Agroecology and the Struggle for Food Sovereignty in the Americas

Avery Cohn, Jonathan Cook,
Margarita Fernández, Rebecca Reider,
and Corrina Steward, editors

Reclaiming
Diversity &
Citizenship

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A collaborative project of the International Institute for Environment and Development (IIED), the IUCN Commission on Environmental, Economic and Social Policy (CEESP) and the Yale School of Forestry & Environmental Studies (Yale F&ES)

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Foreword

Across the globe, a significant number of local livelihoods and biodiverse environments are still sustained by a rich variety of local food systems. It is noteworthy that half of all working people worldwide are farmers and small-scale producers[1]. Most of the world's farming population live in the South and, whilst smaller in numbers, many people are still involved in community and family farming in the North. Farmers and other people associated with localised food systems (millers, butchers, carpenters, bakers, small shopkeepers…) live in ecosystems of vital importance for human well-being and the renewal of nature. These range from relatively undisturbed ecosystems, such as semi-natural forests; to food-producing landscapes with mixed patterns of human use; to ecosystems intensively modified and managed by humans, such as agricultural land and urban areas.

Such localised food systems are the foundations for peoples' nutrition, incomes, economies and culture. They start at the household level and expand to neighbourhood, municipal and regional levels. And localised food systems depend on many different local organisations to coordinate food production, storage and distribution, as well as people's access to food. Moreover, the ecological and institutional contexts in which diverse food systems are embedded also depend on the coordinated activities of local organisations for their renewal and sustainability.

Both the contributors to and publishers of this book believe that in the search for a more 'liveable world' we must find alternatives to the corporate enclosure of food, land, biodiversity and the environment. In this search we must critically assess and build on the potential offered by more autonomous local food systems and organisations. Locally-determined approaches and organisations, while neither perfect nor always equitable, play critical roles in sustaining farming, the environment and people's access to food and natural resources.

1 Small-scale food producers are those women and men who produce and harvest field and tree crops as well as livestock, fish and other aquatic organisms. They include smallholder peasant/family crop and livestock farmers, herders/pastoralists, artisanal fisherfolk, landless farmers/rural workers, gardeners, forest dwellers, indigenous peoples, and hunters and gatherers, among other small-scale users of natural resources for food production. Among indigenous peoples who live off the land, some are farmers, whilst others are hunters and gatherers or pastoralists.

Indeed, the right to land, food and environmental sustainability will largely depend on an alternative 'food sovereignty policy framework' that empowers local organisations to manage their ecological and institutional contexts. The fundamental principles of food sovereignty include the right to food and the right to land; the right of each nation or people to define their own agricultural and food policies; the right of indigenous peoples to their territories and the right of traditional fisherfolk to fishing areas; a retreat from free trade policies whilst prioritising the production of food for local and national markets; an end to the dumping of cheap food on southern markets by rich nations; genuine agrarian reform; and peasant-based sustainable, or agroecological, farming practices.

These are not the easy options. The dominant rules that govern food and agriculture are not designed to strengthen autonomous local organisations but instead to give professional control to the state and corporations. Policies and institutions facilitate international trade rather than local trade and markets. Mainstream agricultural research largely ignores agroecology's potential to develop agro-ecosystems that mimic the biodiversity levels and functioning of natural ecosystems to control pests, enhance yields and maintain soil fertility. Such systems reduce producers' dependence on suppliers of costly external inputs. Indeed, there is a fundamental conflict between a global food system of centralised, corporate-driven, export-oriented industrial agriculture and one that is more decentralised and smaller-scale, with sustainable production patterns primarily oriented towards domestic markets, meeting local needs and enhancing local control over the labour process and its end uses.

Regenerating localised food systems means shifting away from uniformity, concentration, coercion and centralisation towards diversity, decentralisation, dynamic adaptation and democracy. This is what the struggle for 'food sovereignty' and 'agroecology' is all about.

As vividly described in this book, new social movements for food self-reliance and the right to land and other resources are arising worldwide. Throughout Latin America, and in much of Africa and south and south-east Asia, farmers, pastoralists, women, indigenous peoples and migrants are getting organised and linking together with their counterparts in the North. They are gaining support from scholars, activists and progressive policymakers. Together, they are challenging liberal views of citizenship as a set of rights and responsibilities granted by the state. Instead, in the context of locally-determined food systems citizenship is claimed and rights are realised through people's own actions. In this way, farmers, indigenous peoples, fisherfolk, food workers and other citizens are creating a sense of hope and militancy despite the repression that many endure.

Focusing on the Americas, the contributors to this book offer empirically-based analysis, experiences, critical reflections and lessons that are directly relevant to the well-being of people and nature everywhere. The emerging movement for agroecology and food sovereignty they describe is faced with the huge challenge of

recreating a democratic political realm as well as autonomous food systems in a diversity of contexts.

This publication originated at an international workshop held at the Yale School of Forestry & Environmental Studies in New Haven, USA, April 15-17, 2004. The workshop, entitled *Food Sovereignty, Conservation, and Social Movements for Sustainable Agriculture in the Americas*, was developed under the direction of Dr Kathleen McAfee. It brought together students, scholars and practitioners from the Americas 'to exchange ideas about new research, on the ground practice, and the social movements that are working to build more self reliant, sustainable, and socially just food systems'.

The publication is being published jointly, in Spanish and English, by the International Institute for Environment and Development (IIED), the IUCN[2] Commission on Environmental, Economic and Social Policy (CEESP) and the Yale School of Forestry & Environmental Studies (Yale F&ES).

For CEESP, this publication offers guidance on how to implement IUCN's resolution on food sovereignty, which was adopted by IUCN members at the 3rd World Conservation Congress, Bangkok in 2004. This international resolution, entitled 'Promoting food sovereignty to conserve biodiversity and end hunger' (Resolution 3.017), calls for food sovereignty to be taken into consideration in the work of IUCN, its commissions and its members. It also requests IUCN to take on specific activities related to food sovereignty in its own programme of work.

By publishing this volume in its *Reclaiming Diversity and Citizenship Series*, IIED seeks to encourage critical debate on the future of food, farming and the environment outside mainstream policy and conceptual frameworks. For both conservation and development communities, this stimulating collection of papers is indeed a significant and refreshing contribution to 'learning our way out' of the current impasse of industrial farming and mainstream conservation.

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2 The World Conservation Union (IUCN) is the world's largest and most important conservation network. The Union brings together 82 states, 111 government agencies, more than 800 non-governmental organisations (NGOs) and some 10,000 scientists and experts from 181 countries in a unique worldwide partnership. The Union's mission is to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable. For more information see: www.iucn.org

Acknowledgements

This publication is based on the workshop "Food Sovereignty, Conservation, and Social Movements for Sustainable Agriculture in the Americas," held at the Yale School of Forestry & Environmental Studies in April of 2004. Many of the articles are summaries of speaker presentations and breakout session discussions that took place at the workshop. In addition, the publication includes academic pieces that reflect on issues raised during the workshop; case studies of local struggles and successes in the U.S. and Latin America; and interviews with farmers and farmer representatives who presented at the workshop.

This note is principally to express our admiration and gratitude, first and foremost to the small farmers, NGO representatives, academics, activists, and government officials who are working around the world to create a society where farmers have the right to choose what they will grow and how they will grow it; where trade policies respect and ensure sustainable and sovereign livelihoods for rural and urban residents alike; where traditional and innovative sustainable agriculture practices are supported by governments; and where collaboration between these diverse actors guarantees that these goals are met.

This workshop and publication would not have been possible without the financial and logistical support of the following institutions: Yale School of Forestry & Environmental Studies; Yale Council on Latin American and Iberian Studies; Edward J. and Dorothy Clarke Kempf Fund; Yale Center for International and Area Studies; Yale Center for Globalization Studies; Yale Agrarian Studies Program; Yale Tropical Resources Institute; Coalition for Agriculture, Food, and the Environment (Yale FES); and an anonymous donor. We are very grateful for your contributions.

We would like to give special thanks to Dr. Kathleen McAfee, who at this time was a professor at the Yale School of Forestry and Environmental Studies, for initiating this project and serving as a guide to the student organizing committee.

We would like to give special thanks to the following individuals for their hard work before and during the workshop: Cecilia Blasco Hernandez, Phil Dahl-Bredine, Christiane Ehringhaus, Juan Carlos Espinosa, Catherine Murphy, Christian Palmer, and Angela Stach for serving as simultaneous translators; Avery Cohn, Kelly Coleman, Jonathan Cook, Margarita Fernandez, Alder Keleman, David Kneas,

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Finally, the editors would like to extend a particular thank you to the speakers at the workshop, who came from across North, Central, and South America to share their experiences; and the authors who contributed to this publication. Their stories of successes and continuing struggles were the inspiration for this publication. We would also like to thank the photographers for their contributions: Phil Dahl-Bredine, Juan Carlos Espinosa, David McGrath, Jose Montengegro, and Steve Taylor. We appreciate the time offered by Liana Hoodes ad Doron Comerchero for reviewing parts of the publication and providing their constructive criticisms. We thank Jane Coppock from the Yale School of Forestry & Environmental Studies Publication Series for her general support and for specific help with copy editing.

The Editors

Executive Summary

Avery Cohn and Jonathan Cook

Across the Americas, small farmers are continuing a long tradition of sustainable agricultural practices with support from international organizations and university researchers. But these farmers face tremendous economic pressures from abroad. With cheaper food imports underselling locally produced goods and national economies stumbling under crushing foreign debt, markets for local crops are shrinking. There are fears that proposed free trade agreements in Central America, the Andes, and across all of Latin America (the Free Trade Area of the Americas) could fill national markets with more subsidized crops from the United States and other agricultural heavyweights in the region.

In cities and the countryside, in governments and grassroots movements, people see many dimensions to issues that powerful decision makers often reduce to the dry, abstract language of quotas and tariffs. They are underlining the importance of an agricultural model that protects environmental services, local economic opportunities, and cultural diversity in addition to profits for agribusiness and increased trade. Many organizations are calling for a new focus on "food sovereignty" as a universal goal. They begin by declaring that food security – the ability of people to access "enough food for an active and healthy life," as the World Bank puts it – is an essential human right. Even more strongly, however, they emphasize the importance of nations and the communities within them retaining a certain degree of control over their food supply.

The regional food sovereignty movement has increasingly made its presence felt in international political debates and trade negotiations, as was seen at the 2003 World Trade Organization meetings in Cancun. It comprises rural organizations of peasants and farm laborers, herders and fishers, and the international NGOs that coordinate exchanges among them. Many of these actors are also working for alternative approaches to rural development and ecosystem conservation. Across the Americas, farmers are developing and applying principles of agroecology, using both traditional and new methods of polyculture, biomass recycling, and biological pest control; preserving crop genetic diversity; and reducing inputs of external energy and chemicals.

Exploratory Research

In the summer of 2003, four graduate students from the Yale School of Forestry and Environmental Studies and their advisor, Professor Kathleen McAfee, began working together to examine how changing economic conditions are affecting farmers in different parts of Latin America, and how farmers are responding. Elizabeth Shapiro and Professor McAfee interviewed indigenous Mixtec farmers in the highlands east of Oaxaca, Mexico, who are struggling to maintain their crop and livestock genetic resources despite trade liberalization and the integration of their region into transnational agro-food systems. In the Ecuadorian Andes, Jonathan Cook found that indigenous farmers in the cordillera west of Latacunga are embracing selective market opportunities to expand their incomes and support their livelihoods. But they are also working hard to protect and enhance their traditional farming methods, ways of life, and rural communities.

Similarly, Corrina Steward's research highlighted how small-scale family farmers are struggling to maintain their agricultural livelihoods in the Brazilian Amazon through a campaign spearheaded by the Rural Workers' Union (STR) and sponsored by a handful of non-governmental organizations. The onset of mechanized soy farming there has worsened socio-economic conditions for smallholders (colonos).

Finally, in Tacuba, El Salvador, Avery Cohn focused on a group of agrarian reform cooperatives and researchers who are working to resist a boom-and-bust pattern in coffee prices by developing their own terms for coffee production.They are cautiously seeking involvement in alternative markets like fair trade and organic without compromising food sovereignty. In Tacuba, 21 local children starved to death in 2001 – at a time when coffee prices had dropped to their lowest levels in fifty years. All over the highlands of Central America, similar tragedies have stemmed from incentives that promoted the cultivation of export cash crops like coffee at the expense of regional food crops.

All of these projects found similar evidence that small farmers across the Americas are confronting a severe structural crisis exacerbated by trade liberalization. In each case, social movements emerged from the crisis, struggling for food sovereignty, social justice, locally important environmental services, and access to land for small farmers. Evaluating these movements' alternative visions of development, goals, and effectiveness is essential in order to strengthen the movements' long-term impacts. Furthermore, there is a need to improve communication between the movements, since their work stems from similar root causes.

An International Workshop

Facing the economic and ecological barriers to sustainable and sovereign food and agriculture systems will require cooperation among diverse actors in multiple

Left: Participants in the New Farmers breakout session. Photographer: Juan Carlos Espinosa.

Below: Jesús León Santos and Ronaldo Lec at the breakfast session on farmer identity. Photographer: Juan Carlos Espinosa.

Bottom: Members of the Biodiversity panel, from left to right: moderator Elizabeth Shapiro; presenters John Tuxill, Robin Sears, Ivette Perfecto, and Ronaldo Lec. Photographer: Juan Carlos Espinosa.

countries, including farmers, consumers, non-governmental organizations, conservationists, and researchers from Latin America and North America. For that reason, a group of students at the Yale School of Forestry and Environmental Studies, under the guidance of Professor McAfee, organized a three-day workshop from April 15-17, 2004 entitled "Food Sovereignty, Conservation, and Social Movements for Sustainable Agriculture in the Americas."

The workshop provided students, scholars, activists, farmers, and practitioners with an opportunity to exchange their experiences with cutting-edge research, on-the-ground practice, social movements, and national and international policies in order to discuss shared principles and pathways for future action. Through a combination of panel presentations, discussion groups, and informal interactions, the workshop sought:

- To provide an interactive space for the formation of cross-cultural alliances between the U.S. and Latin America
- To examine the political, economic, cultural, and ecological dimensions of food sovereignty
- To generate and exchange academically informed and practically applicable knowledge.

With interest in sustainable agriculture growing rapidly at the School of Forestry and Environmental Studies, the workshop also sought explicitly to include issues relevant to U.S. farmers. Urban agriculture, U.S. farm policy, the plight of the family farm, and the local foods movement were among the themes discussed. Through the conscious juxtaposition of experiences from North and South, the workshop sought to underline how local, national, regional, and global forces are interacting, and how small farmers across the Americas are facing similar challenges.

A Guide to this Report

Throughout the workshop, a recurring question was how to build stronger relationships between academics and practitioners, including farmers and NGOs, working at the intersection of food, agricultural, and environmental issues. In that spirit, the organizers have compiled this report, which synthesizes workshop proceedings, expands on insights derived there, and provides concrete recommendations to academics, policy-makers, farmers' movements themselves, and other audiences. By facilitating the exchange of knowledge, experiences, and resources, academic institutions can promote policies that better reflect lived realities in marginalized rural communities. However, this report does more than list policy options – it situates them in the rich backgrounds and diverse experiences of workshop participants, including interviews and personal reflections alongside more recognizably academic writings. Presentations at the workshop emphasized the

critical yet frequently obscured connections between abstract-sounding policies and the daily experiences of real people. The report is structured along similar lines.

The first section introduces and expands on key themes of the workshop and the report itself. The introduction by Kathleen McAfee frames the links between critical issues of global agriculture, trade, and the environment. Jonathan Cook and Corrina Steward urge policy-makers to reconsider the critical importance of just access to food production and consumption when developing relevant trade policy. Richard Levins urges an expanded understanding of agricultural products as more than just food. Karl Zimmerer describes emerging conservation challenges related to the increasing recognition of the importance of the environmental services provided by agro-biodiverse farms. And Avery Cohn examines roles for academia to play in furthering many of the causes the other featured articles outline.

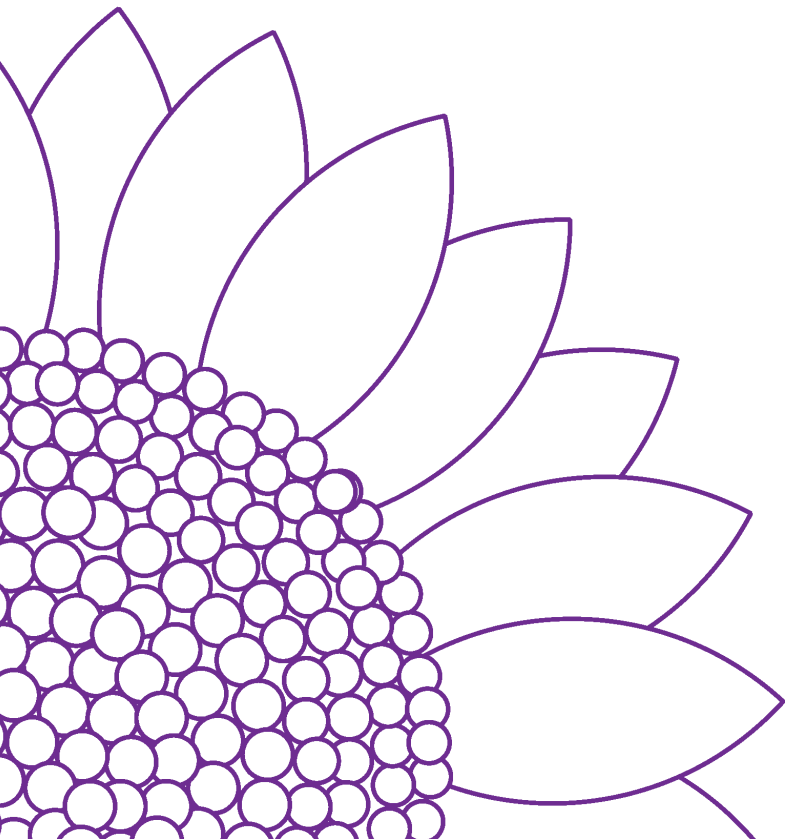
In the second section, articles by workshop participants explore specific connections among these larger issues in greater depth. Reports on panels and breakout sessions summarize the discussions that took place at the workshop. Case studies grounded in experiences in Mexico, Guatemala, Brazil, Cuba, and the U.S. offer a closer look at food and agriculture challenges in different local and national contexts, and present a number of particularly innovative projects promoting food sovereignty and agroecology. Interviews with workshop participants from across the Americas put a human face on the discussions of policy and practice, portraying leaders who are working to define the food sovereignty and sustainability agenda at the local, national, regional, and international levels.

Finally, the report closes with tools for change to promote future work on the issues addressed at the workshop, including a list of resources for further action, and contact information for participants and their organizations.

The academy can break down traditionally static boundaries between theory and practice by engaging a broader audience. Our goal is to distribute this report to policy-makers, foundations, academics, and members of social movements and farmers' organizations alike. We hope this report offers something for everyone.

Sustainability and Social Justice in the Global Food System: Contributions of the Yale Workshop

Kathleen McAfee



Introduction

The earth at the outset of the twenty-first century is rent by a double crisis. One part is the ecological crisis. Despite the rise of environmentalism in recent decades, conservation half-measures have failed. Deforestation and species loss have accelerated, irreplaceable ecosystems are being destroyed more rapidly than ever, genetic resources vital for farming and medicine are disappearing, toxic pollution has increased, and our planet is heating up dangerously fast (Speth 2004). Most countries, and the United States in particular, are pursuing environmental policies of distance, delay, and denial.

The other profound global crisis is that of poverty and hunger. In a world where food production continues to outstrip demographic growth[1], about 15 percent of the population is chronically undernourished. Many more go hungry part of the year or part of every month. Needless hunger is a result of poverty and the unequal control of food-producing resources (Sen 1990, 1991). Too many people lack income to buy food or the means to earn it, or have lost the land they once used to grow food for themselves and their families. This silent crisis is the root cause of much global instability and insecurity. Hunger and poverty produce desperation that gives rise ethnic and religious conflict and terrorism. These, in turn, provide the rationale – although hardly the justification – for new wars of conquest and occupation.

A deep misunderstanding – the one this report endeavors to set right – is the belief that neither part of this double crisis can be addressed without worsening the other.

Many conservationists are convinced that in order to end hunger, more forests must be felled, more rivers dammed, and more species destroyed. Some believe sincerely that, given human responsibility for environmental destruction, the only ethical stance is one that favors nature and other species, regardless of the human consequences. Many conservationists are deeply troubled by this vexing moral dilemma. At the same time, many advocates for the poor reject what they perceive as the elitist and unconscionable stance of preservationism. What gives conservationists the right, they ask, to decide who will eat and who will not? Whose natural environment will be fenced off from people?

To many policymakers and activists concerned with poverty and development, conservationism connotes Malthusianism: the 19th-century premise put forward by Thomas Malthus that human beings, with the exception of an enlightened and deserving few, will reproduce thoughtlessly until they have destroyed the basis of their own well-being, namely, natural resources.

1 Since 1975, world food production has increased by about 175 percent, substantially more than population has grown. According to the U.N. Food and Agricultural Organization, there is 16 percent more food per person on earth than 30 years ago.

Many environmentalists have moved beyond these discredited Malthusian notions. They recognize that concepts such as "overpopulation" and "carrying capacity" have no meaning in any absolute sense.[2] Some conservationists understand that hunger in a world of abundance is a reflection of the greatly unjust distribution of the world's surplus of food. But these are not the conservationist voices most often represented by well-known environmental organizations or depicted by the mass media. As a result, "pro-poor" and "pro-nature" voices are raised – or get used – to discredit each other or to cancel each other out.

However, in this report, geographer Karl Zimmerer points to a promising trend. Many traditional conservationists, by necessity, are incorporating attention to farmers and other local resource users into conservation plans, such as those for the ambitious but troubled Meso-American Biological Corridor. Many have begun to understand that agriculture and the human needs it meets are concerns as important for environmentalism as the untamed nature we have sought to preserve.

The Ecological and Human Costs of Industrial Agriculture

Much of the misunderstanding between conservationists and advocates for the poor has centered on agriculture. Farming is by far the greatest user of land and freshwater resources worldwide. More forests are cleared for the expansion of farm plots, pastures, and plantations than for timber harvests. Does that mean that farmers are the enemies of forests? Not necessarily, and potentially, not at all. While agriculture and conservation can be at odds, they can also support each other. This was the finding of the Yale School of Forestry & Environmental Studies graduate students whose field research inspired the workshop on which this report is based (McAfee 2004).

Agriculture, however, takes many forms. Agriculture in most of the United States involves large farms or groups of growers under standardized contracts to big agribusiness firms. These mega-scale operations produce just one or a few crops, in fields where each plant is genetically identical or nearly so. Fields are plowed, planted, sprayed, and harvested by petroleum-powered machinery, except when fruits and vegetables are sprayed and picked by seasonal laborers. Maintaining productivity in this factory-like farming depends upon the continued application of manufactured fertilizers and the ever-increasing use of pesticides.

In the meat-production counterpart to monocrop farms, thousands of hogs, cattle, or chickens are confined in vast lots, fetid pens, or small cages, fed a monotonous

2 Which region is "overpopulated"? New Jersey, which has 1,165 people per square mile, where obesity is epidemic? Or Bangladesh, which also has many people, 926 per square mile, but where most people eat less than 2,000 food calories daily and half the children are underweight, but where the average person uses less than 1 percent of the energy that the average U.S. resident consumes? Which country has more "carrying" capacity? Japan, which has a population of 130 million but imports most of its food? Or the Philippines, which has far fewer people per square mile, but exports food to Japan?

