will undoubtedly remain.

Distributing costs and benefits fairly is important in sustainable agriculture. Historically, government subsidies, regulations, taxes, and tariffs have been methods for distributing agricultural costs and

benefits. Production subsidies for growers, for example, are paid by society through taxes. There is increasing concern, however, that the benefits of these subsidies may not be equitably distributed and that they may reduce the viability of environmentally sound farming practices. Some people argue that agriculture should be independent of such aid.

Questions to Explore:

What are the benefits of agricultural sustainability and to whom should they accrue?

To what degree, for example, should farm labor benefit from sustainable agriculture?

We can anticipate less farmworker exposure to pesticides, but what should be other changes in working conditions, housing, and incomes?

How can we both ensure adequate farmer income and prevent hunger?

How can Third World countries adopt sustainable agriculture and simultaneously improve their balance of payments? Are these goals currently in conflict? If so, what needs to be restructured to make them complementary?

Which agricultural costs should be borne by businesses and which by society? Should any be borne by particular groups?

How can decisions be made fairly about who will benefit and who will pay?

How can we obtain the information we need to comprehensively evaluate costs and benefits?

How can we evaluate certain costs, such as resource contamination or depletion?

What about the personal toll of illness, malnutrition, and loss of land and livelihood?

How much do we know about the effects of regulations and subsidies on agricultural sustainability?

How would eliminating subsidies and relying on free market forces affect, for example, environment, labor, rural communities, food prices, or food safety?

Rather than eliminating subsidies, is it possible to redirect funds to enhance sustainability and benefit all social groups?

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HOW CAN WE ADDRESS THE ROOT CAUSES OF NONSUSTAINABILITY?

Since solving problems requires eliminating their causes, it is crucial that we understand the fundamental conditions which give rise to nonsustainability. Developing and implementing effective alternatives to synthetic chemicals, fossil fuels, high-water-use irrigation, intensive mechanization, and so forth, requires a thorough analysis of the underlying economic, political, and social reasons for adopting these technologies. Some of this information is documented in scientific literature and is known through people's experience; much more remains to be discovered. Almost all of it needs to be interpreted and used to inform sustainability efforts.

Questions to Explore:

What are the economic, social, and political reasons why we have developed an agricultural system in which: groundwater is depleted and contaminated, soil is eroded, people die of hunger even though food is in surplus, farm laborers are often in poor health, small agricultural enterprises are unable to survive, and rural communities decline...?

How can their underlying causes be eliminated through local, state, national, and international policies?

Which disciplines and methodologies can help us to understand more about the reasons for such things?

equipment, marketing systems, and so on is essential to developing sustainability. In most of the world farmland is privately owned and, along with capital, is becoming concentrated among fewer and fewer people. As agricultural businesses become increasingly concentrated, a smaller number of people make the agricultural decisions which affect all of society.

Questions to Explore:

How does private ownership compare to community ownership and land trust arrangements in promoting environmentally sound land use, agricultural productivity, and equitable access to food?

If more people had access to land would they be better nourished?

Are there alternative ownership arrangements which might improve conditions for farm laborers, consumers, and farmers?

What about business size and management? What are the implications of concentration for agricultural sustainability?

What are the relationships among farm ownership, size, production capacity, environmental protection, and farm labor conditions? We know, for instance, that large farms have been associated with rural poverty and the declining vitality of rural communities.

What about concentration in agricultural input supply firms and distributors such as supermarkets? Does concentration limit choices and increase costs for those most vulnerable in the food and agriculture system, such as small farmers and low-income consumers?

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WHAT OWNERSHIP STRUCTURES ARE BEST FOR SUSTAINABLE AGRICULTURE?

Various ownership arrangements (private, community, land trusts, etc.) exist in agricultural systems. Understanding how these structures affect resource use, land development, stewardship, use of labor and

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WHAT IS THE ROLE OF TECHNOLOGY IN SUSTAINABLE AGRICULTURE?

We have tended to regard technologies as the primary means for solving agricultural problems. They are usually conceived in response to specific problems experienced by growers or other groups. But once developed, they may create new problems for others.

For example, negative technological impacts have included groundwater depletion, pest resistance to pesticides, and farm ownership concentration. Technologies are often not evaluated for these types of impacts when they are being developed. Since technologies often have both positive and negative effects, it is important that we consider their overall ability to solve agricultural problems.

Technologies may not solve the problems they are intended to address. For example, although technical innovations have helped produce food surpluses, thousands of people still die each day of starvation. Some technologies may not be relevant for solving the core problems. Others may be appropriate, but will not be adopted unless there are policies providing incentives for their use.