Below and right: Hunger has long been a problem in the the North and Northeast of Brazil. However, it has little to do with a need to choose between ecological conservation and poverty. Smallholders farmers have long been capable of producing ample food for regional consumption. However, just as they were supplanted by powerful economic interests during the sugar boom, they are again being supplanted by a global spike in consumption—this time of soybeans used as feed. Neither sugar nor soy alleviates global hunger. On the left, residents of an extractive reserve near Santarém, Pará make farinha flour from manioc roots. Across the Tapajós River, a similar station sits abandoned, the result of land speculation and violence associated with the rise of soy production in the area. Photographers (respectively): David McGrath and Corrina Steward.

Above right: Kathleen McAfee. Photographer: Juan Carlos Espinosa.

Right: A spiny cactus is used by a Mexican rancher to maintain an agroforestry system. The cactus prevents cattle from eating the tree. Photographer: José Montenegro.

mash of grain and recycled animal protein, dosed with hormones to speed their growth and antibiotics to manage infections.

Because crops and animals are rarely raised on the same farms, potential sources of fodder and natural fertilizer become wastes and pollutants instead. The spatial separation of crops and livestock breaks the closed circle of genuine agroecological efficiency: the recycling of energy and nutrients that accounted for the remarkable boom in food production in early modern England and the United States (Duncan 1996; Stoll 2002).

Among the results of today's factory farming are degraded and eroded soils, depleted aquifers, poisoned wells and waterways, and offshore marine "dead zones" caused by the runoff of crop fertilizers and animal excrement. Soils that have been compacted by heavy machinery and deadened by agrochemicals retain less water and require more irrigation than living soils rich in organic matter and microorganisms. Monocropping and confined feeding make plants and animals more vulnerable to disease; the application of pesticides and medicinal agrochemicals often becomes self-defeating as insects, weeds, and microorganisms develop resistance and more chemicals or new types of chemicals must be applied.[3] Industrial agriculture as we know it today cannot be sustained over the long term.

Industrial agriculture also takes an immense social toll. The required inputs (seeds, chemicals, machines), as well as crop prices, transportation, processing, wholesaling, and increasingly, retailing, are largely controlled by a small number of huge, conglomerate firms (Hefferman and Hendrickson 2002; Murphy 2002). Farmers and animal raisers have little say in what they grow, how they grow it or care for it, or where and for what price they will sell their livestock or harvests. Many nominally independent "family farmers" are virtually indentured to these agribusiness giants. These farmers bear most of the risk, receive little of the profit, and are locked into heavy debts and single-product farming systems. Hundreds of thousands have lost not only their independence, but also their land and livelihoods to this system. The boarded-up storefronts that line the streets of many U.S. heartland towns and the half-deserted villages that dot the mountains of Mexico attest to this social catastrophe.

The social and ecological problems of factory farming cannot be overcome easily. Many farmers are acutely aware of them, as the interview with George Naylor, head of the National Family Farm Coalition, demonstrates. Many agronomists, too, are working hard to address these problems. Unfortunately, their efforts get relatively little support from federal and state agencies and university agriculture departments.

3 Use of insecticides in the United States rose tenfold over 44 years, but the proportion of crops lost to insects nearly doubled in the same period. See Wargo (1998).

In fact, the U.S. government promotes high-chemical-input industrial agriculture throughout the world.

The main emphases of U.S. farm policy are (a) keeping the existing system productive and profitable for the politically influential agribusiness firms that benefit most from it; (b) subsidizing and insuring the exports of U.S. farm products, farm inputs, and industrial-agriculture methods to other countries; and (c) promoting crop genetic engineering, a false "solution" that is an intensification of unsustainable industrial agriculture, not an alternative to it (see Altieri 2004). Kristin Dawkins of the Institute for Agriculture and Trade Policy outlined the contours and consequences of these policies during the workshop panel on "Food Security and Food Sovereignty: Production, Development, Trade"

The Myth of Efficiency

Policies that promote industrial agriculture are justified by their proponents' claim that large-scale, high-chemical-input, mechanized agriculture is the most efficient form of farming. "Just look at the bounty produced by U.S. farms," these advocates argue. "The United States feeds the world." But foreign food aid from the U.S. government may do far more to increase hunger and dependence than to reduce it.

Heavy subsidies promote over-production in the United States and Europe. To make that surplus profitable, U.S. and E.U. agricultural trade policies are designed to open up markets worldwide for their farm-surplus exports, sold at less than the actual cost of production. This puts socially and environmentally friendly farms out of business, leaving only those who can afford to purchase imported farm inputs and tailor their farm crops to the demands of commercial agribusiness.

The high-animal-protein diet favored by this system is extremely wasteful of land, atypical in human history, and ecologically impossible to reproduce on a global scale. Its pattern of resource use is unsustainable: modern, mechanized farms are commonly net destroyers of soil fertility. High-chemical input farming, the "livestock revolution" (the globalization of factory farming), and the "blue revolution" (marine aquaculture of carnivorous species such as tuna, salmon, and shrimp) all produce far less food energy than they use in the form of feed, fuel, and labor energy.[4]

Common claims about industrial-farm superiority are based on criteria that are misleading because they are two-dimensional. They take account of yields per unit of surface area (in hectares or acres). They do not consider the effects on soil, the third dimension, nor the agroecosystem's capacity for future production – time being the fourth dimension (Fernandez, Pell & Uphoff 2002). Standard agroeconomic criteria are also mono-functional, considering only crop yield prices, while neglecting

4 Factory farming uses far more energy than it generates: 9 to 11 energy calories are consumed in the production of a single calorie of food energy in factory-farming systems. It takes at least 3 and as much as 20 pounds of seafood protein to produce a single pound of farm-raised carnivorous fish.

the effects of industrial farming on social well being and culture, on valuable crop genetic diversity, and on other species. Most agricultural economists consider such effects to be "externalities" that are not relevant in measuring farm efficiency.

"Free" trade policies have led to a surge in U.S. food exports to Mexico and economic disaster for hundreds of thousands of Mexican small farmers who cannot compete with cheap, subsidized U.S. corn and beans. Higher U.S. grain-yield figures are often cited to justify these policies, but such calculations leave out much of the story. Missing is the vastly greater energy cost of industrial grain production and lengthy transportation to Mexican grain markets. Missing are the ecological costs: soils depleted of nutrients and "addicted" to chemical inputs; water loss; and fertilizer and pesticide pollution and poisoning. Missing are the human costs: displaced farmers, disrupted families, lost crop varieties, lost knowledge, and broken cultural bonds.

Moreover, the yield of a single grain from a single harvest season is not a valid basis for comparing farm productivity. Fields in much of the world are often not planted in only one crop. In Mexico and Central America, corn is commonly intercropped with squash, beans, and other legumes, while other useful plants grow along field margins. The corn plant itself also has multiple uses – as green corn for beverages and treats, dry corn for subsistence for farm families and their animals, and seed corn for replanting or barter, as well as the many uses made of corn husks and stalks. Thus, the food and economic value from any field is often greater than that of the grain alone, but grain yields are usually the only component counted by economists.

Similarly, family-farmed rice paddies may also produce protein from fish, crustaceans, and mollusks. Greens rich in iron and pro-vitamin A harvested from paddy banks may be important nutritionally but dismissed as "weeds" by conventionally trained agronomists. Additionally, many small-scale farmers raise multiple, genetically diverse varieties of staple crops, vegetables, and fruits, conserving wider crop gene pools and developing new, potentially valuable crop traits. And, unlike big industrial farms, which have been likened to ecological deserts, multi-crop, smaller-scale farms, especially those with shade and fruit trees, windbreaks, hedgerows, and ponds, frequently provide habitat for birds and other wildlife.

When plant and animal products are not recycled to maintain soil fertility, or when pesticides and fertilizers destroy beneficial subsoil life, the monetary and energy costs of farming the damaged land can rise greatly over just a few seasons. Farmers introduced to chemical fertilizers often report surges in short-term yields, only to find that after a few years, little will grow without the application of these inputs. Where farmers lack the wherewithal to purchase agrochemicals or to return plant and animal wastes to the soil, much more than soil fertility can be lost: the land itself, and farm families' means of feeding themselves. Yet few agronomic or economic

analyses are carried out over a long enough period of time to measure these grave losses.

One more problem with most industrial versus smaller-farm comparisons deserves mention. Advocates of "modernized" (industrial) agriculture often assert that a single farm worker in the U.S. Midwest produces as much grain as several people or even dozens of people working on non-mechanized, low-chemical input farms. This claim ignores the labor involved in manufacturing and transporting the machines, chemicals, and fuel that make factory farming possible.

Moreover, less labor on farms is not always a good thing. Around the world, the loss of agricultural employment to mechanization has been a major factor in the decline of rural cultures and migration to swelling cities and abroad. Women, ethnic minorities, and the landless are often hurt most by this job loss. When people lose the ability to feed themselves by their own labor, the costs of their nourishment must be borne by others.

Nobody enjoys endless days of drudgery, and farmers everywhere welcome labor-saving methods. But the only choice is not between large-scale mechanization and grinding toil. Multipurpose farms can provide satisfying full-time or part-time employment, especially when farming is supplemented by rural small industries and enlivened by rich cultural and civic life.

Producing Food or Producing Money?

Underlying and reinforcing these problems of industrial agriculture is the most profound problem of all: a growing proportion of farming worldwide that is carried out for the purpose of making profits rather than producing food. In what Philip McMichael calls the global corporate food regime (2004), a handful of transnational firms dominate food production, processing, transport, and retailing (McMichael 2004). Food commodity chains today are truly worldwide. Farm inputs and animal feeds are transported to distant feedlots and fields in other countries. From these sites of agricultural production, food commodities often travel again around the globe before they reach consumers.

The World Trade Organization, the terms of World Bank structural adjustment loans, and bilateral and regional trade treaties require the liberalization of farm and food trade policies. This means that developing-country governments may not maintain farm programs, price supports, or import restrictions designed to protect their own domestic food producers. Global agribusiness is therefore free to roam the planet, seeking the most favorable combinations of soils and climate, low land and labor prices, and "technology protections," i.e., enforcement of private patents on seeds and agrochemicals.

As noted above, farm subsidies and agro-export subsidies in much of the global North allow transnational firms to acquire and sell farm products at prices below the cost of production. The dumping of subsidized food surpluses in developing-country markets drives farmers off the land, reduces land prices and farm-labor costs, and fosters the concentration of food-producing resources in fewer, larger farms, organized to produce more low-cost agricultural commodities for the globalized market. When soils are exhausted, or when farm laborers or contract growers object to low prices, low wages, or factory-farm practices, global investors can move on to more favorable sites.

Korean farmer Kun Hai Lee cried "WTO kills farmers" before stabbing himself to death before some 10,000 Mexican and other farmers gathered in protest at the WTO meeting in Cancún in September 2003. His was the most dramatic but, sadly, only one of thousands of recent suicides by farmers and fishers forced from their livelihoods by imported food dumped in local markets for less than its cost of production.

Positive Alternatives and Signs of Change

In the midst of the crisis caused by globalized industrial agriculture, there are some very significant and promising counter-trends. People are looking for alternative principles, policies, and practices. Policymakers and citizens around the world are questioning free-market fundamentalism as well as centralized "socialism," looking for better ways to understand the global economy and manage the distribution of its resources.

- New social movements for food self-reliance and the right to land and livelihoods are arising worldwide. Throughout Latin America and in much of South and Southeast Asia and Africa, farmers, women, indigenous peoples, and migrants are organizing, linking together with their counterparts in the North, gaining support from scholars, activists, and progressive policymakers, winning real gains, and creating a sense of tremendous hope and militancy despite the repression that many endure.
- Countries are breaking away from the neoliberal Washington consensus. Two decades of global economic liberalization have brought few of the promised benefits from privatization and deregulated trade. Many governments and many more social movements are now resisting "free" trade pressures. The defeat of the one-sided WTO agenda at Cancún may have marked the beginning of the end of a half-century of U.S. policy dominance.

- In the United States, food is finally becoming a political issue, amidst E. coli and mad-cow scares, deepening distrust of food-safety regulators, animal-welfare concerns, suspicion of transgenic products, and widening awareness that fresh, local products are safer, tastier, and socially beneficial. Organic food is the fastest-growing segment of U.S. agriculture. Farmers' markets and programs that link farmers directly to consumers are becoming immensely popular in the U.S, Europe, Japan, Korea, and many cities in the global South.
- The racial and class politics of nutrition and food policy are coming to the fore in the U.S. Peoples of color and working-class communities are recognizing that the denial of high-quality food, reinforced by public policy and resulting in needless poor health and shortened lives, is a central dimension of the social injustice they face. Municipal Food Policy Councils, urban gardens, farmer-community networks, campaigns to change school lunch menus, and limits on fast-food franchises are just some of the ways this issue is being addressed.
- Tangible alternatives for farmers are emerging in the form of systems for fair trade and certification (ecological and social good-practice labels), international producer-consumer networks, local processing of crops such as coffee, chocolate, and fruits to add more value to farm exports, and planning for sustainable regional development. Many options are arising from below, from the real-life experiences of farmers and other producers, often supported by locally based NGOs, scientists, and activists rather than being imposed from outside or from above.
- After decades of regarding farmers as nature's enemy, environmentalists are beginning to understand that agriculture and conservation must go hand-in-hand. Now that protected-area projects that ignored local resource users and their subsistence needs have largely failed, farmers' roles in safeguarding biodiversity and the atmosphere are being documented. Several major environmental organizations have new programs to promote more sustainable agriculture and enlist farmers in conservation plans. New social movements are capturing this trend in the slogan "No ecology without equity; No equity without ecology!"
- Major international declarations and the policies of some national, regional, and municipal governments now recognize that food is a human right. (Thus far, however, few governments protect the right to food. The U.S. government actively opposes it in principle and in practice.) The vital principles of economic and social human rights, potentially radical in their implications but for long mere abstractions in the fine print of international accords, are finally being elaborated in practical terms.
- The principle of food sovereignty is gaining adherents around the world. Food sovereignty, explained in more detail below, is the ability of countries and communities to control their own food supplies and food-producing resources.

- Agroecological knowledge for sustainable farming is deepening, enriched by local farmers' experimentation and knowledge, and spreading to hundreds of thousands of new farmers every year. We now know that agroecology and related practices can produce food abundantly, reliably, and sustainably and can help guarantee that those who need food can obtain it. Although little reported in the U.S., there are a growing number of such successes in the global North and South.

Agroecological Alternatives

Agroecology is an approach to farming that responds to the agronomic inefficiencies and social failures of conventional agriculture. Agroecological principles and practices combine time-proven farming methods, new ecological science, and local farmer knowledge to enhance the yields, sustainability, and social benefits of farming. Agroecology has been applied mainly but not exclusively by small-scale and resource-poor farmers, making their farming more productive, affordable, and reliable. Although it has not yet been applied and evaluated systematically across regions, agroecological farming has already achieved substantial increases in food production in many localities (Uphoff 2002).

Agroecology practitioners are less interested in conquering and controlling nature than in working with it, using scientific understanding and close observation of phenomena such as pest-predator relationships, the ongoing evolution of pest species, and the effects of soil organisms on plant vigor. Being aware of such natural processes helps in anticipating and managing agronomic problems. In this way, agroecology is more a method of thinking and a means of applied learning than a blueprint or formula, as the case study in this report by Jean Marc von der Weid makes clear.

Agroecologists analyze agro-ecosystems in terms of their composition in three dimensions, including soils, trees, microclimates, and hydrological cycles, etc., not just the two dimensions of the flat, bounded farm field. They look at agro-ecosystem dynamics over time, not just over one harvest cycle. They study nutrient and energy flow and interactions among organisms – soil biota, pests, beneficial insects, other animals and plants – at a range of spatial and temporal scales.

Agroecology aims to reduce risks to farmers and the environment by increasing the resilience and self-regulating capacities of agro-ecosystems, so that the use of pesticides and other agrochemicals can be eliminated or minimized. Agroecologists also work to lower farming costs, waste, and pollution by maintaining more closed systems than in conventional farming (Altieri 1995; Gliessman 1990). For example, recycling energy in the form of green manures and animal manures reduces the need to buy fertilizers from off the farm and turns a cost – disposal of animal wastes – into an asset.

Agroecological thinking encourages the planting and maintenance of a variety of crops and food sources, with crop rotations and multiple intercropping where appropriate. It endorses the use of open-pollinated seeds that can be selected, saved, and bred by farmers, as opposed to hybrid varieties that must acquired anew, usually purchased, for each harvest cycle or at least every few years. In contrast to monocrop farming, where genetic uniformity is desirable,[5] varietal and genetic diversity within the same crop is often advantageous in agroecological farming. Genetic diversity reduces the risks of crop failure and allows farmers to improve their own seed stocks. More complex agroecological systems, especially those that include permanent crops, often encourage wild species and often support greater biological diversity on and around farms than do monocultures or even undisturbed forests.

Agroecologists understand farms not as food factories but as dynamic systems embedded within complex ecologies that co-evolve with human communities (Levins and Vandermeer 1990). In contrast to most conventional agronomy and agricultural economics, the framework of agroecology allows for consideration of so-called externalities: the environmental, economic, and social costs that are generated by industrial-farm enterprises but born by the wider ecology and society when farming is done unsustainably.

Agroecological principles can be generalized, but ecosystems, communities, and agroecological practices are necessarily place-specific. Agroecology therefore requires collaborative research and experimentation with farmers and other experts and continuing inputs of local intelligence. Does this mean that agroecology is appropriate only for small-scale farms? Not necessarily, since many of its principles and practices are equally applicable to larger-scale agriculture. But the issue of scale and place-specificity does point to an important question: are large scale, uniformity, and the lack of adaptability to various ecological conditions root causes of unsustainability in conventional agriculture? Will sustainable farming therefore need to be much more decentralized and varied, even if not entirely small-scale? Because uniformity in industrial farming is a consequence of the exigencies of profit-driven agriculture, this is as much a political and economic issue as it is an agroecology question.

Agroecology is not a monolithic movement, but instead a fast-growing international trend. It is being developed and carried out by locally based and internationally linked networks of farmers, scientists, and nongovernmental organizations who see it as an alternative to conventional agricultural technologies designed for large-scale farms in temperate climates. In Brazil, for example, AS-PTA (Evaluation and Services

5 For large farming operations and agribusiness firms, genetic uniformity has advantages related to the exigencies of mechanization and large-scale production and marketing. Identical plants that ripen simultaneously can be harvested, quality-checked, transported, and processed in bulk.

for Sustainable Agriculture) is an organization that has been promoting agroecology with community farming organizations for more than 20 years. Jean Marc von der Weid, AS-PTA's public policy director, notes in this report that "all three national family farmers organizations [in Brazil] have defined agroecology as their main strategic tool to achieve agricultural sustainability."

The interviews in this report with Ronaldo Lec and Jesús León Santos, and the workshop presentation by Sérgio Lopes, illustrate how agroecology is being adapted by communities in Guatemala, Brazil, and Mexico. The report on the "Practicing Agroecology, Using Local Knowledge" breakout session explores the meanings and uses of "local,'' "traditional," "indigenous," and "scientific" knowledge; how power relations affect the production and control of knowledge; and the differences in the underlying logics of conventional and agroecological farming. The report on the "Education and the Diffusion of Agroecological Practices" session discusses the importance of farmer-to-farmer networks and participatory research with scientists, the need for institutional and marketing support for sustainable farming, and the larger political and economic issues affecting farmers.

The article by Harvard's Richard Levins, a pioneer and leading thinker in the agroecology movement, explains agroecology in relation to the larger context of the eco-social distress syndrome: the dysfunctional relationships between the human species and the rest of nature. He poses some challenging hypotheses about the nature of scientific knowledge; the paradox between increasing sophistication at the laboratory and the inability of science to grapple with whole, complex systems; and the social and economic conditions under which a more holistic and effective science is possible.

These contributions illustrate that for many practitioners, farmers and scientists alike, agroecology is as much a social as a technological project: a means toward greater equity, empowerment, and local control over food sources and supplies, and a space for multiple, alternative definitions and directions of "development." all of which raise the issue of food sovereignty.

The International Movement for Food Sovereignty

The concept of food sovereignty entered international policy debates when it was put forward at the 1996 World Food Summit by the international farmers' confederation Vía Campesina (www.viacampesina.org). Food sovereignty has become a banner uniting farmers' and other rural social movements and international networks of non-government organizations. These alliances have been working for a decade to right the injustices that they believe are built into the rules of the World Trade Organization. To this end, they are developing alternatives to the WTO Agreement on Agriculture and other policies that subordinate ecologies and human needs to the

logic of profit. Food sovereignty is a central principle in these alternatives (www.tradeobservatory.org; www.viacampesina.org).

A simple definition of food sovereignty is the ability of countries and communities to control their own food supplies: to have a say in what is produced and under what conditions, and to have a say in what is imported and exported. At the local level, food sovereignty entails the rights of rural communities to remain on the land and to continue producing food for themselves and for domestic markets if they so desire.[6]

Proponents of food sovereignty maintain that human rights, such as the right to food recognized in the 1966 International Covenant on Economic, Social and Cultural Rights, must take priority over WTO rules that protect the putative "rights" of private investors to pursue profit. While WTO rules enforce narrowly economic criteria for trade regulation, a food sovereignty strategy would advance the rights of governments and consumers to use broader and multiple criteria in trade and development planning. Sovereignty, as they see it, would permit governments at various levels to make decisions about imports, exports, investment, credit, and resource use that discriminate in favor of goods produced according to standards of ecological sustainability, humane animal treatment, gender equity, fair labor practices, and other social goals.

Food sovereignty is more than a different set of trade rules; it is a different way of understanding agriculture and the role of food, farming, and rural life. Food sovereignty advocates hold that food is first a source of nutrition and only second an item of commerce. Trade is good, they say, but as a means to social well being, not as an end itself. They argue that the maintenance of healthy agrarian communities, backed by national policies to support and protect domestic food production, is a better guarantor of food security than a globalized agro-food system in which most countries depend heavily on purchased food imports.[7]

Food sovereignty is as much an ecological project as an alternative economic paradigm. Its proponents contend that decentralized, diverse, and locally adapted farming systems can be more environmentally sustainable than a globalized food system. Where livelihoods and family goals are tied to the longer-term health and productivity of the land, they say, farmers have more incentive to conserve and improve soils, landscapes, and water systems. By contrast, in a globalized food system dominated by agribusiness, the competitive imperative to maximize profits compels companies to externalize their environmental costs, shifting them onto the public and future generations.

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6 'Sovereignty' as conceived by these advocates does not apply only to the nation-state, but leaves room for various patterns of autonomy and interdependency at the community, regional and international levels.

7 In contrast, the architects of U.S. trade and development-aid policies have long argued that developing countries should give up producing staple crops. Instead, they are advised to pursue their 'comparative advantage' by concentrating on exports of tropical speciality crops and products of low-wage labor, while importing basic foods from 'more efficient' producers such as the United States.

Proposals to implement food sovereignty and realize the right to food include:

- The elimination of food commodity dumping (the sale of crops for less than the cost of producing them) and the right of countries to protect themselves from such predatory under-pricing;
- National and international mechanisms to limit overproduction, especially the banning of subsidies for export crops;
- The use of domestic reserves and global supply management mechanisms to ensure adequate but not excessive food production and access;
- The right of countries to prevent the ruin of domestic food producers and to foster rural development by such means as import controls – quotas, tariffs, or price band systems – and preferential agricultural credit;
- Land reform of a kind that recognizes the individual or collective rights of food producers, does not saddle them with debt, and puts neglected lands to productive use;
- Rights of access to water and other food-producing resources;
- The rights of municipal, state, and national governments to regulate food and farming in the public interest, including
  - the right to require labels stating the origins and production methods of foods and crops;
  - the right to decide whether to accept genetically modified food imports or aid and whether and on what terms to permit the use of genetically engineered crops;
  - the right to ban the private patenting of living organisms and genetic information.
- The rights of farmers to save seeds for exchange, replanting, and improvement, and to make such full use of patented crop varieties;
- Living wages and safe working conditions for agricultural and food-sector workers.

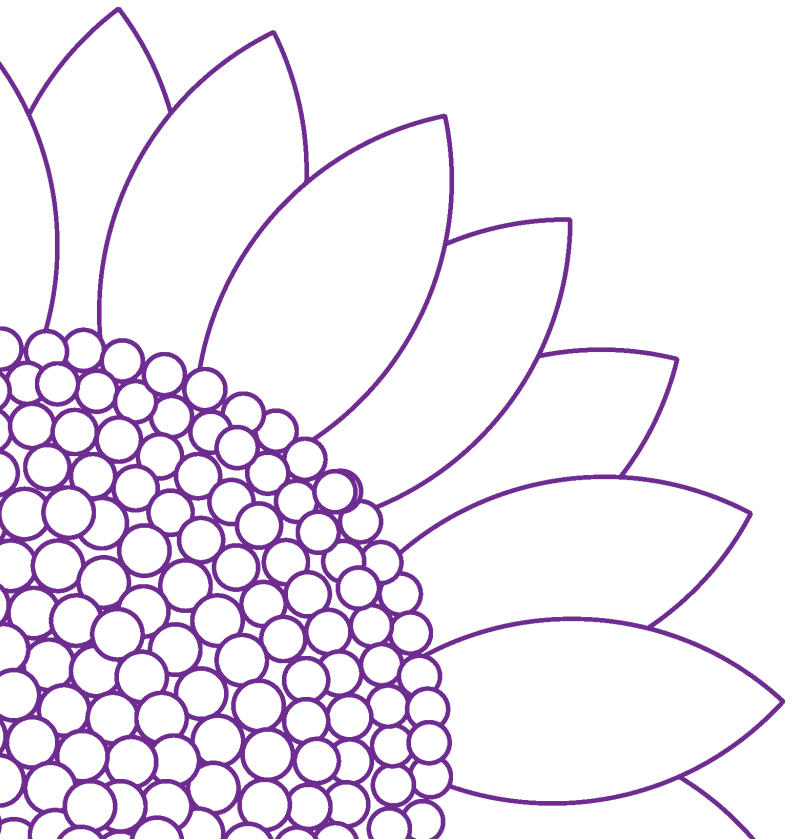
There is currently little support for academic study and policy work to further develop a food sovereignty approach. Interest in such options has been inhibited by a set of myths that have gone unquestioned for too long: the myth that trade itself, in an unequal world, will bring development benefits and the reduction of hunger; the belief that only high-chemical input industrial agriculture can feed the world's population; the illusion that small and medium-scale farms are necessarily less productive and less efficient; the notion that farmer-centered agriculture represents a turn away from science; and the idea that farmers care little about and are inevitably at odds with the natural environment.

The “free” trade myth is fading fast in light of the failures of two decades of trade liberalization. Technology-centered agricultural research and extension have brought no significant breakthroughs toward greater productivity since the Green Revolution. The excess productivity that has been achieved by other means – agribusiness subsidies, the extension of agriculture to new land, and the heavy use of fertilizer – has not led to reduced hunger. The environmental costs of industrial agriculture are no longer possible to ignore.

If the myths persist that agroecology cannot produce abundant food, or that farmer-centered research and innovation represents a return to a romanticized, pre-scientific past, those myths, too, can be put to rest by attention to the actual practices of the movements for food sovereignty and agroecology. A good beginning is a careful reading of the research results and testimonies of scientists, policy analysts, and farmers that comprise the contents of this report.

Food Security and Trade Reconsidered

Corrina Steward and Jonathan Cook



Across the Americas, farmers, communities, and food are inter-connected by crop genetic resources, agricultural markets, and sociopolitical and cultural history. Trade and agricultural policy increasingly dictate regional relations in the Americas. From the North American Free Trade Agreement (NAFTA) to the proposed Free Trade Area of the Americas (FTAA) and Central American Free Trade Agreement (CAFTA), the accelerating process of trade liberalization has opened overseas markets to U.S. exports of major food crops like corn, wheat and beans, and shifted Central and South American economies toward the production of niche crops (vegetables, cut flowers) and tropical commodities (fruits, coffee) for export.

The classic neoliberal argument is that countries like El Salvador and Bolivia should de-emphasize subsistence farming and instead specialize in growing export-oriented cash crops such as coffee and soybeans. Additional cash income and food imports thereby replace food self-sufficiency. In this sense, lifting protective agricultural tariffs and subsidies – so the argument goes – would catalyze economic growth, hoisting small farmers out of poverty. U.S. trade officials and other supporters of liberalized trade assert that these policies will benefit Latin American countries through new foreign investment, increased export opportunities, and an improved standard of living.

Yet, as workshop panelist Kristin Dawkins of the Institute for Agriculture and Trade Policy (IATP) argued: "We now have ten years of experience with free trade. And it's proven – it's no longer one of these textbook theories – that it is not contributing to development at the community level, or even at the national level, in so very many countries." Numerous examples from the workshop demonstrate that the neat models of neoclassical economic theory are not the reality for millions of farmers in the Americas or their neighbors in the hemisphere's cities. Rather, economic opportunities are not realized and communities are left to invent their own survival strategies.

A promising alternative approach, however, involves protecting the right to food security and redefining the means through which it is achieved.[8] Social movements like Vía Campesina and the Landless Peoples' Movement (MST) in Brazil emphasize the importance of individual countries, and the communities within them, retaining greater control over their food supply. "Food sovereignty," as it has been called, asserts that something so fundamental to daily life as sustenance should not be subjected to the abstract logic of trade liberalization.[9]

This brief analysis will review the current trade scenario in the Americas and highlight the consequences of trade policies that do not take these considerations

8 According to agroecology.org, the website of Professor Steve Gliessman of the University of California-Santa Cruz, food security can be defined as the "state in which all persons obtain a nutritionally adequate, culturally acceptable diet at all times through local non-emergency sources."

9 According to "What is Food Sovereignty?", a Via Campesina position paper available at http://www.viacampesina.org/art_english.php3?id_article=216&PHPSESSID=432ee9b758220848ae4a2cb0cda74dad, food sovereignty is "the peoples', Countries' or State Unions' RIGHT to define their agricultural and food policy, without any dumping vis-à-vis third countries."

into account. Drawing from experiences and lessons shared at the workshop, we describe alternative solutions to the current trade liberalization agenda, including national policies and non-governmental innovations that address farmers' rights, rural livelihoods, economic development, and biodiversity conservation. Lastly, we point policymakers toward a set of recommendations that would reform trade negotiations and domestic policies to better protect these values. We argue not that food sovereignty should be prioritized over trade policy, but that it should be integrated into future trade agreements.

Trade Policy without Food Sovereignty: Mexico under NAFTA

The consequences of negotiating trade agreements that do not respect the notion of food sovereignty are apparent throughout Latin America, perhaps most clearly in Mexico. Following the passage of NAFTA in 1994, corn imports from the U.S. increased dramatically with the phasing out of Mexican import quotas. Due to U.S. farm subsidies that artificially depress the cost of production, this corn arrived at very low prices and promptly began to undersell Mexican corn in local markets.

According to classic theories of competitive advantage, Mexican farmers were expected to switch to other crops they could grow more efficiently – particularly non-staple crops like fruits and vegetables that could be exported to the north. However, this argument ignored the subsidies doled out to American farmers, which render this market far from "free." It blithely assumed that farmers were able to convert to other types of production – even though their lands are often unsuited for conversion, and their access to credit, inputs, and extension services has shriveled in the past decade due to budget cuts by the Mexican government.

Finally, it failed to consider the multiple significances attached to corn in Mexico. Corn cannot be simply substituted for with alternate sources of income and food; it is central to daily nutrition, rural life, and national identity. As Laura Carlsen has written, "Small-scale corn production is the millennia-old safety net for all of Mesoamerica" (2003). This explains why corn production has actually remained steady in Mexico since NAFTA (Henriques and Patel 2004). With neither the capacity nor the desire to shift to other crops, farmers continue to grow corn even while receiving less and less money for it.

Undercutting the ability of Mexican farmers to supply local markets has led to a catastrophic series of cascading effects, including greater rural poverty and a wave of emigration to already overcrowded cities and to the United States. More than 15 million peasants had already left rural areas by 2002 (Cevallos 2002). Such massive displacement from the land has severe ecological consequences, including soil erosion, deforestation, and the loss of biodiversity – for, as John Tuxill, Ivette Perfecto, and Robin Sears noted at the workshop, small farmers across the Americas play a key role in protecting healthy ecosystem function.

In January 2003, tens of thousands demonstrated in Mexico City, decrying the government's refusal to provide meaningful support for campesinos battered by NAFTA. The protests were organized by UNORCA, a national union of peasants' organizations led by Alberto Gómez Flores, a participant in this workshop. UNORCA works with Vía Campesina and other international allies to promote a broad conception of food sovereignty, and argues that Mexico needs to renegotiate NAFTA to address serious flaws in its agricultural provisions.

The Current Trade Scenario

Despite its dismal track record with regard to small farmers and rural livelihoods, NAFTA's agricultural provisions remain the prevailing model for trade agreements between the U.S. and Latin American countries, like the recently negotiated CAFTA and the current draft text for the FTAA. Negotiations for a regional pact between the U.S., Ecuador, and Colombia, which began in May 2004, envision a similarly liberalized agricultural sector.

Yet small farmers in the Andes are already struggling from a combination of natural disasters (like droughts) and political-economic obstacles. In Ecuador, like Mexico, the government has slashed rural credit and agricultural extension programs to comply with structural adjustment policies required by the International Monetary Fund. Small farmers are concerned about an impending flood of cheap agricultural products that will arrive in their markets in the wake of a future trade agreement with the U.S. – particularly since this deal could precede any meaningful reform of U.S. agricultural subsidies and supports through the still-ongoing Doha Round of World Trade Organization (WTO) negotiations.

There are some encouraging recent developments with regard to agriculture and trade in the Americas. Developing nations and social movements succeeded in shifting the agenda at the 2003 WTO ministerial meetings in Cancún. The major controversy there related to agriculture – specifically, the refusal of the U.S., Europe, and Japan to reduce their production and export subsidies, which are hurting small farmers in the global South and restricting the export opportunities that should accrue to developing countries. These subsidies have encouraged Northern producers to dump surplus production abroad, reducing the opportunities for Southern farmers to sell to their own local markets.

The stalemate at Cancún created an embarrassing situation for Northern countries, which were widely portrayed as hypocritically advocating protectionism at home and free trade abroad.[10] The FTAA negotiations reached a similar stalemate at the Miami summit in November 2003. Consequently, the U.S. and European Union

10 For example, see the New York Times series of articles and editorials entitled "Harvesting Poverty," which appeared in 2003, particularly "The Unkept Promise" (December 30).

began talking for the first time about issues, like export subsidies, that were previously off-limits.

Yet the prevailing model embodied in trade policy remains destructive for small farmers. Advocates of food sovereignty are skeptical that new negotiating positions in the WTO, FTAA, CAFTA, and other negotiations are not just old wine in new bottles. They argue that the Northern countries still pursue new market opportunities abroad, while showing little willingness to truly remove harmful distortions in their agricultural policies. They also point out that, even without subsidies, large countries like the U.S. and Canada would retain a competitive advantage in land-intensive crops like corn and wheat. Without special protection for crops important for rural culture, the environment, and daily sustenance such as corn, Latin American farmers will be swamped by a future wave of imports and lose control over their livelihoods.

Food Sovereignty-based Solutions

Non-government Solutions

Throughout the workshop, farmers and their advocates demonstrated that innovative agricultural technology, agroecological principles, and the creation of new markets can balance subsistence agriculture, market agriculture, and biodiversity conservation. As described in this publication, colonist farmers in the RECA project in Brazil's state of Acre established a product-to-market network entirely through farmer knowledge and innovation. Using local trees and crops and agroforestry techniques, farmers who once suffered from poor soil fertility and a lack of market access now cultivate, process, package, and market local Amazonian produce such as fruit juices, hearts-of-palm, and nuts. Workshop participants described similar ingenuity in Guatemala and Mexico in the face of hostile market forces and an absence of government assistance. Their agricultural techniques combine traditional knowledge and new advancements, and they use permaculture and reforestation practices that replenish local environments and bolster economic self-sufficiency.

Despite these accomplishments, most participants were quick to point out that a lack of market access remains a significant barrier to expanding agricultural opportunities beyond subsistence. Some programs do exist. Sustainable-agriculture certification initiatives such as the Fair Trade label and the Eco-Ok label connect small farmers in Central and South America to consumers in North America, guaranteeing product price and direct profit return and side-stepping market middlemen. Executed thoughtfully, these new market arrangements are positive steps toward respecting local agency and innovation. They also demonstrate that there are potential market opportunities for small-scale farmers outside of government mechanisms. Such arrangements could be designed to allow small farmers to continue their agricultural traditions and participate in selected markets

without waiting for governments to support them. But such systems are quite new. Their impacts are only recently felt, and have yet to be analyzed in detail.

While some small-farm advocates are looking beyond government for solutions, others would like to see government controls implemented. George Naylor, a U.S. soy and corn farmer who is president of the National Family Farmer Coalition, explained at the workshop that declining government price support has led U.S. farmers to abandon farming in large numbers since the 1950s. Naylor recommends that U.S. agricultural subsidies be replaced with government support for minimum crop prices, adjusted for inflation, that buyers (including agribusiness giants like Cargill) must pay. He advises price floors not only for farmers in the U.S., but across the Americas – asserting that such a policy would signal that farmers' products truly have societal value.

Grouping together Central, South, and North American food producers recognizes that they are all constrained by the same forces of trade liberalization and agribusiness consolidation. "It is proven that the beneficiaries of this so-called free trade agenda are the trading companies, the giant transnational corporations who benefit from the low raw material prices paid to farmers all over the world," argued Kristin Dawkins of IATP. By generating profitable, reliable markets for cash crops, non-governmental instruments like Fair Trade could provide some farming communities with an additional means of support. However, food sovereignty and farmer survival ultimately rests on innovative government-market-farmer arrangements that place food equal to and outside the terms of supplier and buyer profits.

Government Solutions: A Case Study from Brazil

The current Brazilian government is leading the way in developing policies that prioritize food sovereignty, poverty alleviation, and the social mobilization of family farmers on a national level. The election of President Luiz Inácio Lula da Silva (Lula) in 2003 saw the inauguration of a program, "Fome Zero," that aims to avert and resolve hunger, social exclusion of the poor, and the structural causes of food insecurity in Brazil.[11] Fome Zero commits to providing funding for family agriculture[12], a food card program, intensified agricultural reforms, food security and quality, community kitchens and food banks, resources to fight infant and maternal malnutrition, and employment and revenue generation for the poorest Brazilians. The program calls for each municipality to support family agriculture, production for local consumption, and urban agriculture, as well as to supply modern farm equipment to family farmers.

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7 Brazil Government Fome Zero Program (2004), "Republica Federal: Programa de Fome Zero". http://www.fomezero.gov.br/

8 Family agriculture refers to smallholder agriculture that relies on mostly subsistence farming with some level of commercial agriculture.

Fome Zero represents a great victory for Brazil's poor and marginalized people. In particular, the Landless Peoples' Movement (MST), arguably the largest social movement in Latin America, gained legitimacy under Lula's programs. MST organizes invasions on private land not in production and demands that the government transfer land title to the squatters. Their efforts not only bring attention to inequitable land distribution, but also relate food security to agricultural production models (e.g., large-scale versus small-scale production), the empowerment of the poor (e.g., literacy and education), and access to resources like health care (Wright and Wolford 2003). Lula's own links to social mobilization and the implementation of Fome Zero bring MST's ideas on food security, landlessness, and social marginalization to the forefront of government politics.[13]

The program links the elimination of poverty and hunger with national development objectives. The federal government argues that Fome Zero is an investment in future jobs, food productivity (specifically from small family farms), and national income via tax revenue. As a result, Fome Zero stands in stark contrast to the export-oriented agricultural model advocated by classic trade liberalization schemes. It firmly asserts that food self-sufficiency and the political and social mobilization of the poor are at the root of national economic growth and improved local standard of living.

Some Recommendations

The growing plight of small farmers throughout the Americas demonstrates the need to rethink the role of agriculture in international trade agreements. Trade negotiators must begin from a fundamental premise of food sovereignty, which safeguards the right of farmers, communities, and individual nations to determine their own food production policies.[14] Agricultural exports – when produced through sustainable methods and at fair wages – can be an important source of income and a valuable livelihood strategy for Southern farmers, but not as a replacement for opportunities to produce for subsistence and for traditional markets. Staple crops like corn, wheat, and rice are central to local livelihoods and should not be subjected to the caprice of global markets, especially when those markets remain fundamentally distorted.

As Kristin Dawkins pointed out, agricultural subsidies are not inherently bad, particularly when they are targeted domestically to promote social and environmental welfare. However, export-linked production subsidies – by encouraging the overseas dumping of agricultural goods below the cost of production – are devastating the lives of small farmers throughout the Americas. They are a

13 Lula is a former factory worker, union organizer, and political prisoner. More recently, he has used Fome Zero as the platform for proposing a renewed international commitment to end hunger, organizing a major meeting of heads of state at the United Nations in August 2004.

14 See the current debate in the Doha Round of WTO negotiations over special safeguard mechanisms and other protective language for developing countries that have sensitive agricultural and rural sectors.

Charles de Souza tends an urban garden in Favela Vila Brandão, a 25 year-old unplanned community clinging to steep slopes below posh suburbs in Salvador, Brazil. An estimated 30% of the population of Brazil lives in shanty towns known as favelas, often on land owned by large landholders. While the Brazilian constitution allows for appropriation of unused land to satisfy social aims such as food sovereignty, the land tenure of favela-dwellers is far from secure. In Vila Brandão, residents must fend off the neighboring Salvador Yacht Club, which has razed houses and routinely destroys gardens to assert control over the land. In the photo at right, banana trees planted by de Souza and recently cut down by yacht club workers are in the foreground, with the yacht club's boat yard and the Bahia de Todos Santos in the background.

Photographer: Avery Cohn.

major obstacle to building more equitable systems of international trade and sustainable agriculture.

International trade agreements and domestic economic policies can respect food self-sufficiency, cultural traditions, and biodiversity conservation. However, they require the same ingenuity and attention to social and ecological considerations that farmers' organizations across the Americas have employed in their absence. Specifically, we recommend that international and national policymakers:

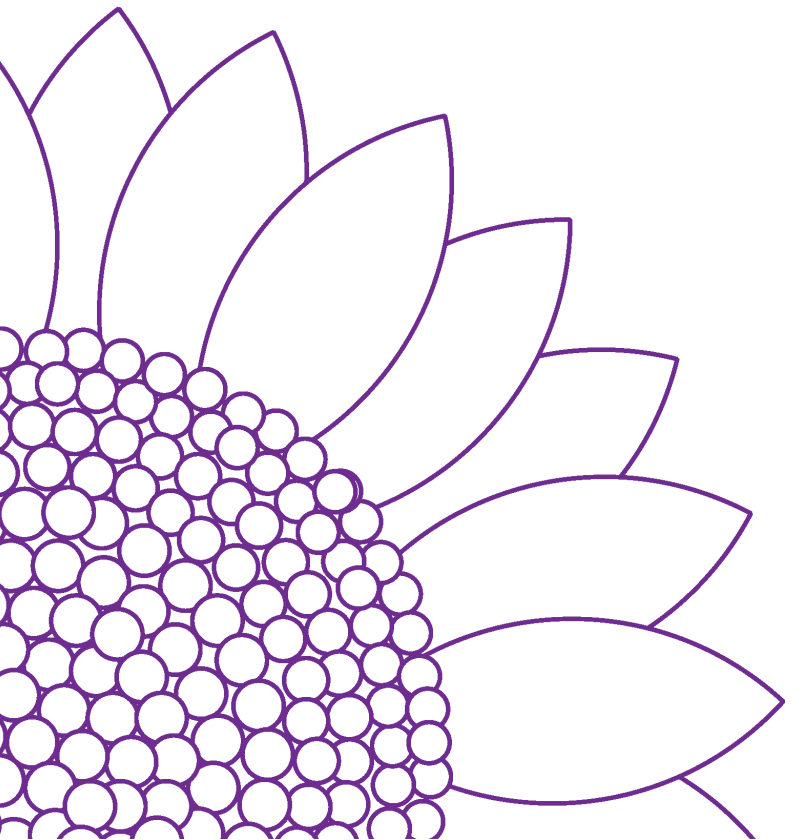
- Support the basic principle of food sovereignty, and the right of individual nations and communities to maintain control over their food supply;
- Agree that protecting small farmers is critical to sustainable economic growth, a healthy local standard of living, and effective biodiversity conservation;
- Rethink the discredited notion that trade liberalization is the only way to reduce poverty, promote rural development, and enhance local agency[15];
- Encourage trade and domestic policies that support family farmers, small-scale farming, agroecological methods, and farmer knowledge and innovation;
- Guarantee prices through government-market-farmer arrangements like Fome Zero;
- Revive agricultural extension programs to provide small farmers with adequate and appropriate land, credit, seeds, inputs, and training in sustainable agriculture methods;
- Look to farmer organizations like Vía Campesina and smaller networks like RECA for input in developing, targeting and implementing agricultural policy, management, and practice;
- Develop policies that complement and support existing non-governmental schemes.

To ensure that policymakers understand the importance of these recommendations, farmers' organizations must continue their efforts at social mobilization and agricultural innovation. We believe networks like Vía Campesina and individual farm communities can enhance this process through relationships with academia and civil society.

15 See UN Conference on Trade and Development (UNCTAD) (2004). Least Developed Countries Report.

An Expanding Interface with Agriculture Will Change Global Conservation

Karl S. Zimmerer



The growth and evolution of conservation is resulting in a much-expanded interface with agriculture and other forms of resource use (livestock-raising, forest extraction, fishing, hunting). The widespread commitment to protected-area conservation is argued to offer a number of similarities and some key differences with respect to other main dimensions of environmental globalization (see Mol 2001; Speth 2001).

Rapid growth of the interface[16] of conservation with agriculture and resource use is driven by both the profusion of designated protected areas and the management characteristics of enlarged conservation efforts. The worldwide coverage of designated protected areas has expanded more than ten times in area during the past few decades (Zimmerer et al. 2004). Measuring less than 1 million km^2 in 1970, and estimated at 5.2 million km^2 in 1985, the area of publicly designated protected areas grew to more than 12.2 million km^2 in 1997 and has been estimated to cover 14.2 million km^2 by 2003.

Incorporation of agriculture and resource use into conservation programs is an important characteristic of the expansion of global conservation and protected areas (Zimmerer 2005). By 1997, nearly 60 percent of protected areas were classified as zones of agricultural or resource use (Zimmerer et al. 2004). Equally or more persuasive than this quantitative measure, since it sums up the often inaccurate estimates of the global conservation databases, is the rhetorical purpose that is served by presenting and publicizing these numbers. Certain influential segments of the global conservation movement badly want to incorporate resource and land uses, such as agriculture, into the main agenda (McNeely and Scherr 2003).

The increased interface of conservation areas with agriculture and resource use is an integral part of a sustainability emphasis in conservation that gained prominence in the late 1980s and early 1990s. The term "sustainability," which refers to the expanded attention to land use that is environmentally sound and adequately remunerative from an economic viewpoint, has become one of the defining goals of much conservation worldwide. The goal of sustainability has been granted a level of priority similar to strict preservation in certain conservation circles.

This incorporation of agriculture and resource use – in the name of sustainability – is particularly evident in so-called developing countries; a general estimate is that an area more than twice the size of Mexico is designated for agricultural and resource use in the conservation and protected areas of these countries. The interface of conservation areas with people involved in agriculture and resource use is also disproportionately significant in developing countries due to sizeable rural populations whose livelihoods depend on farming, livestock-raising, and other forms of resource extraction (Solbrig 2001). Many of these rural people are economically

16 The term "interface" highlights the fact that the interaction of the large expansion of designated conservation areas may present any one of several relations to agriculture that range from conflict to incorporation.