Rather than taking a broader approach to technology, many sustainable agriculture efforts concentrate on developing new technical innovations without examining related social and economic conditions. More environmentally sound production methods, for example, may result in higher food prices, making food less accessible to those with lower incomes unless ameliorative policies are combined with technology development. Proposing technological solutions should include considering how they will be used, who will benefit, and who will not.

Questions to Explore:

Is technological determinism limiting efforts toward sustainability?

How far can purely technological solutions such as more environmentally benign farming practices go in helping to achieve a more sustainable agriculture?

How are technological innovations confounded by social factors, such as limited access to land and credit?

While new technologies can help reduce dependence on nonrenewable resources, what can be their effects on social problems such as hunger, farmworker poverty, and the devitalization of rural communities?

How can we develop policy incentives for adopting practices and institutional structures conducive to sustainability?

How can we better evaluate the effects of technologies on different social groups before the technologies are adopted?

Should we require social and environmental impact assessments before technology is implemented?

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WHAT RESEARCH AGENDA IS MOST RELEVANT TO SUPPORT SUSTAINABLE AGRICULTURE?

The kind of research we conduct is critical because it shapes the structure and practices of agriculture and is used as a basis for agricultural policy. Agricultural research has often focused on developing technologies such as equipment, chemicals, or hybrid seeds that are suitable for manufacture and sale. Less emphasis has been placed on discovering or resolving the social, economic, or ecological sources of agricultural problems. Concentrating on only a part of the food and agriculture system—farm production—has left factors such as distribution, processing, and waste management relatively unexplored.

Sustainable agriculture research also focuses mainly on farm-level technologies and strategies. While this type of research can contribute to sustainability, it does not necessarily foster long-term resolution of the agricultural problems whose causes are socioeconomic. Achieving sustainability requires that we consciously reshape research so that it is interdisciplinary (blending social and natural sciences) and oriented toward long-term, whole-systems solutions.

Questions to Explore:

How can the agricultural research agenda be broadened to include more socioeconomic issues?

What funding changes are needed to generate more interdisciplinary, long-range solutions to sustainability problems?

How can the research focus be expanded beyond the farm level to examine sustainability within bio-regions, nations, and international food systems?

How can research help us better understand how

global factors such as resource use, trade relations, increasingly unequal income distributions, and the internationalization of capital affect sustainability?

What ways can we develop to integrate this information into agricultural decisions?

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WHAT INSTITUTIONAL CHANGES WOULD SUPPORT PUBLIC RESEARCH IN SUSTAINABILITY?

Implementing a sustainable agriculture research agenda requires a research system conducive to developing and supporting this agenda. The nature and priorities of public research are determined by the research community (researchers, administrators, etc.) and the characteristics of research institutions.

The backgrounds and experiences of individual researchers and administrators are important because, although science is usually considered to be objective, research decisions are often influenced by researchers' perceptions of political, economic, and ethical factors. U.S. agricultural researchers are predominantly men, Caucasian, and educated in the natural sciences at a handful of agricultural universities. Those underrepresented include women, ethnic minorities, and social scientists.

The nature of the research institutions themselves also determines what research is undertaken. Public research institutions are hierarchical and departmentally specialized. In order to succeed in the system researchers must publish regularly in specialized disciplinary journals. Their research often requires outside funding, available primarily from private sources such as agricultural businesses and commodity groups.

Taken together, our research community, structures, and processes have been effective in developing methods for increasing production. They have been less useful for anticipating and resolving environmental and social problems in the food and agriculture system. If we are to change this, we need to make changes in our public agricultural research system.

Questions to Explore:

Would diversifying research and administrative personnel in terms of gender, and economic, educational, and cultural backgrounds help ensure that a variety of perspectives and values are represented in research decisions?

How can the process of setting priorities be opened so that all people who are potentially affected by research outcomes can have input?

How can the research system foster more whole-systems, interdisciplinary studies between the social and natural sciences? For example, much of the controversy around adopting more sustainable agricultural practices involves assumptions that they will cost more. Would collaboration among economists, ecologists, and sociologists provide a more complete picture of how all costs and benefits—economic, ecological, and social—of conventional agricultural practices compare to those for low external-input methods?

How can peer review, publishing requirements, and the tenure process be shifted to reward not only excellence in traditional agricultural fields of inquiry but also in new and innovative arenas?

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WHAT TYPES OF POLICIES WOULD FACILITATE A TRANSITION TO SUSTAINABLE AGRICULTURE?