Above left: The work of CECOCAFEN, a non-governmental agricultural extension agency based in Oaxaca, Mexico of which conference participant Jesus Leon Santos is head, compellingly demonstrates how agriculture can ideed provided environmental services. Here Jesus stands next to one of a series of erosion control canals he and his fellow farmers have constructed and maintained. These canals have contributed meaningfully to soil conservation. Without their efforts the environmental quality of the region would be worse. Photographer: Phil Dahl-Bredine.

Above right: An agrobiodiverse landscape in the Brazilian Amazon. Photographer: Robin Sears.

poor (e.g., agricultural smallholders, peasant farmers, and livestock herders) and socially disadvantaged (e.g., ethnic minorities, indigenous peoples). Counter-intuitively, there is evidence that these groups may wield a significant amount of power in shaping protected areas of the future.

Conservation corridors are one of the most well-known and increasingly popular designs for incorporating sustainability initiatives. Yet the experience of conservation corridors thus far has demonstrated some of the overly simplistic initial plans for combining strict preservation and land use sustainability. Conservation corridors are premised on the joining of existing protected areas, proposed new protected areas, and new and existing corridors that connect these areas. Numerous conservation corridor projects currently underway are traceable to proposals launched in the 1980s and owed their designs to the ecological principle that biodiversity will be conserved best by biological corridors. Nevertheless, even with their roots in 1980s preservation-oriented conservation biology, conservation corridors are heavily supported and funded by today's sustainability-oriented sector of environmental organizations and agencies. As a result, the experience of conservation corridors offers a useful example of the general challenges and tensions between the sustainability agenda and strict preservation goals.

The Mesoamerican Biological Corridor (MBC) is currently one of the most advanced of several major international conservation corridor projects that are in the implementation and planning stages. The MBC is designed to connect the protected areas of eight countries from southern Mexico to southern Panama. Its origins and

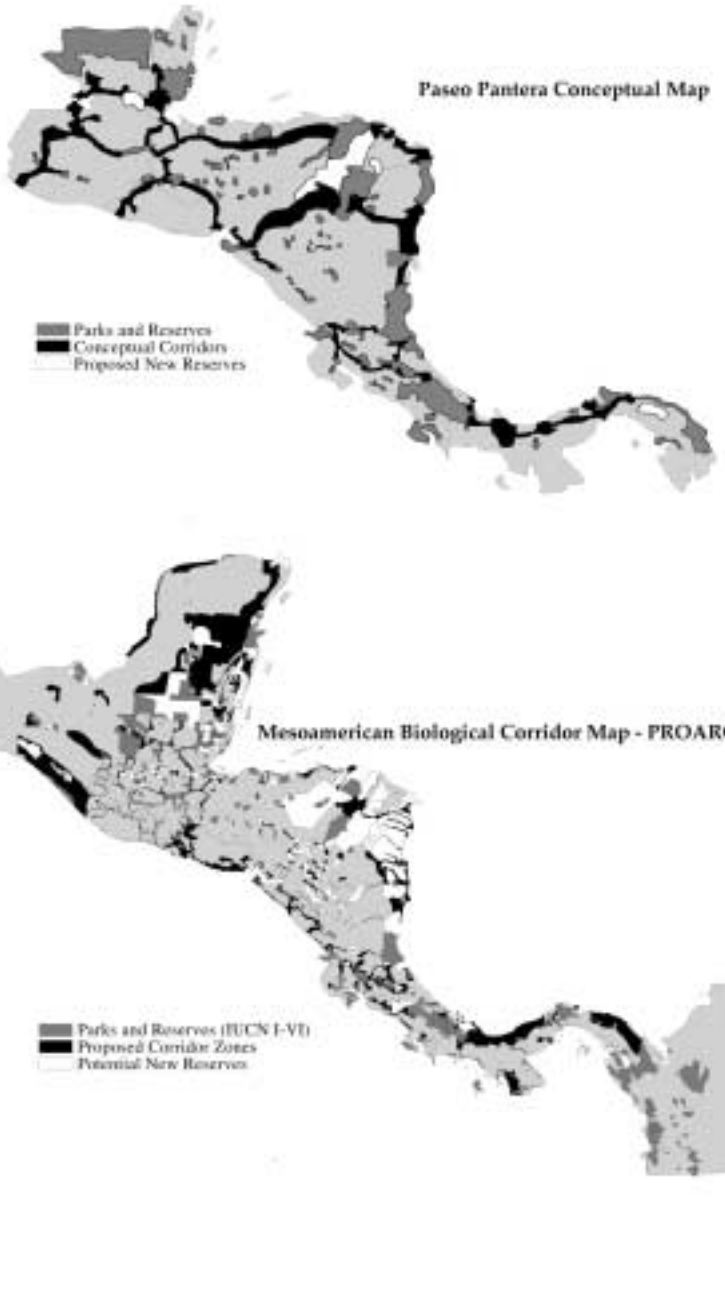


Figure 1: Maps of the Mesoamerican Biological Corridor (MBC) (Maps produced by Margaret V. Buck)

the current support demonstrate that both land use and strict preservation are central goals of the MBC. This corridor project evolved through an early planning stage at the start of the 1990s propelled largely by conservation biologists who recognized the importance of connecting the fragmented protected areas of Central America and southern Mexico. A report of the 1992 IVth World Congress on National Parks and Protected Areas ("The Caracas Congress") had summed up this priority: "One of the region's characteristics is that 68% of its protected areas are small (under 10,000 ha) and, taken together, scarcely cover 350,144 has of the total land user protection . . . just five large areas cover a total of 2.7 million hectares, or 50% of the regional system" (Barzetti 1993: 102). Global funding agencies and initiative partners that are central to the MBC are stalwarts of sustainability-based conservation: the World Bank, the United Nations, the Global Environmental Facility (GEF), The Nature Conservancy (TNC), World Resources Institute (WRI), Wildlife Conservation Society (WCS), and Conservation International (CI).

Analysis of the MBC data and maps demonstrates that substantial overall areas, a total of 344,553 km^2 in the eight countries, are planned for incorporation into the corridor-style complex of protected areas (Zimmerer et al. 2004). Also substantial is the overall scope of the new conservation corridors within the MBC. Estimated areal coverage of the proposed corridor areas (118,584 km^2) accounts for nearly one-third of the combined territory of parks and reserves that are in existence (155, 857 km^2) and those that are planned (70,112 km^2). The design of these corridor areas is planned as a mix of more strictly protected cores with extensive areas of agriculture and resource use.

A preliminary observation is contained in the comparison of the 1993 and 1996 maps that illustrate the complex nature of the changes of the MBC over time (Figure 1). First, the 1996 map is more detailed and designed for more accurate representation than is the 1993 map. As a result, the evolution of the MBC is illustrated in the side-by-side comparison of these maps. Notably, both the 1993 and 1996 maps show a similar balance of corridor areas (approximately one third) relative to the park and reserve areas. Clearly these corridor areas, with the planned mix of conservation and sustainable agriculture and resource use, are key to the design of the MBC and its successful appeal to donors and the support of several main global, international, and national organizations.

Increased emphasis on sustainable utilization is evident in the evolution of the MBC. In particular, elements of agriculture and resource use exert a growing influence from 1993 to 1996. While growth of the area for agriculture and land use in the MBC should have tended toward increased cohesion of protected areas, corridor areas, and infrastructure corridors, in fact the opposite tendency has held. Though the plan for contiguous spatial integration reflected the corridor principles of conservation biology and ecological science, as well as the spatial cohesiveness that is often

generated via globalization efforts, this planning scenario has been trumped by certain other factors.

Unexpected in MBC plans and predictions was that the most noticeable change thus far has occurred in the overall configuration of the areas contained within the MBC. By 1996 the corridor had evolved to resemble a "braided network" (Archie Carr III in Kaiser 2001). The evolution of the corridor components at the core of the MBC, illustrated in the pair of maps, offers the signs of a noticeable shift from a spatially cohesive design at the proposal stage to the current "hardening" into a more varied constellation of areas influenced by the effects of agriculture and resource use during implementation. This spatial evolution has taken place through the practical necessities of multi-level planning, and it might, at first glance, be viewed as mere fine-tuning.

In reality, the forming of the braided network reflects a more profound set of processes and activities in conservation and sustainability planning, namely the shifting and multiple loci of power in MBC implementation. Establishment of the separate braided segments is explained in part by decision-making associated with national and local interests for agriculture and resource use in the countries of the MBC. Since the coordination of the MBC involves the national governments of each country, as well as Central American Commission for Environment and Development, the evolution of the MBC project has been strongly shaped by the needs of national governments and, to a degree, the within-country constituencies such as rural social movements and agricultural and resource use groups (Kaiser 2001).

While global conservation organizations have continued to predicate the MBC project on the successful participation of local groups and government backing (Miller et al. 2001), there is definite disagreement among indigenous and human rights activists and the global networks that support them. These groups have expressed concern and alarm that the agenda of the MBC is a "captive of the Plan Puebla Panamá," a World Bank plan launched in 2001 that calls for economic integration through the growth of markets, including the presumed expansion of resource markets, in the countries from southern Mexico through Panama (Martinez 2001, World Rainforest Movement 2001). Thus the adjustments in the MBC are propelled, in part, by socially broad-based sectors of land users and civil-society groups and by governments of the region. Such adjustments have become fundamental to the conservation corridor, rather than mere fine-tuning.

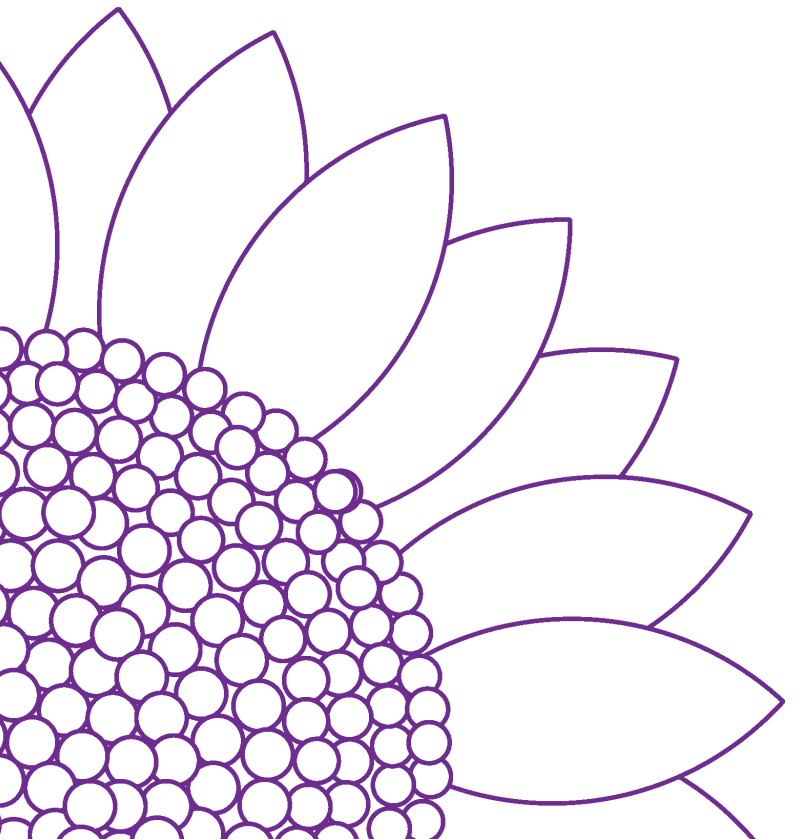
Evolution of the MBC is most likely a foreshadowing of one of the major future directions of environmental globalization. The expanding design and implementation of corridors for nature protection in areas of developing countries seem destined to bring conservation–including a component that is conspicuously international and global in scope–into ever-closer contact with agriculture and resource use, and thus to multiply the management issues and areal coverage of this expanding interface.

If the MBC is any indication, this increased contact seems to give rise to the implementation of protected areas influenced as much by robust and nuanced local priorities as by theoretically vague strict preservation or sustainable development directives.[17]

17 Another sort of dual purpose is also evident in maps of conservation corridor projects such as shown here (Figure 1). Many such maps are intended both to show reality and to shape reality, which may verge on contradictory goals. While both maps in our example were designed to represent the reality of MBC as accurately as possible at the time, these maps were also prepared as part of funding proposals. The importance of these maps as attempts to shape future reality needs to be seen as part of the general financial appeal of such corridor projects as MBC (Kaiser 2001: 2197).

A Whole-System View of Agriculture, People, and the Rest of Nature

Richard Levins



My comments are influenced by three sets of experiences. First, as an ecologist working in public health and agricultural science, I am struck by the similarities between them. Agriculture is like medicine: both depend on natural and social phenomena, both have vital roles in promoting human welfare, and both receive generous public support. Their underpinnings combine traditional and modern scientific knowledge. Both are increasingly commodified, turned into objects for buying and selling for profit in our economy. Both show a pattern of successes and failures that is not dictated by nature but by the way knowledge is created.

Secondly, I have had the privilege of being a participant/observer in three different kinds of society: as a scientist in the most modern United States capitalism; as a farmer, organizer, and biologist in the colonial capitalism of Puerto Rico; and as a scientific advisor in socialist Cuba. When we compare conditions in different places, there are advantages and disadvantages to comparing places that are very similar or places that are very different. When I compare Massachusetts with Rhode Island, or the U.S. and Canada, they are similar insofar that it is relatively easy to pick out the causes for their different health conditions. When we compare very different places, it is harder to separate individual factors because they differ in so many ways, but the comparisons challenge our assumptions as to what is a constant, and it unveils alternatives. Cuba is especially interesting because it is a poor country and yet its health status matches that of Sweden, and it has adopted an ecological pathway of development based on equity and education. It is not even that the Cubans have made better decisions about health and the environment, but that they have social arrangements that favor using quite different rules for decision-making and different criteria for effectiveness.

Finally, I will draw on the exciting presentations and discussions of this international workshop, with its wide geographic representation and combination of academic and community-based knowledge.

I will attempt to apply these sources of ideas to several issues.

The Eco-Social Distress Syndrome

If we step back from the details of all the crises that seem to be converging on us, we can see a pattern. The eco-social distress syndrome (EDS) is a pervasive and intensifying dysfunctional relationship between our species and the rest of nature, expressed in increasing demand on depleting resources, pollution, new and resurgent diseases, climate change, growing inequality, increased vulnerability to disasters of all kinds, loss of biodiversity, the erosion of our productive systems, and recurrent conflict within our species. And since our world has been dominated

by capitalism for the last 500 years, today's crisis is both a generic crisis of our species and a crisis of world capitalism.

This is not the first crisis our species has faced in the last 50,000 years. But it is more widespread geographically, penetrates deeper into the earth and higher into the atmosphere, has more irreversible impacts, and impinges on more aspects of our lives. When peoples of the past faced crises in their relations with their environments and with each other, there were three outcomes. They could move to somewhere else and continue more or less in their old way of life; they could change their way of life and deal with nature in a new way; or they could fail and disappear, leaving us some broken pots, arrowheads, and gravesites. But we have no place to go, and there may be no one who will come to excavate our abandoned cities.

Knowledge is Not Enough

For more than 2,500 years, observers have warned of the environmental destruction. In ancient China, Meng Tzu (Mencius) warned of the deforestation of Ox Mountain and called for conservationist forestry practices. In the Greece of the 5th century BCE, Plato lamented the deforestation of Athens to build the navy. Today, scientists have described the enormous impacts of our activities, but the international treaties at their best have been feeble compared to the scale of the problems. We have to conclude that knowledge is not enough, and ask "Why not?"

Equity Versus Sustainability?

All peoples and many governments aspire to a rising standard of living. But if that standard of living takes the form of the Euro-North American way of increasing consumption of energy and materials, it is clearly unsustainable. There is an apparent contradiction between justice and ecology. But I have found that it is a good working hypothesis that when two humane, just, necessary objectives seem to be incompatible, we are asking for too little. The two goals become not only compatible, but much more mutually supportive, if we interpret a rising standard of living to mean mostly an improving quality of life.

We have to be careful here not to fall into the trap of romantic asceticism, the disdain of the comfortable for their "mere material possessions." However, we can distinguish among three main categories of material goods. First, there are the real necessities of life, including the means for improving the quality of life. My rough guess is that this requires a national income equivalent to $5,000 to $10,000 per capita. Second, there are the created necessities such as the private car to get to work because of existing settlement patterns of residence and workplaces, or the real need for airplane travel for "business" in a competitive marketplace.

Left: The Brazilian government made an important statmement by prohibiting logging of cachoeiras, the trees that bear Brazil Nuts. In much of Northern Brazil, these trees are of tremendous economic importance. But as Levins emphasizes, knowledge of the importance of these trees is not enough without a meaningful change in practices of consumption. Exponentially rising meat consumption around the globe has initiated massive land clearing in the Brazilian Amazon in order to grow soy beans for animal feed. Here a newly cleared soyfield surrounds a stand of cachoeiras. These trees are unlikely to survive the vast changes to their ecosystem. Photographer: David McGrath.

Below left: Intensive, sustainable, organic agricultural production abound in Havana. Here a neighbor works at a community garden in Miramar, Havana, Cuba. Photographer: Jacob Silber.

Below: Richard Levins. Photographer: Steve Taylor.

Finally, we have the symbolic patterns of consumption when there are hierarchies of prestige attached to goods and services. It seems to be the case that a dominant world power endows its own way of life with a special prestige. After the fall of ancient Israel, the deported Israelites were boggled by the splendors of Babylon, and by the time Cyrus the Great allowed them to return home, most of them did not. In Roman times, Herod hung out in Rome, networking, partying, and aping Roman styles. Colonial and semi-colonial peoples all have terms such as "imitation foreigner" or "pitiyanqui" to denote those who seek prestige by copying the rulers. Today, Coca-Cola and McDonald's have a worldwide acceptance far beyond any intrinsic taste or health merits of these products. This kind of consumption is reinforced by the trillion-dollar advertising industry to convince people that particular goods will bring fulfillment. Here is where changing values in a non-hierarchical society is an ecological necessity.

The possibility of a rising standard of living based on quality of life is the Cuban strategy. The rate of economic growth is slower than it could be (although ahead of the average for Latin America) because so much is invested in health, education, culture, sports, and recreation while progressively eliminating inequalities in their society, broadening participation in public life, and embedding it all in a sustainable and satisfying habitat. Perhaps this adoption of an ecologically and humanly rational pathway of development has been greatest innovation of the Cuban revolution to date. Now let us focus more specifically on agriculture.

Agriculture

When we look at agriculture, we see first of all that it is a greater problem than food production, although obviously food production is an essential consideration. Agriculture is relevant in more ways:

- Diet, nutritional quality, and the cycling of trace elements;
- Protection of the health of farm workers and consumers;
- Preservation of biodiversity in support of national parks and forests;
- Protection of wildlife;
- Preservation of our productive capacity against erosion, salinization, acidification, compaction;
- Maintenance of an ecological community of natural enemies of pests and diseases of crops;
- Suppression of vectors of human disease – e.g. mosquitoes, snails, ticks, corn pollen;

- Protection of the general environment against runoff, eutrophication, volatization of nitrites, dust in atmosphere;
- Protection of water resources and quality;
- Supporting employment, farm income, and rural life;
- Reduction of vulnerability of populations to epidemics;
- Support for the economic independence of women;
- Contribute to the international balance of payments;
- Defense of national sovereignty against possible dumping or political blackmail backed up by economic blockade.

For more than a century, the dominant thinking about agriculture has been "modernization," the idea that progress occurs along a single pathway from less developed to more developed. Then the task of the less developed is to catch up with the more developed by accelerating along that same pathway. This approach was embodied in the Green Revolution. It promoted a series of transitions from:

- Labor-intensive to capital-intensive;
- Heterogeneous to homogeneous;
- Small-scale to large-scale;
- Subjection to nature to domination of nature;
- Superstition to science;
- Production of food to production of commodities.

In theory, any harm that might be caused along the way can be attributed to the costs of progress, and the problems that arise can be solved by the same means that created them – more investment.

Through the 1970s, there was little public challenge to this model. Separate criticisms began to appear. It was noticed that modern high-tech agriculture:

1. Undermined productive capacity through erosion, compaction, salinization, acidification, and loss of trace elements;
2. Increased vulnerability to pests, diseases, the weather, economic uncertainty, and political disturbance;
3. Reduced biodiversity;
4. Poisoned the workers, the consumers, the atmosphere, and the ecosystem;

5. Reduced the nutritional value and taste of food in favor of quantity of yield, resistance to transportation, and long shelf life;

6. Displaced populations and promoted class differentiation in the countryside, undermining traditional systems of cooperation;[18]

7. Reduced the independence of farmers.[19]

All these technical changes were adopted in the name of efficiency. But profitability is not the same as social or ecological efficiency. Gradually, a criticism of the high-tech pathway emerged from consumer groups, ecologists, rural activists, and organic farmers.

Going beyond the random heterogeneity of peasant land tenure and the homogeneity of agribusiness, we propose the planned heterogeneity of ecological agriculture. Instead of specialized farms, each farm and each region is a mosaic of land uses in which each patch has its own products but also contributes to the productivity of other patches. Forests give lumber, charcoal, fruits, nuts, and honey. They also modulate the flow of water; are refuges for birds, bats, and other natural enemies of pests; and modify the microclimate to a distance of about ten times their height.

Pastures under rotation retard erosion, produce meat and dairy products, provide manure, and have nectar-producing plants that nourish the hymenopterous parasitoids of pests. Corn plants can shade lettuce and divert fruit worms from peppers, and when dry can shelter nests of entomophagous ants. The ponds that hold irrigation water also raise fish, including some that feed on mosquito larvae. Cuba is now in the process of converting about half its sugarcane fields into mixed farms producing fruit, vegetable crops, bananas, soybeans, starchy root crops, and pasture.

Beyond the dichotomy of large economies of scale versus "small is beautiful," we propose a hierarchy of scales that depends on the hydrology and topography of a region, the distances over which pests move during one season, and the economic needs of a region. The unit of production is not the same as the unit of planning, so that the mosaic can be a mosaic of mosaics of different uses. For instance, diversity in a region can provide more or less uniform employment throughout the year, provide for a diverse food base in the face of pest and weather disasters, and combine high-value and low-value crops to maintain both nutrition and income. In

18 In the U.S., the number of farms fell from 6.7 million in 1930 to 1.9 million today, with only some 100,000 accounting for 60 percent of the production.

19 Only 10 percent of the value of our food is produced on the farm, 25 percent is in the inputs, and 65 percent in post-harvest storage, transport, packaging, and sale. Both the input and marketing industries are dominated by a handful of giant corporations that can dictate to the farmers what they grow and how they grow it. Thus, when we say that 1 American farmer feeds 40 people, it is 1 farmer plus 2.5 industrial workers plus 6.5 post-harvest employees, so that it averages out to about 1 person's labor to support 4

the urban environment, farming provides fresh food and supplementary income, reduces urban density, increases green areas, and provides foci of social interaction. Cuba now produces some 3 million tons of vegetables a year for 11 million people. Yields are about 25 kg/m2, or 100 T/ha per year, with employment of some 300,000 workers. Most production is organic.

The alternative to both subjection to nature and domination of nature is a mutualistic relation in which we nudge nature as little as possible in order to design almost self-operating agro-ecosystems. This requires a high degree of specific local knowledge and an ecologically savvy labor force.

The dichotomy "superstition versus science" is rejected in favor of an understanding of how knowledge is created. All knowledge comes from experience and reflection on that experience in the light of previous knowledge. All knowledge is colored by the conditions of its production, so that all systems of knowledge have their own patterns of insight and blindness. Once we identify these patterns, professional agricultural scientists can meet with farmers and peasants as equals. Peasants have a detailed, intimate, particular knowledge of their own conditions at the level of objects on the scale of everyday life (plants, bugs, soil) but lack comparative knowledge and knowledge of invisible processes on the molecular scale. Agricultural scientists abstract away the particulars of each place in favor of a more generalized and comparative knowledge that includes more kinds of objects. The combination of both kinds of information gives us the best way of designing and conducting production.

Agricultural production depends on the decisions that the producers make according to several different kinds of decision rules. When production aims at subsistence consumption, there is a preference given to diversity and quality. The amount of land cultivated for a crop depends on the productivity of the land and the available labor. Thus, if abundant rain allows the expectation of higher yield, this will lead to planting a smaller area. The same rule applies to simple commodity production, in which just enough is produced to purchase what is needed. Marx expressed this with the formula C‡M‡C', meaning that commodities are sold for money to buy other commodities. The more favorable the price ratio, the less need be produced. The methods of production are chosen for compatibility with health and social relations.

But with expanded commodity production, Marx's formula becomes M‡C‡M', in which money is invested to produce commodities in order to get more money. This process is insatiable. Now the expectation of favorable yields or prices leads to planting more. Technology is chosen for profitability even if it depends on displacing labor or using toxic technologies.

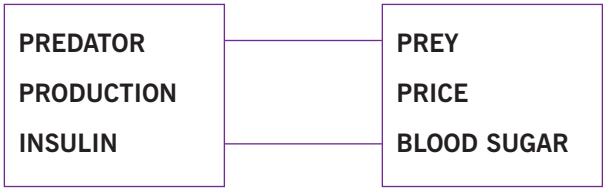


Figure 2: Negative feedback

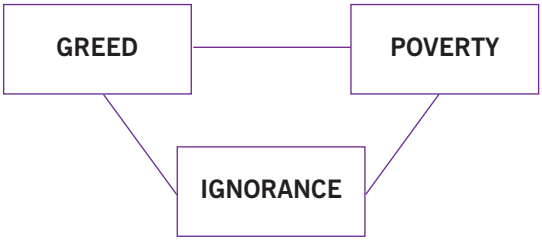


Figure 3: The Toxic Triangle

Both kinds of decisions are rational, but rational under different rules of rationality. Under subsistence or simple commodity production, resources will be preserved when possible for use in the future. But under profit maximization, if the rate of profit is greater than the rate of discount in the economy (roughly, the interest rate) then market rationality calls for using up resources and investing in something else. Socialist rationality is again different. It places the meeting of human needs first, with economic viability acting as a necessary constraint but not the objective.

Commodity production for the market is necessary in order to allow the consumption of a diversity of products and to acquire the income needed for off-farm purchases. But if production is guided only by profitability, there can be a sacrifice of food for flowers, tea, and coffee, the selection of the most profitable crop instead of diverse farming, and a heightened vulnerability to the uncertainties of the economy. Despite the dramatic effects of drought and pest outbreaks, the variation of the world food supply is driven more by prices than by nature.

The following argument shows how it works (Figure 1): Under expanded commodity production, production and prices are related in a negative feedback loop in which production reduces prices and prices increase production. This is dynamically the same as the predator/prey loop or the glucose/insulin loop. If external events impinge on this system from the price or prey or glucose end, a change in the abundance of one produces a change in the same direction in the other along the positive arm of the loop. This generates a positive correlation between them. But if the external impinges from the production, predator, or insulin end, each change gives rise to a change in the opposite direction along the negative arm of the loop. This results in a negative correlation. We found in an examination of production and prices for wheat, rice, maize, and potatoes on the world market that the correlations between yield and price were positive, supporting the conclusion that the system is driven from the price end. We also noted that the variances in agricultural production are only slightly greater than the variances in the production of cement or beer, and that prices vary more than yields despite all the uncertainties of production.

The complexities of making ecologically and humanly rational decisions in agriculture can seem overwhelming, and indeed so many efforts apparently aimed at solving a problem often create worse ones. Pesticides create pests, food aid destroys production and creates famine, antibiotics give us new diseases, irrigation schemes can increase malaria, and hospitals have become foci of infection. I propose that the reason for this lies not in the inherent intellectual or moral limitations of humankind but in the toxic triangle of greed, poverty, and ignorance (Figure 2).

By greed I do not mean the idiosyncratic stinginess of misers who store up gold or want extra servings of ice cream, but the institutionalized greed of corporations whose mandate is to maximize profit and to grow kidneys for sale and wombs for rent, where political office, study, art, sex, knowledge, science, and tranquility are all marketed. And a trillion-dollar industry works night and day to create needs so that the products can be sold.

Poverty undermines sustainability because it shortens the time horizon of understanding and aspiration, forcing people to act in destructive ways in order to survive. By ignorance I mean that pattern of information, misinformation, disinformation, and gaps in our knowledge that is not dictated by nature but by the way knowledge is produced.

Greed subsidizes ignorance and creates poverty. Poverty promotes ignorance and subsidizes greed. Ignorance justifies greed and poverty, creating a pattern of insight and obfuscation in which a growing sophistication in the small scale, at the level of the laboratory, combines with a growing irrationality of the scientific enterprise as a whole. And this is responsible for what appear as simple errors in good programs.

Problems are posed too narrowly, constraints are taken as given that should be treated as potentially variable, and the dichotomies with which we divide the world into biological versus social, physical versus psychological, genetic versus environmental, deterministic versus random, are taken too seriously – whereas the most interesting questions and answers are found not by choosing between them or assigning relative weights by analysis of variance, but by rejecting the dichotomies and focusing on their interpenetration. Several useful guidelines can orient our search toward a more complex, dynamic, dialectical view as developed by Hegel, Marx, and Engels.

We start with Hegel's dictum: the truth is the whole. Of course we cannot really look at the whole. But Hegel's warning has several practical uses. The problem we study is bigger than we imagined, and has to be posed big enough to fit an answer. If we do not encompass a large enough terrain, the important causes of phenomena are all external to the system we study, and all we can do is estimate their magnitude and treat them statistically. But in a larger system we can examine the feedbacks, sinks and sources, mutual determinations. Thus it is useful to brainstorm at the beginning of an investigation and ask for possible connections among phenomena that do not seem to be connected: how might the affinity of wheat genotypes for nitrogen affect the economic independence of women? How might chemical fertilizers reduce soil fertility? Under what conditions should we make sure that pests have a food source all year round? When should we plant crops in regions where the yield is inferior to the best places? After the freewheeling speculations, during which the rule is that any idea is allowed without being ridiculed, we pass to the next stage of evaluating which connections are too far-fetched or weak to be necessary in our research or too lacking in information to be manageable.

Once we have expanded a problem as broadly as we can, we have to remember that there is more out there and that we can be surprised at any moment. This is an argument for a diversity of approaches. While we have to concentrate on the most likely directions, we always have to have a reserve of less popular research and less fashionable scientists, just in case. The history of science teaches us that theories and fashions have half-lives and that today's certainties may become tomorrow's jokes. The present is not unique in having at last arrived. Each of you should be able to at least pose a question such as: under what circumstances might the second law of thermodynamics be overthrown?

The emphasis on the whole also directs our attention to the possibility that a given phenomenon has a completely different significance in a different context. For instance, mutual aid in a farming community is a very common practice. Farmers lend draught animals and tools, exchange seeds and labor and information, and may lend each other money. As long as this is mutual, it is part of the dynamics of cohesion in the community. But if these exchanges become asymmetric, with some

always the lenders and others always the borrowers, we are on the road to class differentiation and the disruption of community coherence. Or a new, "nontraditional" crop may gain high prices for the labor invested, and raise the level of prosperity of a community.

But when everybody gets the idea, and farmers from Vietnam to Guatemala plant coffee for export, prices can fall precipitously and a community can sink into poverty without the buffers they previously had available. Even land redistribution also can have opposite effects to common-sense expectation: if peasants get land from the large landholders and are supported with technical help and credit, this can be a liberating land reform. But if collectively owned village land, as in southern Africa or the ejido in Mexico, is privatized, land distribution is but a step on the way to a land market and concentration of land in the hands of urban elites or foreign corporations.

If we accept the priority of processes over things, and see things as snapshots of processes, we then face two fundamental questions:

- Why are things the way they are instead of a little bit different?
- Why are things the way they are instead of very different?

The first is the question of homeostasis, self-regulation. How is it that although phenomena are continually buffeted by internal and external perturbations, they remain for a while recognizably what they are? We take the perspective of a network of interacting variables. Any impact on this system percolates through the whole network and is damped along some pathways, amplified along others, and possibly even reversed along some – so that the response of the network as a whole is not always what common sense would suggest. The network includes natural variables such as composition of soil or abundance of insects, but also social ones including the availability of labor, the prices of inputs and crops, the political clout of the various actors. The decision rules that farmers use are themselves informed by the long-term parameters. Sometimes the networks have more than one possible equilibrium state, depending on where they start from, so that the same external conditions can give rise to alternative combinations of activity and the response of the crops that Vandermeer labeled "syndromes of production." The feedbacks between production and prices can even give rise to unstable behavior as farmers track the conditions of production that they themselves change. Generally, we do not have precise equations for the relations among these variables, but the knowledge of the direction of direct effects of one on another can give us a lot of understanding of the behavior of the whole.

The second question is that of evolution, development, or history according to the objects of interest. These processes are usually weaker than those of homeostasis but are more directional and therefore in the long run prevail. Furthermore, they alter the homeostatic processes. When indigenous communities are impacted by

capitalist globalization, their homeostatic capacities are undermined so that they can no longer respond to even the familiar perturbations of production, let alone the new ones.

Thus in order to confront the complexity of the ecosocial, we have to prepare ourselves to think more broadly, more dynamically, more dialectically. This can be done, but the economics of research, the institutional separation of subject matter into departments with their own economic urgencies, even the conversion of academia into a business, all act in favor of narrow definitions of problems as defined by the funders and the urgency to publish specialized papers or to finish a degree in a hurry while student debt accumulates – and this discourages the wide-ranging analysis we need. Thus it is necessary to democratize our science, to have one foot outside the university among farmers or peasant movements as a source of knowledge, ideas, and commitment. At least we can prevent the boundaries of our jobs from becoming the boundaries of our minds and our actions.

But this is far from enough. Remember that since at least 500 B.C.E. people have been aware of deforestation. That Plato warned of the deforestation of the hills around Athens to build the navy; in China around the same time, Mencius lamented the loss of forests on Ox Mountain. Knowledge is not enough.

The second major reason why it is difficult to carry out programs of ecological rationality on the land is that it was never really the goal of those who hold power. Or rather, they would like to preserve forests subject to the unstated side condition that the lumber industry and the real estate developers can still maximize their profits. They wouldn't mind our being healthy, subject to the profitability of the insurance business and the pharmaceutical companies. They would like a healthy atmosphere provided it doesn't interfere with the energy companies. Thus in the long run our efforts for an ecologically rational world require not just better arguments but political struggle.

I had the privilege of being a participant/observer in environmental struggles in three societies: U.S. metropolitan capitalism, Puerto Rican colonial capitalism, and Cuban socialism. In all three the struggle is difficult and often frustrating, but there are qualitative differences.

In all three places you can find aggressive ignorance, stubbornness, and stupidity. But in the first two, where technologies are developed and sold in order to make profit, scientific arguments are mobilized to defend narrow economic interests, whereas in Cuba they are merely differences of opinion, so that in the long run we can win the arguments. In the U.S. and Puerto Rico, efficiency is defined at the level of the enterprise so that labor-saving technologies are preferred whenever profitable or when they make it easier to control labor. "Downsizing," that is, firing people, is considered good practice and is generously rewarded. The consequences for people

or the environment are treated where possible as externalities that do not figure in the bottom line.

In Cuba, when a program was initiated to reduce the sugar industry, displaced workers were guaranteed either new jobs at at least the same salary, retraining for other jobs, or continuing education with pay.

In Puerto Rico, the destruction of the environment is mostly a consequence of foreign investors, so that the defense of the environment is also a struggle for national autonomy and therefore has a broader base than in the U.S. Finally, in Cuba there is a broad conceptualization of land use, so that ecological agriculture and the preservation of biodiversity and of fragile habitats are seen as part of a general environmental strategy rather than fragmented among different government agencies. This allows for a coherent scheme of graded land uses, from fully protected natural preserves through areas of restricted use to ecologically managed farmland. In our country, a comprehensive perspective has to be imposed on the rulers from the grassroots, and scientific argument is a weapon in the struggle for ecological rationality and human rights.

The outstanding successes of modern science arose where the problems were conceptually simple even if difficult to actually do, such as the identification of pathogens. The failures arose where the problems were intrinsically complex, spreading over disciplinary boundaries, involving reciprocal feedbacks rather than one-way causation, and requiring a dynamic approach rather than seeing things as fixed and given. These errors of approach arise in part from the long history of reductionism in science, the belief that the smaller the part the more fundamental it is, and that when you have answered the question “What is this made of?” you have also answered the question “What is this?” It is important to note that reductionism as a philosophy is quite different from reduction as a research tactic, the careful examination of subsystems within subsystems within systems, which is a necessary part of investigation.

But these errors are not simply errors of philosophy. They are supported by the present political economy of the knowledge industry that places a premium on those kinds of knowledge that can be sold repeatedly to farmers or patients. A pesticide or drug is far more marketable than the idea that beans protect tomatoes from late blight or that a shorter workday would reduce anxiety, blood pressure, and heart disease. A patentable gene related to cancer is a better commodity than the identification of the polluters who expose us to carcinogens. Therefore we have the growing contradiction between the increasing sophistication of science in describing detail, at the level of the laboratory, and the increasing irrationality of the scientific-technical enterprise as a whole. The internal needs of our science are in increasing conflict with the political/economic organization of the creation of knowledge. This exposes us to a noise explosion more than an information explosion.

Throughout this international workshop, speakers pointed out the harmful role of the kind of development that disrupts ecosystems and human communities. We have seen that rural assistance programs rarely change the pattern of poverty, even if they help some poor individuals escape and leave their communities behind. We have been shown with rich examples that corporate development brings false promises of good jobs. In various ways, participants have raised the demand that people come before profits; that food and drinking water and health care are rights, not privileges; that knowledge is our shared inheritance; and that when they become commodities, the impact on people's lives is a random side effect, the collateral damage of profitable "progress." We have been warned that "free trade" is free for the owners of that trade alone. Struggles for 50 liters a day of free drinking water in South Africa, against privatization of natural resources in Bolivia, for community land rights throughout our America, for food sovereignty against neoliberalism, are all implicitly struggles against our being ruled by the logic of commodities.

Therefore it is necessary to look again at commodities as such, as the dominant relationship under capitalism. A commodity is something or some service produced in order to sell in a market. This has several implications that are so obvious they are usually not stated, but have major importance for the welfare of peoples.

There is no necessary relation between the economic value of a commodity and its usefulness. In a sense, commercial farming does not produce food, but profit. Among alternative investment opportunities, the most profitable ones are produced. These are usually the ones that aim at the consumption of the rich. Usefulness sometimes helps sales, but sales are also assisted by driving out competing commodities, by sales efforts, by exaggerating the benefits of a product and hiding its harm, by promoting social arrangements that make that commodity a necessity, by bribing bureaucrats for contracts. What is produced, where it is produced, how much is produced, are all determined by profitability.

Much ingenuity under capitalism goes into inventing ways of turning all of our needs into commodities. Thus eyes and kidneys are for sale, wombs for rent, emotional support is sold by the hour, artistic creations are described by price, and public office is auctioned off in elections where "information" has become public relations and spin. Knowledge has become a knowledge industry, where the direction of science depends on the owners of science and in academic life "fundability" replaces scientific importance.

All investments are interchangeable. It is a matter of indifference to a company whether it makes shoes or guns or pesticides, or funds research, or rents out cars, or makes movies, or contributes to election campaigns. All are measured on the same scale.

The logic of profit maximization justifies using up a renewable resource completely if the rate of reproduction of the resource is below the discount rate of the economy.

Human labor power is also a commodity, hired or fired according to profitability considerations.

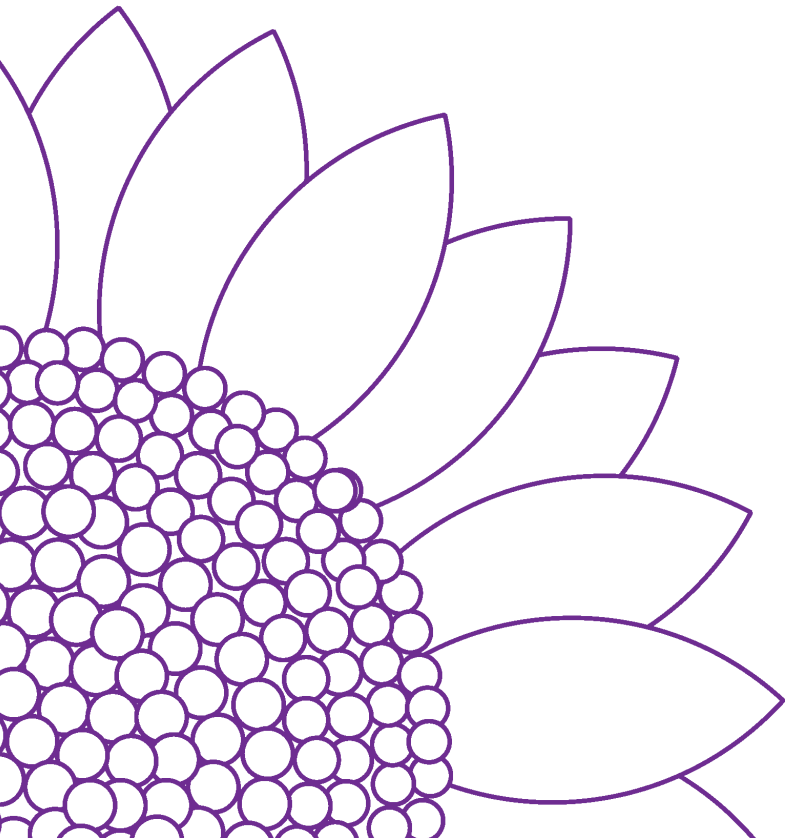
Whereas an ecological rationality looks toward a balance with the rest of nature, capitalist commodity production must always seek to expand, creating new needs, reaching new corners of our lives, and turning new aspects of nature into marketable goods. Whereas ecology seeks to value each aspect of nature, each species, each habitat, as a distinct value, commodity production sees them all as interchangeable on the single scale of profitability. Whereas we look toward an equitable sharing of the opportunities for full creative lives, capitalist relations create and recreate inequality. Whereas considerations of profit discourage tracing the effects of our actions on nature and people, an ecological view would examine the full consequences of what we do. This leads us to a different kind of knowledge that stresses wholeness, connection, and change. It places before us the hypothesis that modern capitalism is incompatible with equity and sustainability.

All of this suggests that we look once again at socialism in the broad sense, a society where production is aimed directly at meeting people's present and future needs, where all contribute and all benefit, and where we invent political forms of participation and representation that mobilize the collective intelligence of the whole people to solve shared problems.

But why raise a label that scares people, doesn't sell well, and is so thoroughly misunderstood? I think that identifying capitalism as the enemy of humanity and proposing an alternative helps clarify thinking on many issues. It underlines the difference between a change of social system and a change of policy within a social system. It protects us from illusions about politicians. Even more important, it protects against illusions about our own institutions. No matter how benevolent their programs, they have been established to preserve and protect rather than transform our way of life. It allows us to ask broader questions about society and about why we know what we know and don't know what we don't know. And it allows us to refuse to let the boundaries of our jobs become the boundaries of our aspirations and actions.

Academia and Social Movements

Avery Cohn



"Food Sovereignty, Conservation, and Social Movements for Sustainable Agriculture in the Americas" – the name of the international workshop at Yale was quite a mouthful. Our title did not solely describe the proceedings; it also provided definition and direction for the participants. Titles might be apt or not apt, helpful or a source of conflict – there is power in a name. The movement for food sovereignty is engaged in some weighty debates, and it is mobilizing to fill pressing needs. Some of its members march on real streets; others labor in real fields. And yet the movement can be profoundly affected by how academics describe it.

Some academics have grown wise to their impacts and wary of their word choices. They feel a stake or a responsibility to the groups that they analyze. They work to ensure that their research benefits these groups. Members of our working group on agroecology are committed to working hard to support disenfranchised, disempowered citizen groups fighting for causes we believe are important.

But how objective can we be if we are committed to working on behalf of social movements? After all, many say – or assume – that academic excellence is based on being objective, that in the Enlightenment tradition, academic research is about seeking the truth, shifting paradigms toward a better understanding of the world (see Kuhn 2000). This notion that academic paradigms progressively spiral toward objective truth or that academic research, observation, or participation can be objective has been convincingly critiqued. Postmodernists have argued that not only do researchers' worldviews shape their findings, but also that the political and economic interests of the organizations affected by the research process can often have an important influence on the outcome of research.

In theory, that sounds like it could be good for farmers. If they can organize and mobilize, they should be able to benefit from agricultural research by influencing the research agenda. The past century of agricultural research has done little to serve farmers' needs, however. As George Naylor, president of the National Family Farm Coalition, says, agricultural research and policymaking gravitate to the needs of the most powerful actor in agriculture: agribusiness.

It's a vicious cycle. Agribusiness amasses power, and impels research. That consolidates the industry's power further, and exploits the labor and lands of farmers along the way. Agribusiness giants get to set the agricultural research agenda because they provide the lion's share of money for agricultural research, and through lobbying exert disproportionate pressure on policymaking that affects public directives for agricultural research (see Hightower 1973). Agribusiness has different priorities for agriculture than small farmers have. Agribusinesses make their money by exploiting the cheap labor of farmers and farm workers, and economically undervalued natural resources. They aim to produce quarterly profits even at the expense of long-term sustainable management of natural resources and vibrant rural communities.

Here, two student researchers from Yale F&ES, Christian Palmer and Christiane Ehringhaus work with members of the Chico Mendes Extractive Reserve to separate beans from their pods. This and other kinds of participant observation helps to broaden researchers' perspectives while giving back materially to communities where they are working. Photographer Christian Palmer.

Farmers' movements have vociferously called for a reformed agricultural research agenda. Vía Campesina, an international coalition of small farmers and peasants' organizations, makes this demand alongside other more specific demands such as land reforms, valuation of environmental services provided by small farms, and reform of subsidy systems to promote regional food crops instead of export cash crops.

As our workshop demonstrated, some of Vía Campesina's demands are already being met. There exists a small but committed group of academics conducting research and analysis sensitive to the demands of Vía Campesina and other farmers' movements. However, our academic participants did not present a typical cross-section of the agricultural research agenda. Furthermore, basic complications exist in maintaining healthy, productive working relationships between academia and social movements of any kind.

One purpose of the workshop was to facilitate discussion among our diverse participants about past gains and further challenges of a farmer-friendly agricultural research agenda. They found that while collaboration may be inherently challenging, there are points of leverage for reform. The following synopses draw on feedback from conference participants to detail how relationships between researchers and social movements can improve.

Research in collaboration with social movements inherently has multiple goals. Research may work to support social movements. But at the same time, this support should not grossly alter their findings. They should respect the opinions and insights of farmers' movements. Local knowledge, rural knowledge, and indigenous knowledge have long been marginalized by formal systems of knowledge production, and this should be remedied.

Respect for the knowledge of farmers should not prevent researchers from generating their own insights. Researchers collaborating with farmers bring their own knowledge to the table. Often, their knowledge is of the systems of governance that influence the agendas of farmers' movements. It is important to communicate with farmers' movements on this subject. One of our participants, Oaxacan peasant union president Jesús León Santos, told the workshop that he now feels reinvigorated to struggle for the self-determination of his community after meeting so many powerful people who seemed to understand his struggle. Our workshop was León's first trip to the United States. While he genuinely appreciated meeting potential collaborators, the workshop may have been better had it introduced to León challenges he will likely face as a small-scale farmer in an age of neoliberalism. León was an integral participant in the learning process during our workshop, but the utility of his visit was

partially unrealized. It might have been useful for him to interact with actors outside our political bubble – interaction that academics can facilitate.