Policies are critical for meeting sustainability goals because they affect the decisions of producers, consumers, and nations by creating incentives or disincentives for certain actions. They influence, for example, which technologies are adopted, how high or low food prices are, and what farm size is optimal. Many nations have policies which could be modified to support sustainability. In the U.S., relevant policies include taxes, commodity programs, water subsidies, trade policy, indemnification programs, credit allocation, environmental regulations, social policy, research and education programs, food safety and marketing regulations, and international aid programs.

Questions to Explore:

- What are the roles of general economic policies, such as interest rate determination, in developing agricultural sustainability?
- How can policies be developed that provide incentives for making sustainability the rational choice for producers, consumers, states, and nations?
- How can current agricultural policies, such as commodity programs, be modified to increase their contribution to sustainability?
- What types of policies can make safe, nutritious food more accessible to people regardless of income?
- Are problems such as the demise of small agricultural operations, increasing malnutrition, and resource degradation the result of a global market economy or of policies which constrain free market competition?
- What are the advantages and disadvantages of free market, centrally planned, or mixed economic systems for promoting sustainability?
- If obstacles to sustainability are inherent in some economic systems, how can they be changed so that they support sustainability goals?
- What globally mediated economic changes are necessary to meet people's basic needs today as well as those in future generations?

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**WHAT DECISION-MAKING PROCESSES ARE
BEST FOR DEVELOPING SUSTAINABLE
AGRICULTURE?**

Since the food and agriculture system is so complex, it is difficult to make well-informed decisions, much less coordinate these decisions at local, national, and international levels. Through environmental, rural development, and food safety movements people around the world are making changes in the food and agriculture system. However, by and large, agricultural decision making remains a fairly closed, localized system in which mostly business interests take part. Developing a balanced sustainable agriculture de-

pends upon decision makers, structures, and processes that reflect the concerns of all members of society.

Questions to Explore:

- What types of political bodies and decision-making procedures would best create policies conducive to sustainability at the local, state, national, and international levels?
- What appointment or elective process would ensure that representatives of all aspects of the food and agriculture system can participate actively in shaping sustainable agriculture?
- How do we decide at which levels in the food and agriculture system various sustainability decisions and activities should take place?
- How can policies be coordinated smoothly among all levels?
- Would sustainability councils, established at local, regional, state, national, and international levels be effective?

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**HOW CAN WE IMPROVE OUR KNOWLEDGE
BASE FOR DEVELOPING SUSTAINABLE
AGRICULTURE?**

If more people are to play a role in agricultural decision making, they need better access to information necessary for making informed judgments. All of us—as consumers, policymakers, farmers, researchers, educators, business managers—need to learn more about how agriculture affects us and how we affect agricultural sustainability. This can be accomplished in part through formal education and through accessing the experiential knowledge of those who have long worked in agriculture.

Questions to Explore:

- How can we increase understanding of the connections among the social, political, economic, and environmental aspects of food and agriculture systems?

How can the links between individuals' food choices and how these affect their health, the environment, and other people's ability to meet their nutritional needs be demonstrated?

How can we increase agronomists' understanding of social issues, economists' understanding of ecological issues, ethicists' understanding of practical farming issues?

How can we build on local, "informal" knowledge as well as scientific information in developing sustainable agriculture?

What kinds of educational programs would most effectively increase knowledge about agriculture and help citizens participate in agricultural policy decisions? Would making agricultural and environmental education a regular part of school curricula (primary grades through college) be a place to start?

What topics should be emphasized—ecological and social interdependence, health and nutrition, gardening?

What types of educational opportunities beyond the classroom would facilitate a better understanding of sustainability?

SUMMARY

Sustainability is a product of how the food and agriculture system is perceived and organized. It is human beings that either create, or do not create, sustainability. We all make decisions that affect agricultural sustainability, whether we conduct research, make policy, develop educational programs, work in agricultural businesses, or purchase food. Moving toward agricultural sustainability requires a resolve to engage the kinds of questions raised in this report and the will to make attendant changes. It is essential that we:

- clearly define who and what we wish to sustain
- analyze the root causes behind the unsustainable elements of our current food and agriculture system
- begin to develop structures and processes that support sustainability.

Over the last decade sustainability programs and activities have been initiated all over the world, in governments, universities, and private organizations. Most share a primary focus on environmentally sound farming practices. Less common are efforts to identify and transform the structures, values, and processes which have given rise to nonsustainable aspects of agriculture.

Our challenge is to effectively integrate the social, environmental, and economic dimensions of food and agriculture systems. This will require developing global strategies and altering familiar patterns of agricultural production and distribution. It will depend upon extending our boundaries of concern beyond our immediate family, community, and nation to embrace the needs of all people, including those separated from us by income, culture, continent, and the future.

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– Patricia Allen and Debra Van Dusen
Agroecology Program, UC Santa Cruz
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