Academic standards and techniques of knowledge production also challenge farmers' movement-agricultural research collaboration. Farmers have a wealth of knowledge. However, it may exist in forms that are difficult for researchers and policymakers to piece together. Separate knowledge systems function as a double-edged sword. On one side, a lack of understanding of farmers' knowledge systems by decision makers increases the possibility of inadvertent, deleterious policymaking. As Jesús León Santos says, "they [may] have different knowledge than others, that's another subject, but it doesn't mean that . . . they are ignorant." On the other hand, if decision makers are resolved to exploit the labor of farmers, less visible systems of farmers' knowledge act as safeguards against corruption in local governance (Carpenter 2001). Sometimes, farmers serve their best interests by making choices that the agents of governance are not aware of, or do not understand the justification for.

In addition, there is the matter of urgency. Applied workers and academics exhibit fundamentally different responses to urgency in a complex system. Academic knowledge production is based on the idea that the environment is complex and can only be understood through careful study. Participating in our workshop spurred Ronaldo Lec, a Guatemalan permaculturalist, to think about how his organization's desire to effect change – even while learning the socio-environmental context – creates tension. In an interview, he told us:

Sometimes we just want to get things done quickly, and when you want to get things done quickly a lot of times you discard people's opinions because not everybody is very fluent or lucid in transmitting their ideas – but you have to really take them into consideration. In Guatemala, for example, if you really want to listen to people, you have to listen to them for a long time in order to get information, the little [bit of] information you want. You can't just ask them and they give you an answer – it's a long process.

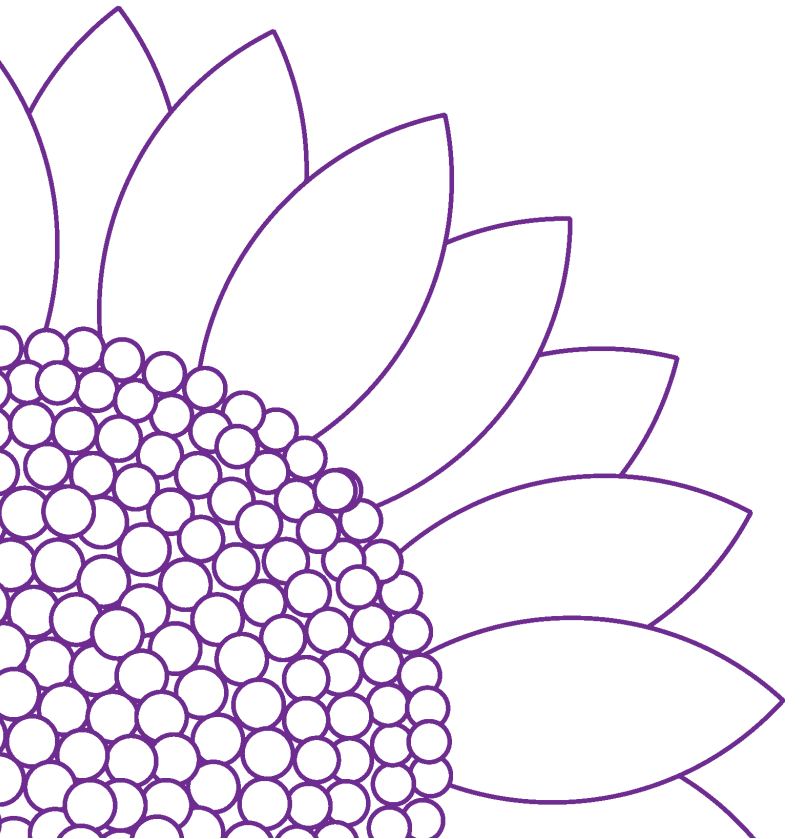
Weighing the tradeoffs, as Lec now does, is an important process.

Our interview with Jesús León Santos highlights some of the basic challenges of collaboration between academics and social movements. While he says that, "we *campesinos*... can't stay isolated," he goes on to describe how inherently out of touch agronomists are as well. Researchers cannot "truly involve [themselves] in the *campesino* process if [they don't] want to act like a *campesino*" by actually working the land, he says. Nevertheless, for León, the perceived benefits of an alliance with academia have so far outweighed the perceived risks.

Risk-taking by social movements reflects the general sense of urgency in the countryside of the Americas so evident in our workshop. Such urgency is not necessarily felt as personally by academics. For academics to effect positive change, they must give heightened sensitivity to the fundamental inequalities inherent in collaboration with small farmers' movements. Efforts should be made to seize on commonalities and points of collaboration.

Voices from the North and South: Finding Common Ground

Summary by Rebecca Reider



Panelists:

Jesús León Santos
Farmer and President, Centro de Desarrollo Integral de la Mixteca (CEDICAM), Oaxaca, Mexico

George Naylor
Farmer and President, National Family Farm Coalition, Iowa, USA

Eric Holt-Giménez
Latin America Program Manager, Bank Information Center, Washington, DC, USA

Moderator:

Jennifer Bair
Sociology and Women's and Gender Studies, Yale University

An indigenous farmer from the heart of historic corn biodiversity in Mexico, a family farmer from the heart of large-scale corn farming in the Midwestern U.S., and a U.S. researcher who works with Central American farmers explained the problems facing the farmers they know–and how farmers are organizing themselves to find solutions. Farmers in the U.S. and Latin America have different histories and cultures. However, the speakers mentioned many shared challenges. Farmers across the Americas have become dependent on inputs from corporations that have sold farmers chemical fertilizers and now push genetically modified seeds, and they face economic hardship and low prices for their crops as a result of national and international policies that favor multinational food processors and exporters at the expense of family farmers.

The panelists described diverse examples of farmers' responses to these problems: farmers organizing themselves to undertake ecological conservation projects in Mexico as a way of promoting community autonomy; farmers sharing knowledge in informal networks throughout Central America; and farmers calling for policy change to support family farms in the United States. All recognized the need for farmers from the North and South to work together to face their common concerns and push for policy change on national and international levels.

The Campesino Experience

Jesús León Santos, president of the Centro de Desarrollo Integral de la Mixteca (CEDICAM) in Mexico, grew up the descendant of indigenous Mixtec farmers in Oaxaca. The Mixtecs are an ancient culture who developed a sustainable corn-based

planting system over the centuries known as la milpa. By sowing a biodiverse assortment of plants together in a single field, farmers helped sustain soil nutrition cycles, with different plants using and fertilizing different parts of the soil. Local crop varieties were adapted to the area's climate and soils, and were resistant to pests. In León's childhood, chemical fertilizers and pesticides were not used in the area. Mixtec farmers still plant many of these criollo (traditional) maize varieties without the need for chemical inputs. León emphasized that campesinos continue to play an important role in conservation in the Mixtec area; they conserve biodiversity by planting a diverse assemblage of crops, and are now engaged in efforts to conserve soil, water, and forests through CEDICAM's initiatives.

"I believe that despite the fact that in some circles it is said that the campesinos are the cause of what is destroying the environment… we believe that we are the guardians of the natural resources and for many years have been cultivating the land.Many of the rural areas still continue conserving the soil, the water, the forests, and all that. In our communal lands are found the greatest diversity of plants – medicinal, edible, and ritual – that are so important for the life of us, the campesinos and the indigenous people."

Jesús León Santos

However, León also described the serious obstacles campesinos now face. Tremendous soil erosion plagues the Mixteca. This problem dates back to the arrival of the Spanish colonizers, who caused massive deforestation and introduced goats and sheep, which remain an important source of local income but devour wild vegetation. When chemical fertilizers arrived in the area in recent decades, campesinos turned to this as a solution, but fertilizers have only made soil degradation problems worse.

Campesinos also face structural economic problems. Prices for agricultural products are extremely low, driving campesinos out of the countryside, so that today, few young campesinos remain, as young people from Mixtec communities migrate north to make their living. The national government offers little assistance; what government extension programs do exist tend to serve larger landholders who have money for technological investments, or educate youth to turn away from the small-farming lifestyle.

In spite of all this, León described how CEDICAM has been building alternative ways to manage the land, promoting ecological restoration and farmer independence from outside resources. CEDICAM has dug dozens of kilometers of contour ditches to retain soil and water, thereby conserving topsoil and recharging aquifers. Covering whole hillsides, these ditches catch 90 percent of the seasonal rains, whereas before, 80 percent of rains would be lost to runoff. CEDICAM also focuses on reforestation, planting hundreds of thousands of trees from its nurseries every year, concentrating on species useful to campesinos. The organization also works on diversifying production on each parcel, and locally producing organic fertilizers with worms and other methods.

In León's words: "Little by little, the campesinos are seeing that this is really possible, that we are able, by ourselves, to generate a development that permits us to make ourselves autonomous in our decisions, mainly by incorporating traditional methods into the present practices of production." ("Poco a poco los campesinos están viendo que realmente esto es posible, que podemos, de nosotros mismos, generar un desarrollo que nos permita a hacernos mas autonomos en nuestras decisiones, principalmente incorporando los métodos tradicionales a las prácticas actuales de producción.")

The Family Farmer Experience

George Naylor, president of the National Family Farm Coalition, which has groups in about 30 U.S. states, represented the perspective of a North American family farmer. He said farmers in the U.S. have much to learn from Latin American farmers about how to organize themselves. Too many North American organizations claiming to represent farmers tend to worship the free market and support the interests of multinational corporate agribusiness, Naylor added.

Naylor spoke to the "common economic situation that farmers face all over the world." He described how in the U.S., farmers have also been leaving the land since the 1950s because government policies did not allow for farm product prices to keep pace with inflation. He also described the "poverty-resource degradation cycle" affecting both the U.S. and developing countries: as farmers enter the market system, abundance becomes not a blessing but a curse; abundant harvests drive prices for crops down, prompting farmers to plant even more, leading to further price drops and causing the ecological degradation of farmland. In order to produce more, U.S. farmers felt forced to adopt whatever technology corporations offer them – first fertilizers and pesticides, and now genetically modified seeds. Naylor and his family have chosen not to raise genetically modified seeds.

The majority of corn and soybeans now planted by farmers becomes livestock feed. This cheap food drives down the price of livestock, making it less profitable for individual farmers to raise livestock, thereby causing family farms to become even less biodiverse and the livestock industry to become even more centralized. Thus, Naylor joked that when "people ask me what I do, I tell them I raise corn and soybeans for the military-industrial complex."

Naylor emphasized that U.S. farm policy could be changed to favor family farmers. Subsidies to farmers are not the problem causing overproduction per se, he argued. The real problem is that subsidies do not really stay with farmers; the savings are passed on to corporations, which then are able to buy crops from farmers at cheap prices below the cost of production. Naylor recommended that subsidies be replaced with a price floor that would set a minimum price, adjusted for inflation, which buyers must pay for crops. Such a policy, he explained, would signal that farmers' products truly have value.

Naylor elaborated as follows: A price floor is created by the government's farm bill, which offers farmers non-recourse loans. Under such a system, instead of being under pressure to pay back bank loans when prices are low, the non-recourse loan allows farmers to wait until they can get a fair price for their crops. If prices in a particular area don't go above this "loan rate," the government will buy the grain for its reserve system, thus forgoing repayment of the loan and interest. Grain from farmers in years of abundance can then be used in years of short crops, rather than acting as a "surplus" which just drives prices below the cost of production. The non-recourse loan price support programs were created during the New Deal, but have been abandoned by the U.S. government, making farmers dependent on government subsidy checks.[20]

"We find these terms like 'sustainable development' and 'community-based conservation,' like 'food sovereignty' and whatnot, and people use these terms in the course of negotiation. But we have to understand that there are very strong power dynamics behind this, and that the issues are, on the side of the farmers, about survival. We cannot talk about conservation without talking about survival."

Eric Holt-Giménez

Eric Holt-Giménez.
Photographer: Steve Taylor.

Campesino á Campesino and Academia

Eric Holt-Giménez, currently the Latin America Program Manager at the Bank Information Center, a Washington-based NGO, attempted to bridge the dialogue between North and South, stressing the need for North-based academics and activists to give voice to farmers in Latin America. He read a testimony from a Guatemalan farmer in the Campesino á Campesino Movement, which, he emphasized, is not an institution but a decentralized network of tens of thousands of farmers teaching each other: "Campesino á Campesino has followed the relationships of campesinos to campesinos throughout Central America and beyond. It hasn't been the result of planned projects; the projects come afterwards, and they're negotiated by the people within the movement."

Holt-Giménez cautioned academics and non-governmental organizations that they have a special role to play as mediators between farmers and conservation organizations and agencies, to ensure transparency and accountability in projects involving North-South collaboration. Since farmers come to the negotiating table as unequal partners in a power relationship, they must be given more say in shaping programs that affect them.

20 See the report 'Rethinking U.S. Agricultural Policy' at www.agpolicy.org for further details.

"When you come to Iowa, all you'll see is corn and soybeans. Almost every farmer raises corn and soybeans, and that's why I say 'I raise corn and soybeans for the military-industrial complex.' I'm not really raising food; I'm really raising livestock feed for industrial livestock production and food production like corn sweeteners, or now ethanol for people to fuel their SUVs. And needless to say, the biodiversity in Iowa now is nil, and decreasing day by day."

"U.S. government policy since 1996 has been "to completely do away with the price floor, and to substitute that with income from the taxpayers in the form of subsidy payments, which is what corporate agriculture, corporate America, the food processors want. Because then they get their food very cheap, their corn, soybeans, and livestock very cheap, and the taxpayers pick up the difference, and the farmers do exactly what corporate America wants, which is to plant fencerow to fencerow because they have no alternative. They do what farmers do when they're under economic stress; they put more pressure on their land to produce more, and take on new technology from these very same corporations."

George Naylor

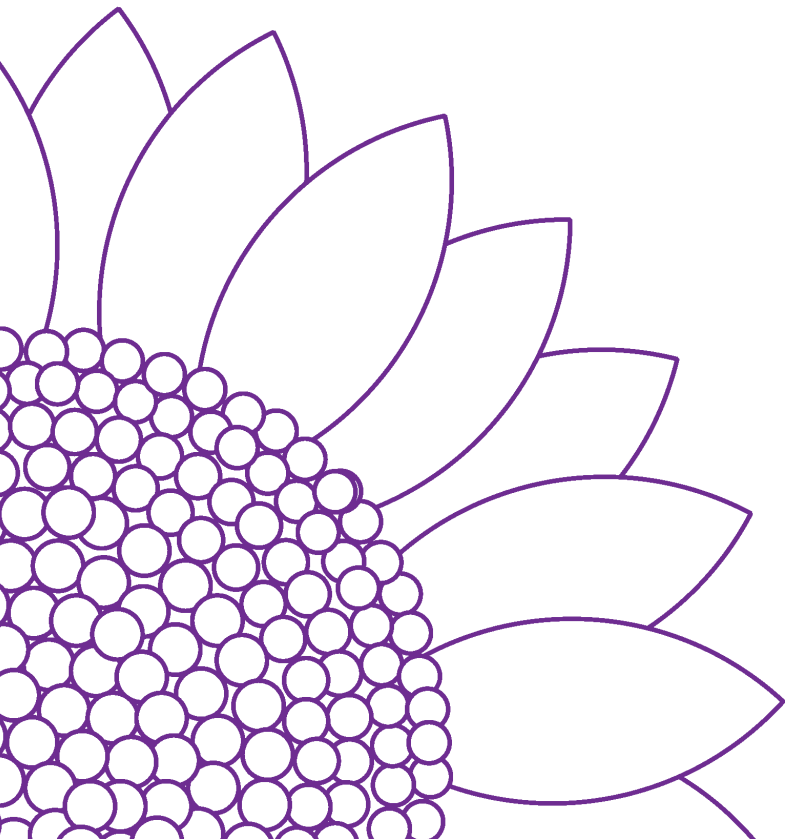
Linking North and South

When an audience member asked how farmers in the North and South can link together, the panelists all agreed that farmers in the U.S. and Latin America use such different techniques of production that, on the technical level, agricultural knowledge sharing would be difficult. However, they emphasized that farmers throughout the Americas share common political struggles. Holt-Giménez noted that genetically modified organisms are an issue that affect farmers in every country and could become a rallying point for grassroots links. Naylor emphasized that because "so much of the oppression of farmers, campesinos around the world, [is caused by U.S. policy] the responsibility for [action] is right here in the United States." American farmers would like the support of the world in taking on American farm policies.

León agreed with the need for collaboration. In the past, Mexican farmers believed that U.S. farmers were wealthy, but "now we are seeing that the small farmers of the United States are also having problems with low prices and with many things," he said. "And I believe that in the future, we have to make bonds with these groups of small farmers in the United States to be able to say and to declare that the policies at the international level of production management really are not adequate." ("*Ahora estamos viendo también que los pequeños agricultores de los Estados Unidos también estan teniendo problemas con los precios bajos y con muchas cosas . . . y tenemos, yo creo en el futuro, hacer vínculos con estos grupos de agricultores pequeños en los Estados Unidos para poder decir y estar manifestando que las políticas al nivel internacional de manejo de la producción realmente no son las más adecuadas.*")

Case Study: Tales from Guatemala

Eric Holt-Giménez



San Martín Jilotepeque in Chimaltenango, Guatemala, is the "mera mata" (root stock) of the Campesino a Campesino Movement. This is no accident. The movement's most compelling resistance stories come from the Kaqchikel experience of economic and cultural repression. In response to blinding poverty, exploitation, natural disaster, war, and ethnocide, the Kaqchikel Mayans reached deep into their culture for the keys to their survival as indigenous peoples and as campesinos. Their efforts gave birth to the philosophy and the methodologies that eventually spread throughout Mesoamerica, campesino to campesino. Although the Campesino a Campesino Movement was brutally repressed during Guatemala's civil war, virtually disappearing during the 1980s and 1990s, it returned after the signing of the peace accords in 1996. With the return of the movement's promoters to San Martin Jilotepeque, Campesino a Campesino takes on new meaning and new hope: the reconstruction and healing of indigenous communities devastated by war and disaster. The following narrative comes from a local campesino:

> Everything has a reason. Every uprising has a cause. The elders will agree with me ... In the 1970s, we had a lot of emigration here. This was not voluntary but obligatory. We campesinos had to migrate to the coast to cut cane, harvest cotton. This was not voluntary but obligatory. Extreme poverty obligated us to migrate to the coast. And because of [migration] poverty in Guatemala was great. Here in San Martin we could say that now everyone has a piece of land, but back then we didn't. We lived in extreme poverty. Because of this everyone had to migrate to the coast, because in the '70s everyone had a card that had to be validated by the patron on the coast. That is the history up to the '70s. That is how our cause began, and that is when the institutions started arriving and cooperativism began . . . World Neighbors arrived. Oxfam started working in San Martin. They found fertile ground. What was the fertile ground? Extreme poverty. They said, "Cultivate your land, you have a plot, you should cultivate the land and if you do, you will have food and you won't have to go to the coast." That is how the story began. We started village by village, community by community, with the themes of agricultural development, soil conservation, and water conservation. It meant building terraces, constructing contour ditches. We can say that the martyrs were Roberto Chicoac and Vicente Hernandez of Santa Rita las Canoas. These were compañeros of ours that never spoke about the guerrilla or armed struggle. We were talking about improving our crops so as not to migrate to the coast. So in this way, our history is based on a reason, and the reason is that back then we lived in extreme poverty.
>
> And I want to tell you, unfortunately, what always happens is that when a storm blows, the poor suffer the most, when the earth shakes, the poor suffer the most, if there is violence, the poor suffer the most. That is what happens.

These programs started to raise awareness. We had barely started to raise awareness and agricultural yields when the earthquake destroyed 86 percent of our homes . . . Unfortunately, the poor are the hardest hit by these things. Thanks to this, that the earth shook, they started helping us, and that motivated people to organize and build houses. The earthquake left organization. The agencies that arrived found fertile ground because we lived in extreme poverty. We had this need. Nearly 90 percent of us have at least a patch of land. The earthquake left organization and gave us space to organize.

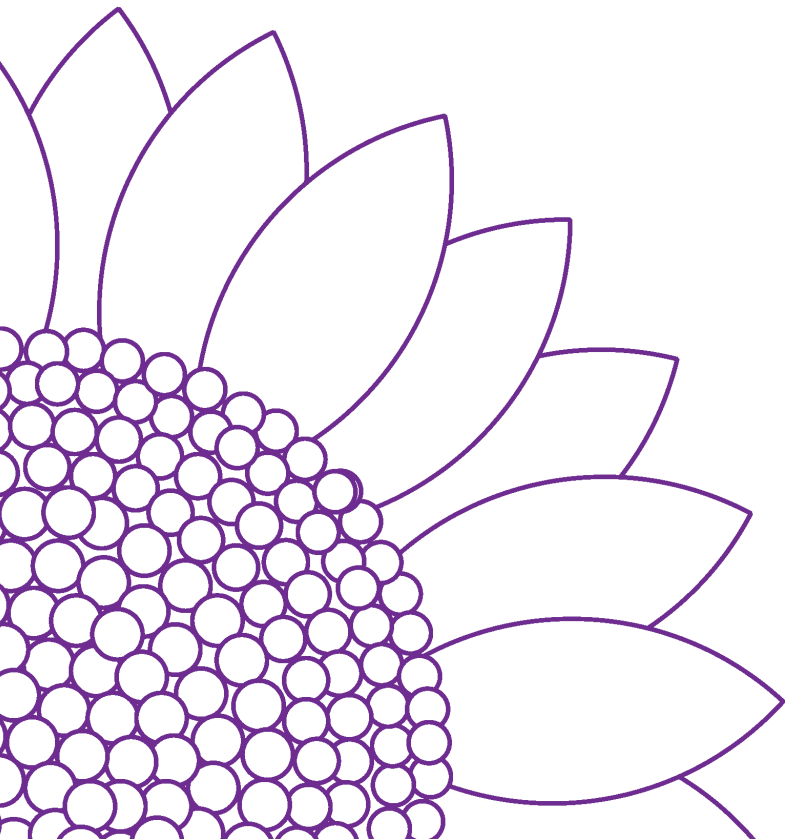
But then in 1979 and 1980, just as these organizations found fertile ground because of the exploitation of man by man, the guerrilla organizations found fertile ground for the guerrilla. That is why of San Martin's 169 communities, approximately 100 were organized by the guerrillas. This meant that the army high command classified the zone as a guerrilla zone, and they confused those who believed in revolutionary concepts with those that were in the guerrilla. These people were organized, but they weren't guerrillas. Only those who belonged to an armed front fought. Nonetheless, because they were organized, the army high command classified it as a dangerous zone for the Guatemalan state and implemented a scorched earth policy . . . That was the beginning of another tribulation. In San Martin there were 3,879 victims. It cost San Martin its organization . . . It destroyed our feeling and our unity. This was destroyed by violence. It destroyed our homes and the ability to say "We are compañeros, let's struggle together." That is how, out of fear, since then, everyone is now asleep. You know we are still afraid! If I go to a community and ask if they were organized in the guerrilla, they tell me no, and I respect it . . . Our fear is greater than we are. Our spiritual situation is bad. To be well, we have to be well economically and spiritually. If I ask, "How are you?" and you say "Good" . . . No. Spiritually you are not well, and economically you are not well. We are not well! We need to support our organization so that it grows again. Why? Because they tell us that electricity is development. Potable water is development. Roads are development. Fine. But we need an economic base. Electricity is no use to me if I can't pay for it. The road is useless if I have no money for bus fare. We have to be organized! We have electricity, we have water, we have telephones. What do we need to strengthen? Agriculture. Why talk of industry? We are not industrialists. We have to talk of agriculture if we want to move forward.

In 1996 the Peace Accords were signed, and the organizations we have today were formed. There are several NGOs working [again] in San Martin, but it has been hard for all of us to begin the work. San Martin is [again] a fertile ground to do what we need to do, but it will depend on each one of us to

spread the work in our communities. I want to tell you about everything we have experienced and everything that has yet to happen to us . . . I give thanks to God that we live each day, and I prepare myself for tomorrow. When morning breaks tomorrow, we can give thanks to God we are alive and live that day. Our point of departure has to be our work, because this is what provides us with everything, our food, our clothes, whatever we need. Today we have the opportunity to be at the forefront of organizations that have the desire, the harmony, and the hope in our pueblo who have suffered so much and have always needed help. We are not poor because we are indigenous, we are poor because we never had the opportunity to develop ourselves. Let's lend a hand, but let's lend a hand to ourselves, and this way we will develop ourselves one to one. I want to tell you that we also are in a great stage in regards to our Mayan cosmos vision. We are in the era of reflection. After the reflection we can see that development will come, because we will understand each other. It is a bit difficult to understand why no one reads the Popol Vuh. They say it was not written by a Guatemalan; nevertheless, it . . . teaches us that everything has a moment and a space and a reason. For each thing, you must look for the reason. And the reason here is that many organizations are looking for justice. And when we find justice, peace will reign. We will live in peace, and our economic situation will change.

Case Study: Food Sovereignty in the Mixteca Alta

Phil Dahl-Bredine



One day I was walking up the steep, dusty road to Santiago Tilantongo, the central village of the Mixteca Alta (Upper Mixtec), in Oaxaca, Mexico. I work near here, in this primarily indigenous region, with the Centro de Desarrollo Integral Campesino de la Mixteca (CEDICAM). Santiago Tilantongo was the ancient capital of the Mixtec kingdom, which reached its political and artistic peak around 1000 A.D. For hundreds of years the village was called simply Tilantongo.

As I walked, I encountered two Mixtec women walking down from the village. We stopped to talk, and I asked them why the town was called Santiago Tilantongo. "We were told," they responded, "that the Spaniards stole the gold crown of the king of Tilantongo long ago, and, being a somewhat stubborn people, we sent a delegation to Spain to look for the crown. The delegation looked all over Spain but couldn't find the crown. However, as they were preparing to leave to return to Tilantongo, they encountered a beautiful statue of Santiago in a Spanish church, and they stole it in exchange for the crown." As I was able to verify, the statue is still in the church of Tilantongo, where it sits upon the ruins of a Mixtec temple.

As a Mexican friend pointed out to me, this story of one of the early encounters between a European civilization and an indigenous civilization of the Americas is full of interesting symbols and meanings. I often find myself contemplating its significance. The story shows that the first encounter of cultures was not ideal. So now, flush in the middle of a new encounter between these civilizations – which we call "globalization" – I find myself wondering whether we can avoid making similar mistakes.

Much like the first encounter, the new meeting of cultures is being forced on the Mixteca – this time by a model of globalization based on European/ North American technologies and economic and political commitments. The model clashes with the Mixtec way of life and that of other land-based indigenous cultures around the globe. And it has the potential to be even more devastating than the earlier encounters for these civilizations. The power this model has to wrench indigenous peoples from the land, using the tools of poverty and privatization, is frighteningly evident. In the ten years since the North American Free Trade Agreement (NAFTA) has hastened globalization here, ample evidence of its destructive effects can be found in the Mixteca.

Nevertheless, the Mixtec campesino communities of rural Oaxaca still hold important parts of their culture intact. Tequios, common work projects in which the entire village participates, still help hold the social fabric together. Traditional "town meeting" governance forms called usos y costumbres have returned in force. Gueza or guelagetza, forms of mutual sharing in times of need, are still practiced, and land is primarily communal in character. Individual accumulation of wealth for its own sake is still a foreign notion. On the other hand, accumulation in order to give back to the community during fiesta by being a mayordomo or a madrina, supporting some part of the costs of the village patronal feast, is common. These indigenous

communities count their age in millennia. Some anthropologists compare their historical culture, art, science, and literature favorably with those of ancient Egypt and Greece. The Mixtec people are the only people of the Americas with 1,000 years of written history still intact in their magnificent codices.

Recurrent in this history is the idea that the Mixtec society should adopt only regionally appropriate technology and practices. A few days ago, I was in the home village of Jesús León Santos, president of CEDICAM. He was showing me the springs on which the village depends for water.

"We don't have much water," he explained. "But we don't need much, because we don't have a sewer system." I said to myself, "Ah, you mean that you don't have flush toilets. And if some well-meaning outsider had come to relieve you all of your poverty and helped install civilized flush toilets, the Mixtec communities of Tilantongo would have exhausted their water supplies and ceased to exist decades ago!" The poverty of resources of the Mixteca Alta made it abundantly clear that the flush toilet of Sr. Thomas Crapper is no solution for the problem of human waste. It is only our wealth of natural resources and money that make it possible for us to pretend that it is a solution in the North.

The lesson of this story is, I think, difficult for us in the United States. We need to get over the assumption that what we consider the good life and what we see as solutions for the problems that stand in the way of the good life are the ideal for everyone – they may not be solutions even for us.

Maybe one of the problems of globalization is that information and power often flow in only one direction. The sustainable, traditional principles of the Mixtec people – regionally apt, communal, cooperative, and democratic – might be surviving the onslaught of globalization, but perhaps we'd all benefit if they could be shared too.

The global "food sovereignty" movement is an exciting way that people around the globe, North and South, are working to tune-up globalization. So I asked Jesús León, "How can we work together, North and South, for food sovereignty?" For the power to control methods of production, quantity and quality of food produced and consumed, and access to local markets – i.e., food sovereignty – is important to land-based cultures.

"Economically and politically what we need is to . . . equalize subsidies to agriculture in the various countries of the hemisphere," he began. "We need to work for price floors, not guaranteed prices, on critical agricultural products, limits that reflect the cost of production. And we need to give one another the right to protect and control national markets. We need an agriculture with an international political awareness, since these things are not on the agenda of the political leaders of our countries."

He thought a moment, and then continued, "Maybe we're a bit too hard on academics when we say they concentrate on publishing for one another rather than

on solving real problems. They have a real role to play if they can spread respect for the alternative agriculture and agricultural science practiced by the millennial indigenous cultures of the hemisphere and a recognition of the function these cultures have played in not just preserving, but helping to create, the biodiversity of the world of today."

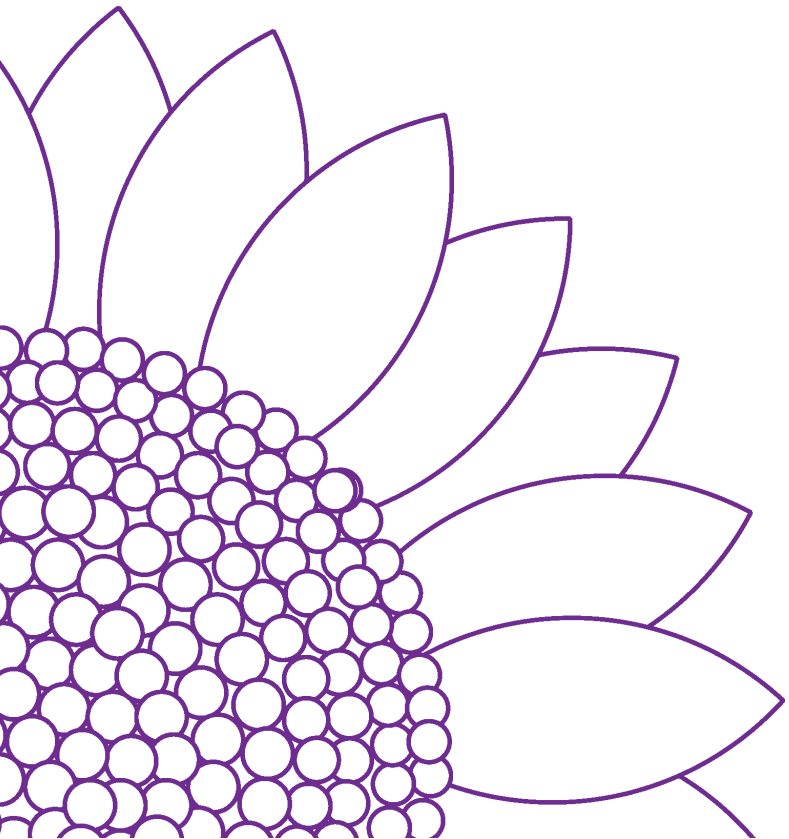
As we walked, we arrived at a green oasis among eroded hillsides awaiting restoration. (CEDICAM projects have planted more than 1 million native trees in the area of Tilantongo in the last five years.) This was Jesús' milpa – really the work of Fermina, Jesús' wife, who does most of the work since he is so often gone on CEDICAM work. Here in traditional milpa fashion, three ancient varieties of corn stretched over my head, mixed underfoot with traditional squash, black beans, fava beans, and amaranth. Peach trees bending under the weight of their sweet fruit bordered the lush greenness, fed by handfuls of fertilizer produced by red worms. Honeybees buzzed around hives filling with the nectar produced by the floral abundance. "All of the needs of a campesino family on each hectare," one of CEDICAM's goals, made real in front of our own eyes.

"Yes," I thought, "as Jesús said, respect would go a long way in helping get this new encounter of cultures right."

We might even learn something about what the good life is.

Food Security and Food Sovereignty: Production, Development, Trade

Summary by Rebecca Reider



Panelists:

Kristin Dawkins
Vice President for International Programs, Institute for Agriculture and Trade Policy, Minneapolis, Minnesota, USA

Minor Sinclair
Director of U.S. Programs, Oxfam America, Boston, Massachusetts, USA

Silvia Rodríguez
President of the Board, Genetic Resources Action International (GRAIN), Member of the Coordinating Network on Biodiversity, San José, Costa Rica

Alberto Gómez Flores
National Executive Coordinator, Unión Nacional de Organizaciones Regionales Campesinas Autónomas (UNORCA), Mexico; Coordinator of North American region, Vía Campesina

Moderator:

Steven Stoll
Steven Stoll, History and American Studies, Yale University

As moderator Steven Stoll, associate professor of history and American studies at Yale University, noted, this group of presentations demonstrated that whereas "sovereignty" was once the domain of nation-states, it is now the domain of corporations. Corporations are breaking down political borders through their control of international trade, and even breaking down biological borders through the production of genetically modified organisms. Meanwhile, the panelists called for a different kind of sovereignty: food sovereignty, defined by the international farmers' movement Vía Campesina as "the right of each nation and its peoples to maintain and develop its own capacity to produce the people's basic food, while respecting productive and cultural diversity." Two non-governmental organization representatives from the United States, one from Costa Rica, and one from Mexico described the relationship between trade policy and food sovereignty in North and Central America and beyond, and called for changes in policies, both national and international, to promote food sovereignty in every country.

The Fallout from Free Trade

Kristin Dawkins, a vice president at the Institute for Agriculture and Trade Policy in Minneapolis, Minnesota, reflected all four panelists' concerns when she stated: "We now have ten years of experience with free trade. And it's proven– it's no longer one of these textbook theories – it is proven that it is not contributing to development at the community level, or even at the national level, in so very many countries. It is proven now that the beneficiaries of this so-called free trade agenda are the trading companies, the giant transnational corporations who benefit from the low raw material prices paid to farmers all over the world, and the creation of new consumer markets to buy their stuff all over the world."

Alberto Gómez Flores, National Executive Coordinator of the Unión Nacional de Organizaciones Regionales Campesinas Autónomas (UNORCA) in Mexico and Coordinator of the North American region for Vía Campesina, pointed out that more than 800 million people suffer from hunger according to the United Nations' Food and Agriculture Organization, despite global overproduction of food. The cause, he said, is export-oriented policies in the United States and European Union, which destroy other countries' capacities to produce.

Dawkins reminded the audience that the free trade agenda in agriculture actually goes back decades, with a long history of International Monetary Fund and World Bank programs directing countries to focus on agriculture production for export. Today, increased agricultural trade is being promoted through free trade agreements and the World Trade Organization. Free trade has been a disaster for developing countries, Dawkins argued, not because of trade itself but because of food surplus "dumping." She explained that farmers in developed countries receive subsidies that enable them to sell their products at cheap prices, often below the cost of production. When trade barriers are opened, these cheap commodities are "dumped" into other countries' markets, out-competing their local producers.

Dawkins emphasized, however, that "subsidization itself is the wrong target" for criticism. Subsidies are not the cause of dumping; they are the public-policy response to low prices in the private marketplace, which benefit the agribusiness traders. The low prices are a result of gluts in the marketplace; the better public policy solution is supply management.

As Minor Sinclair, Director of U.S. Programs for Oxfam America in Boston, noted, the U.S. exports corn to other countries at prices 20 percent below the cost of production, wheat at 40 percent below the cost of production, and cotton at 57 percent below the cost of production. As a result, in countries where governments cannot afford to pay subsidies to farmers, the prices of agricultural goods drop, and local farmers go out of business because they cannot cover their production costs at the new low prices.

"I think this is a sea change in the history of trade politics and global politics generally… It's often presented as if these are impossible technicalities, globalization is here to stay, the kind of globalization that we all oppose is unavoidable, and so forth. I firmly disagree with this; it's about political will. It's also about economic power and the capacity to fight back economically in the geopolitical framework, and it's also about coalition-building, North to South."

Kristin Dawkins

Kristin Dawkins.
Photographer: Steve Taylor.

But, said Sinclair, despite the appearance of conflicting interests between Northern and Southern farmers, subsidy-driven overproduction has not helped Northern farmers either. Instead, as U.S. agricultural policy has increasingly promoted export-driven agriculture, it has made trading corporations the beneficiaries rather than farmers.

Flores described the disastrous results of dumping in Mexico under the North American Free Trade Agreement (NAFTA). While Mexico's food and agriculture imports and exports have both grown nearly every year since NAFTA took effect in 1994, the trade imbalance has also grown yearly. Every year Mexico becomes increasingly import-dependent, importing more food than it exports. The majority of Mexico's agricultural trade is with the U.S. In 1993 Mexico imported 50,000 tons of corn. This year, as the third largest importer of corn in the world, it will buy 7 million tons of corn from the U.S., over 40 percent of it genetically modified.The sharp rise in imports, Flores asserted, results not from an inability to produce but from structural economic changes brought on by dumping of U.S. corn. Mexico has the capacity to produce 21 to 22 million tons out of the 24 million tons of corn it needs. Mexico could be self-sufficient in bean production, but instead imports 15 percent of its beans because the price of beans has fallen to only half the cost of producing them.

Sinclair argued that it is not only Mexican farmers who have suffered: "Free trade has hurt farmers North and South." He noted that the 2003 WTO talks in Cancun broke down in a North-South conflict, as governments from the South protested that the U.S. pushes for free trade but still protects its own markets and subsidizes its own agricultural products for export.

The agricultural economy has become increasingly concentrated in the hands of a few corporations that capture the value of subsidies by trading cheaply priced, subsidized goods. Now, he noted, four firms control 80 percent of meat processing in the U.S., and three companies control 70 percent of the global trade in corn.

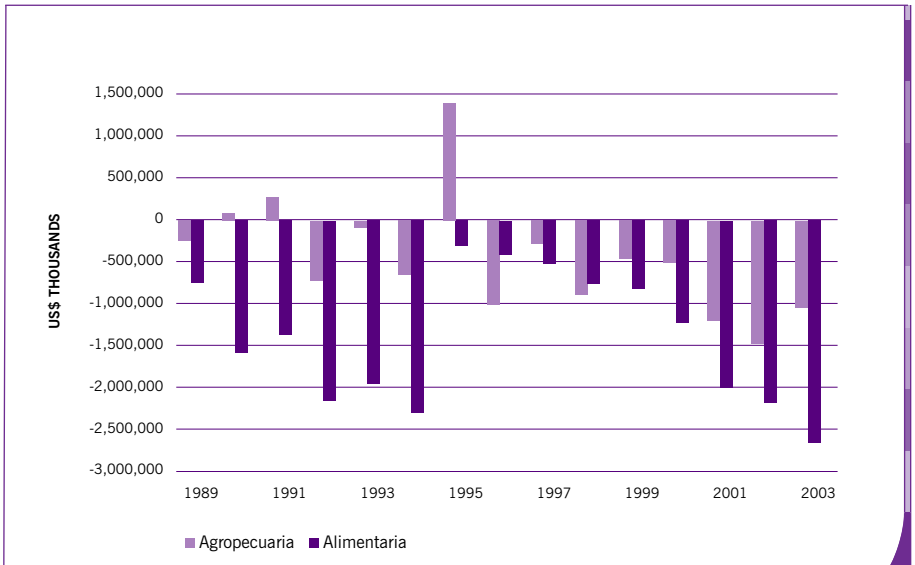


Figure 4: Balanza commercial agropecuaria y alimentaria

This run-down house in the town of Providencia, in the southwestern part of the state of Durango, Mexico, represents an all-too-common scene in the Mexican countryside as rural incomes decline and residents migrate to cities or to the U.S. in search of work. Multiple times, various inhabitants of these rooms emigrated to the city of Juarez and to a nearby town where they still live in poverty. Workshop participant Jose Montenegro, who hails from the town, writes: "Just the way those rooms look in the picture is how many, many, many houses look in rural towns in Mexico with high flows of emigration. Like my town, these towns are becoming ghost towns. To me, the picture depicts shattered hopes and hard times."

Photographer: Jose Montenegro.

"While there is hunger, there exists an overproduction of food. So hunger in the world is not the consequence of natural or technical problems. It is the result of an inequitable distribution of power and wealth, and of agricultural policies that exclude campesino and family agriculture."

"We are a group of survivors who refuse to disappear. We are campesinos, and we are proud to be campesinos. We want to continue to be."

– Alberto Gómez Flores

Growing Resistance

Still, Dawkins also emphasized, there is one positive outcome of this "change from countries to corporations as the drivers of economic policy." "Small producers, environmentalists, consumers, and all these other interest groups, North and South," she explained, are beginning "to see that we do have common ground, common problems, and increasingly, we are aware that we have common solutions." She noted the encouraging signs of strong and growing social movements throughout Latin America, including national movements of peasants and indigenous people in several countries; Lula's rise to power in Brazil; and massive international mobilizations against the current free trade agenda as seen at the Free Trade Area of the Americas meeting in Quito, Ecuador in 2002, and the World Trade Organization meeting in Cancún, Mexico, in 2003. Dawkins described how an increasing political will to fight trade liberalization has emerged in recent years. New coalitions are forming within regions such as Latin America and between large developing countries throughout the world. Particularly with Lula's leadership, these coalitions are now coming together to block the United States and European Union from achieving their trade agendas – a remarkable feat.

Flores spoke about Vía Campesina, the international movement in which farmers and peasants from throughout the world come together in meetings and protests to construct common platforms to promote food sovereignty by acting within their own countries and on a global scale. He said, "In this globalized world, Vía Campesina says, 'Let us globalize the struggle; let us globalize hope.'" ("*En este mundo globalisado, la Vía Campesina decimos, 'Globalisemos la lucha; globalisemos la esperanza.'*") Flores also told of how Mexican *campesinos* are reacting to their government's free trade and agrarian agendas. In January 2003, 100,000 *campesinos* marched in the streets of the capital, and the government began to negotiate with them, though the final agreement was unsatisfactory to the *campesinos*.

Calls for Reform

The panelists all recommended policy changes at national and international levels.

Dawkins and Sinclair agreed on several needed changes in international trade policy: a ban on dumping of food products at costs below the costs of production; policies

"[Under US-CAFTA] we can see that the seed industry is the one that is going to gain, and not the seed industry in our countries, but the transnational corporations; that intellectual property rights will bring only an exclusive monopoly to the plant breeders or the enterprises that can pay for the investigation… Current world seed sales of $30 billion a year should jump to $90 billion soon, especially if farmers are obliged by law to stop producing their own seed. This has been an ancient right of farmers, which is now turned illegal."

– Silvia Rodríguez

Silvia Rodriguez.
Photographer: Steve Taylor.

to manage the global supply of various commodities, in order to avoid the price drops that result from overproduction; price floors below which food prices are not allowed to drop; and antitrust policies at national and regional levels to prevent corporate monopolies over the food trade. Flores called for basic food crops such as corn, beans, wheat, and rice to be removed from free trade agreements.

The panelists also discussed the need for policy change within nations. Sinclair argued for the reform of subsidy policies that currently promote industrial agriculture, in order to make subsidies serve the needs of small farmers and also serve environmental aims. Dawkins called for support for farmers' rights to land, water, seeds, and self-determination as critical foundations of food sovereignty. Flores argued that food sovereignty must become the focus of policy on all levels – international, national, and rural. In the case of his own country, he argued for land reform to prohibit communally held ejido lands, created by Article 27 of the Mexican constitution, from being privatized and sold to corporations, a process that began under NAFTA. He also called for respect for the rights of Mexico's 12 million indigenous people, and for laws to conserve soil and prohibit the privatization of water resources.

New Free Trade Agendas: The Case of CAFTA

Silvia Rodríguez, President of the Board for Genetic Resources Action International and member of the Coordinating Network on Biodiversity in San José, Costa Rica, presented a call for opposition to one of the newest trade developments, the United States-Central America Free Trade Agreement (US-CAFTA) (Bloque Popular Centroamericano 2004). In 2003, trade ministers from the U.S. and Central American countries from Guatemala to Costa Rica, plus the Dominican Republic, negotiated a regional free trade agreement which is now awaiting ratification in the legislative chambers of the various countries. The legislators can approve or disapprove the agreement, but "not amend a single comma," Rodríguez said, charging that its negotiation by executive-branch ministers circumvented the normal democratic law-

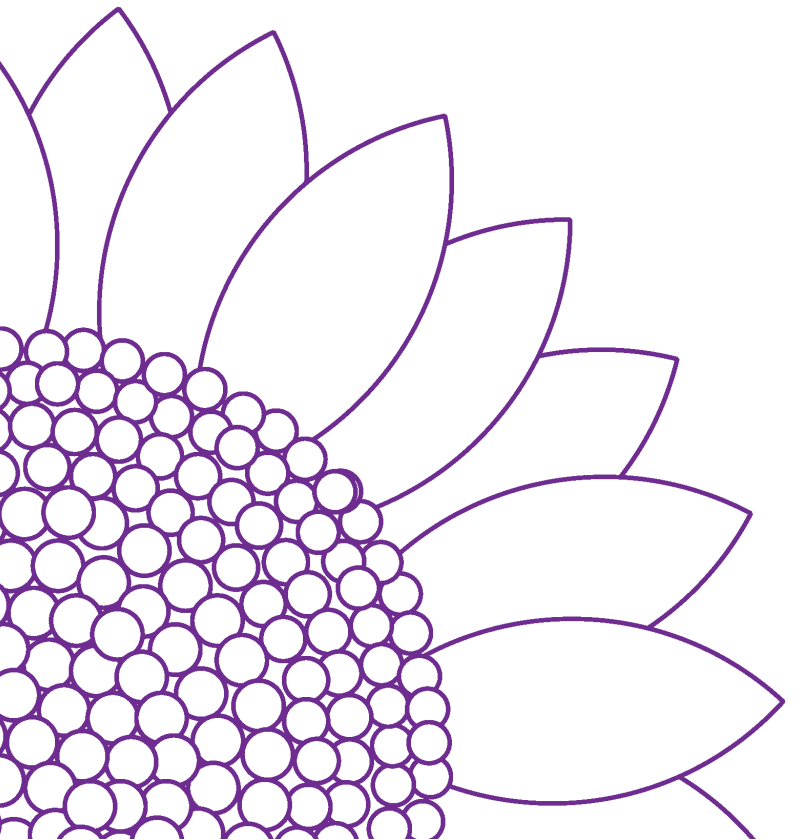
making process. US-CAFTA's status as a "treaty" would put it on a level above all other laws in the Central American countries, superseded only by the national constitutions.

Rodríguez explained how US-CAFTA will threaten Central American food sovereignty in two ways: US-CAFTA will not only increase dumping of subsidized U.S. agricultural products onto Central American markets, but will also restrict farmers' rights through its intellectual property provisions pertaining to seeds. Under US-CAFTA, countries would have to abide by the Convention of the Union for the Protection of New Varieties of Plants (UPOV 91), a protocol which requires participating countries to grant patents on plants, giving the patent holder exclusive intellectual property rights over the seed patented.

UPOV 91 would go even further than the WTO's Trade-Related Aspects of Intellectual Property requirements for intellectual property rights to plants, and if CAFTA took effect, even WTO negotiations could not overturn UPOV in Central America. Under UPOV 91, farmers could save seed for their own use, but would be prohibited from improving, selling, or producing seeds without permission. As a result, Rodríguez said, "farmers will lose the control of one of the most important means of production: the seed, and at least for Costa Rica and for Central America, you'll see that food sovereignty will become a myth."

Farming, Forests, and Biodiversity

Summary by Avery Cohn



Panelists:

Ivette Perfecto
Associate Professor of Natural Resources, University of Michigan School of Natural Resources and Environment, Ann Arbor, Michigan, USA

Ronaldo Lec
Instituto Mesoamericano de Permacultura (IMAP), San Lucas Tolimán, Guatemala

Robin Sears
Research Scientist at the Center for Environmental Research and Conservation (CERC) at Columbia University, and The New York Botanical Garden, New York, New York, USA

John Tuxill
Doctoral Candidate, Program in Ethnobotany, Yale School of Forestry & Environmental Studies and the New York Botanical Garden

Moderator:

Liz Shapiro
University of California at Berkeley, California, USA

With a budget of over $45 billion per year, conservation is a significant industry unto itself. As the global conservation budget grows, it translates into ever-expanding conservation units of chosen protected areas. Participants on the "Farming, Forests, and Biodiversity" panel emphatically critiqued the classical protected area model of strictly protected reserves enclosing uninhabited wilderness as inadequate at conserving biodiversity and forests at the landscape level today, and unnecessarily incompatible with traditional farming systems. Through their presentations on the relationship between alternative, traditional, and small-scale farming and the environment, they demonstrated how conservation policy could become functional by embracing the production landscape as an important site of conservation.

"Protected areas are failing."

"We are focusng on the wrong parts of the taxonomy. Conservation has focused a lot of time and effort on protecting the charismatic megafauna."

"It's not just the amount of biodiversity, it's the function that the biodiversity has."

"In areas around the world where traditional agriculture has been converted to more monoculture-type systems, species are disappearing."

Ivette Perfecto

Ivette Perfecto.
Photographer: Steve Taylor.

Conservation Must Expand Scope

In his workshop presentation, Karl Zimmerer described the pan-American failure to integrate protected areas with other land uses. He showed that, on a map, the Mesoamerican Biological Corridor, a contiguous corridor from Panamá to the Mexican state of Oaxaca, appears as the braided tributaries of a river crossing a flood plain, looking like anything but a contiguous corridor. The areas left out of the corridor are agricultural production zones. According to Ivette Perfecto, an ecologist at the University of Michigan, Zimmerer's map may represent a failure of conservation policy but not necessarily a failure of conservation. In her presentation, Perfecto urges conservation groups to refocus their attention on agricultural lands.

Protected Areas: Too Little, Too Isolated

Protected areas have been the major outgrowth of the 30-year-old media campaign on impending mass extinctions and declining biodiversity. They have protected relatively little of what will be needed if major biodiversity declines are to be avoided, Perfecto asserted, and many preserves are failing because they are relatively small, temporary, and insular. In fact, 90 percent of the Earth's land is actively or partially managed, leaving only 10 percent maintained as protected areas.

In addition to making up a tiny proportion of total land worldwide, protected areas themselves are often too small, and located in landscapes too fragmented, to function optimally. "Protected areas sufficiently large to prevent extinction are economically and politically unfeasible," said Perfecto. For instance, very high extinction rates are observed in protected areas located near significantly disturbed habitat. In Singapore, the national park has lost 50 percent of its plant diversity during its brief history due to impacts from the urban area that surrounds it. Therefore, ecologists are calling for landscape-level approaches to conservation. Such approaches, Perfecto argued, make it "critical to... include managed ecosystems in conservation plans."

Practical Biodiversity: Function Over Form

With such glaring limitations, why are protected areas still the conservation unit of choice? Perfecto traced both their rise and predominance to an important engine driving biodiversity conservation today: public interest in big, cute animals. "We are focusing on the wrong parts of the taxonomy," Perfecto alleged. "Conservation has focused a lot of time and effort on protecting the charismatic megafauna."

If sheer quantity of biodiversity were made the driving force, the focus would shift underfoot. Arthropods (mainly insects and spiders) represent 40 percent of the world's biodiversity, much of it in the soil. However, Perfecto emphasized the need to consider purposes of conservation beyond sheer numbers of species: "It's not just the amount of biodiversity, it's the function that the biodiversity has."

Agriculture Systems Conserve Biodiversity

Functional biodiversity can often be found in alternative, small-scale, or traditional farming systems. Perfecto explained that these systems buck a general trend in agriculture toward "biological deserts," the extensive monoculture type of agriculture that has spread in the last century. In fact, these agro-ecosystems are the sites of vast quantities of biodiversity. In regions where these lands are converted to monocultures, significant species loss has been documented. Perfecto suggested that "the main problem with agriculture [in terms of loss of biodiversity] is not agriculture per se, but . . . the intensification and simplification of agriculture [e.g., increased pesticide and fertilizer application, shorter fallows, fewer crop species and varieties]."

Therefore, Perfecto concluded that, in addition to all of the arguments in favor of small-scale, alternative, and traditional agriculture from social, cultural, and political perspectives, a profound argument can also be made from an ecological point of view.

Balancing Conservation and Agricultural Production

Integrating ecological principles and socioeconomic needs requires that farmers strike a balance between conservation and production needs, explained Robin Sears of Columbia University. In her presentation, she described how the smallholder farmers on the Amazon floodplain creatively use and steward the natural resources of their region while maintaining agro-biodiverse landholdings.

Sears identified three failures of the conventional conservation and development agenda from the point of view of non-indigenous rural farmers. First, rural assistance from the public sector to the poor is rarely sufficient to drive changes in their economic status. Second, development initiatives that promote land use alternatives or introduced technology often fail because they do not consider local customs and

tastes, do not provide market access or market stability, and ignore site-specific environmental conditions. Third, conservation initiatives that focus on strict protection areas are most often detrimental to the local residents, displacing them with little or no compensation for the loss of land and livelihood.

"Smallholder farmers are environmental engineers, balancing their production needs with a suite of ecosystem goods and services."

Robin Sears

Robin Sears.
Photographer: Steve Taylor.

In the face of these failures, she noted, rural landholders strive to create their own food security; adapt the knowledge, resources, and technologies offered by extension programs to their local conditions; and diversify their production systems to include fisheries and forestry as a way to increase opportunities for earning cash income.

Sears described the complex production landscapes of the Amazon floodplain, where agriculture, forestry, and fisheries are ecologically interconnected, one dependent upon the other. This landscape of smallholder farmers is a mosaic of multi-storied and multi-species forests, fallow stands, and crop fields at different stages of development. Each of these stand types contains useful species of trees, fruits, vegetables, and non-timber products that are harvested for household consumption and sale. They also provide habitat for native plants and animals and food for small mammals, birds, and even fish.

To demonstrate the notion of optimization and balance of production and conservation, Sears identified the multifunctional role of trees and stands in floodplain production landscapes and the management strategies employed by residents of these landscapes. She highlighted the diversity of useful tree species, the abundance and management of one particular tree (Calycophyllum spruceanum, Rubiaceae), and the silvicultural techniques used throughout agricultural production stages to promote timber and fruit production.

Ecological benefits of farm forestry include the cyclic creation of forest cover, provision of animal habitat, and maintenance of ecosystem services. The economic benefits include the sale of multiple products and multiple species for diversified market, and the subsidization of reestablishment of populations of high-graded species while income is made from fast-growing species.

Sears urged agronomists to open their eyes to the innovative approach to farming in the region. Also, she called on governments to recognize its contribution to conservation goals. A shift towards recognizing the value of these agro-ecosystems

could make the twin tasks of conservation and development easier in the Amazon. But this will require the production strategies to be recognized by natural resource authorities and lawmakers, so that they can be translated into specific forest use policies that will help to stimulate household forestry.

Linking Crop Biodiversity and Landscape Biodiversity

While Sears described agro-biodiversity at the landscape level, John Tuxill, a doctoral candidate at the Yale School of Forestry & Environmental Studies researching farming and crop diversity among Maya people in Mexico's Yucatán, detailed how the practices of small farmers can also be a source of biodiversity. These practices, at the community and regional levels, are invaluable for farming and environmental sustainability. Tuxill emphasized that "agro-biodiversity represents a key resource for Maya farm households. And it's a resource that's commonly undervalued in terms of how we measure agricultural productivity and the benefits that agriculture produces."

Tuxill emphasized the dual purpose of agro-biodiversity for sustaining critical ecological dynamics and farmers' livelihoods. For example, agro-ecologist Steve Gliessman has shown that the milpa, the mixed and complementary farm assemblage of corn, beans, and squash, is not only a source of community biodiversity but also generates a higher combined yield than if the same quantity of land were planted in a monoculture of any of the three crops.

Agro-biodiversity also buffers against environmental fluctuations. For instance, varied maturation times for corn guards against potential losses to drought and hurricanes. Tuxill demonstrated that the maintenance of risk-dampening biodiversity is deeply rooted in Mayan culture. Many farmers with shorter-maturing corn landraces say they grow them not only to minimize risk, but also to honor a personal heritage from their parents and grandparents, who originally gave them the seeds. Other Mayan farmers say they simply take pride in being one of the first in their community to have fresh corn for harvest each year.

Tuxill explained that the biodiversity-culture connection must be carefully and thoughtfully incorporated into on-farm conservation programs because it is complex and intangible. Tuxill reminded the audience that for farmers of the *ejido* with whom he worked, the purposes of biodiversity conservation are not just to ensure high crop yields or robust populations of charismatic megafauna. Instead, "The most important question is: is agro-biodiversity helping [farmers] to meet their own expectations about what is a high quality of life?"

Tuxill cited several examples of farmer preferences supporting biodiversity and a high quality of life. For instance, to be able to make the authentic version of *relleno negro*, a favorite festival dish, farmers need to have blue corn on hand. Many farmers prefer

"Agro-biodiversity represents a key resource for Maya farm households. Yet it's a resource that's commonly undervalued in terms of how we measure agricultural productivity and the benefits that agriculture produces."

"The most important question is: is that agrodiversity helping [farmers] to meet their own expectations about what is a high quality of life?"

"Agro-biodiversity is a multi-dimensional resource at the household level – benefits that are not easy to categorize from a narrow economic perspective."

John Tuxill

John Tuxill.
Photographer: Steve Taylor.

to eat local landraces of corn instead of the corn used in the prepackaged flour commonly sold in supermarkets and stores. This is as much a matter of taste as it is a practical preference. Growing one's own corn guards against famine when markets for cash crops fail.

Tuxill explained that the Yucatán is undergoing changes due to shifting labor markets. Many younger rural residents now work in Cancún, diverting labor from the *milpa* and indirectly reducing the patterns of diversity that farmers maintain in their fields and garden groves. Nevertheless, he said, culturally rooted farming practices have staying power even as agricultural regions undergo pronounced change. Therefore, despite the significant impacts that economic and cultural globalization are having in the Yucatán, Tuxill finds reason to be hopeful that farming practices that promote agro-biodiversity can be maintained. He noted several exceptions to the trend of young farmers cultivating less diverse farms – explaining that they were due to the benefits agro-biodiverse systems provide families. Tuxill predicted that the Mayan agricultural systems would continue to evolve as a hybrid of the new and the traditional.

Combining Traditional and Alternative Agriculture

Ronaldo Lec, the founder of Asociación Ija'tz ("Seed") in San Luis Tolimán, Guatemala, described the integration of traditional Maya agriculture practices and permaculture. The Maya and other nearby cultures have a rich agricultural history, which includes the domestication of maize, chilies, avocadoes, tomatoes, cocoa, and cotton. The diversity and sophistication of Mayan agriculture, Lec explained, encouraged the co-development of a number of cultural and scientific advancements that remain today. For instance, weavings of native fibers and rain ceremonies tied to water conservation are still practiced. Permaculture-inspired agricultural terraces stand alongside pre-colonial terraces. However, these terraces are eroding, which is symptomatic, suggests Lec, of how

economic and cultural globalization is eroding traditional knowledge in the Guatemalan highlands.

Lec explained how products and byproducts from the market system, such as pesticides, herbicides, coffee plantations, and land tenure instability, all challenge biodiversity, food security, and sustainable agriculture goals. Through his organization, Lec works to mitigate these challenges and to balance the new with the old for food security and biodiversity. The global demand for coffee squeezed traditional farming out of the uplands. Farmers working with Lec's group decided to explore methods for growing crops in the moist bottomlands of the region, where coffee cannot grow. Lec is experimenting with a Maya water management technique still employed in the Xochimilco district of Mexico City – the chinampa, which is a series of canals that drain water in the wet season and self-irrigate in the dry season.

"We need to preserve the process by which this knowledge is produced and made viable."

Liz Shapiro

Lec described the trial-and-error process and lessons learned during these experiments. The farmers began by planting in a low part of town. In the rainy season, up to two meters of water covered the area, which resulted in a dangerous breeding ground for mosquitoes and also served as a garbage dump. The group's early efforts to convert the site to a chinampa system met with little success – the site was too wet.

They decided to use permaculture to supplement the chinampa system. In this case, using permaculture meant taking advantage of non-traditional materials to stabilize the bottomland agricultural system. They recycled tires shipped from the United States to a nearby tire dump to build up terraces and border water channels.

Looking to the future, Lec stressed flexibility, adaptability, and having an open mind. He points out that in Guatemala coffee is an important cash crop, and mangoes are a beloved food crop, yet neither is from the Americas. He stresses that solutions will spring from exploring all possibilities, new and old.

Conclusions

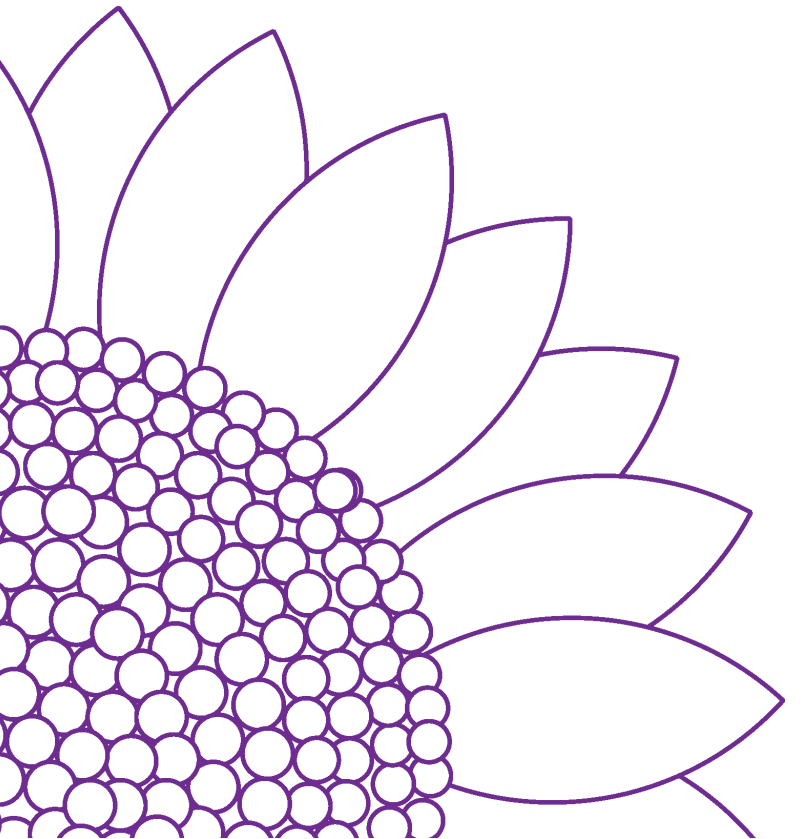
Despite drawing on very different experiences, data, and sources, the panelists provided a coherent picture on the status of forests, farming, and biodiversity. Perfecto demonstrated that to maintain biodiversity, conservation policy must address agricultural lands. She also introduced a distinction between popular forms of biodiversity (charismatic megafauna) and functional biodiversity (biodiversity that contributes to ecosystem function and farmer production needs). Sears cautioned that conservation policy be informed not just by the biodiversity of landholdings but also by the considerations farmers make to maintain diversity. Tuxill detailed the nuanced ways that farmer decision-making affects on-farm biodiversity. He provided insight into the ways globalization alters these decision-making processes. Lec provided examples of how – through adherence to basic principles rooted in ethical

consideration of the environment, culture, and economics – small-scale, traditional, and alternative agriculture can continue to provide.

In the end, the lessons from the biodiversity panel were less about specific solutions than about reshaping the balance of power in conservation. In the question-and-answer session, a number of participants asked what specific practices were needed for biodiverse agriculture to be maintained. Tuxill suggested that the bottom line for successful biodiversity conservation on small farms is "not preserving culture – [it's] giving farmers options."

New Farmers, New Consumers, New Networks

Summary by Corrina Steward



Panelists:

Sérgio Lopes
Manager, Produção Familiar, SEPROF (Secretaria de Extrativismo e Produção Familiar de Acre); Coordinator, RECA (Reflorestamento Econômico Consorciado e Adensado), Acre, Brazil

Karen Washington
Co-founder, Garden of Happiness, New York, New York, USA

Jose Montenegro
Director, CIDERS (Centro Internacional para el Desarrollo Rural Sustentable), Salinas, California, USA

Jean Marc von der Weid
Agroecologist, Assessoria e Serviços a Projetos em Agricultura Alternativa (AS-PTA); Coordinator, Movimiento por un Brasil Libre de Transgénicos, Rio de Janeiro, Brazil

Catherine Murphy
Associate Researcher, Facultad Latinoamericana de Ciencias Sociales (FLACSO), Havana, Cuba

Moderators:

Angela Steward
City University of New York/New York Botanical Garden, New York, New York, USA

Corrina Steward
Yale School of Forestry & Environmental Studies, New Haven, Connecticut, USA

A colonist farmer from the Amazon, a community gardener turned activist from New York City, a Mexican immigrant from California, a Brazilian agroecological farming expert, and an advocate of urban agriculture in Cuba shared their stories of hope, invention, and social and political boundary-breaking. Their experiences demonstrated that in today's world of increasing economic and cultural integration and environmental degradation, a "traditional" farmer is often an unlikely farmer. These new farmers are merging their life experiences, lessons learned from social movements, and economic constraints to build their own unique agricultural strength. Agriculture for these farmers and advocates is not only about food

production, it encompasses building community and new alliances, redefining local and global markets, and empowering farmers to own the processes by which their standard of living, the health of their environment, and their livelihoods are determined. In short, these new farmers are creating, piece-by-piece, truly participatory democracies and a just global economy.

Redefining Farming in the Amazon

Sérgio Lopes, a colonist farmer from the western Amazonian state of Acre, Brazil, and former coordinator of the Reflorestamento Econômico Consorciado e Adensado (RECA) project, presented the history of the project, its mission, and lessons learned. RECA was developed to help colonist farmers – Amazon migrants from all parts of Brazil – to overcome degraded agricultural land, inadequate technology and services, lack of agricultural markets for small-scale production, and cultural differences between the colonists and traditional Amazonian rubber tappers. The colonist farmers of RECA are located in an area that includes the Brazilian states of Rondonia, Acre, and Amazonas, and Bolivia. These farmers moved to the region under government land colonization projects in the 1980s. Colonization began in the 1970s, when cattle ranchers first settled in the region. At the time, Lopes explained, the government believed no one lived in the forest. Yet traditional rubber tappers did live in the forest, and conflicts broke out between ranchers and rubber tappers over resource rights – and so began the rubber tappers' years of struggle for land.

"We don't talk about conquering the market but relating to it – creating a relationship with it. Conquest is a process of loss, the process of domination – we don't want this."

Sérgio Lopes

For the colonists, the struggle appeared different. They had received land from the government. What they lacked was the conditions to work the land. Lopes and the RECA network gained invaluable knowledge from the rubber tappers' movement, but realized the movement could not be theirs because of their different social history and resource situation (e.g., the colonists cleared their land of trees, so they could not extract rubber). The final conception of RECA, he explained, began with the foundation that, as the poet says, "In the Amazon, we don't need to reinvent the path, but we have to find our own way of walking the path." RECA created something new and unique, but it learned from existing knowledge in the forest, the farmers' union, and the church, where rubber tappers and colonists met and exchanged ideas.

Since it was founded in 1984, RECA has worked to generate income for colonist farmers, reforest degraded land, and produce a diversity of fruit products through agroforestry. In the first years in the Amazon, the migrant farmers discovered that direct planting of rice, corn, and beans – typical crops for smallholder farmers – would not produce well nor generate sufficient income in the Amazon. So RECA

created solutions: reforesting degraded land with fruit, nut, and oil extractive trees; implementing agroforestry systems learned through farmer experimentation and knowledge exchange; owning the commercialization process and manufacturing products from seed to market; forming a school and groups to learn about agricultural techniques, health, and community collaboration.

Today, RECA produces a wide variety of agroforestry products, continues to experiment with new agro-trees, and uses a parliamentary-like system to exchange knowledge and make decisions that affect RECA's future. The project boasts many accomplishments, including selling products in regional and international markets, generating income for the colonist farmers that is twice that of colonists outside RECA, and easing the community's frustration and suffering over farming in the Amazon.

Lopes shared lessons learned from RECA's experience: 1) Produce with efficiency; 2) Create a relationship with the market at all levels – regional, national and international; 3) Respect each person involved in the project and make it truly participatory; 4) Put family food security before the market; and 5) Work on health care, education, and community, in addition to agriculture, to be self-sufficient. Lopes explained that RECA's producers do not want niche markets such as the organic market. They learned that "there is not a lack of market for our products, it is a problem of the conditions to reach the market such as quality, regulations, and scale . . . we are trying to reach the larger markets by working on these conditions and our community."

Lopes concluded by reminding us that, like the relationship between the Brazil nut tree and the agouti (a rodent that eats Brazil nuts and disperses them), we should not take more than we need but need to be prepared for the future. In doing so, he explained, we can balance food security and biodiversity. He asked us to learn from nature: "The university teaches us a lot, but nature teaches us more. We need to put our feet firmly on the ground."

Fighting for Urban Farmers: The Community Gardeners' Way

Just as RECA worked to build community through agriculture, Karen Washington, a community gardener from the Bronx, New York, described her community's collaboration to protect gardens from development and to preserve a fresh, healthy food source for the urban poor. Their fight, carried out through coalitions like La Familia Verde, began with demographic changes in the Bronx in the 1970s. Washington explained that following a mass exodus of the middle class to the suburbs, Haitian and Puerto Rican immigrants moved into the Bronx. The changed economic conditions resulted in hundreds of vacant lots where buildings once stood. Washington moved into the Bronx at a time when the borough's president wanted to bring the middle class back to the Bronx. Through a New York Botanical Garden program, Washington and her

"Everyone says that Bette Midler saved the community gardens, but let's face it, people, it was the power of the community gardens themselves that saved them."

Karen Washington

Karen Washington.
Photographer: Steve Taylor.

neighbors turned a vacant lot into a community garden, now called the Garden of Happiness.

In the late 1990s, over 100 community gardens were targeted by the city for redevelopment. Through La Familia Verde, community gardeners began the Plant the Vote campaign to save the gardens from being auctioned off to developers. As Washington recalled, "We took off our coats, put on our capes, and became community activists. We had to understand the political process. Through the Plant the Vote campaign, we registered people to vote. The idea was that politicians care about people who vote. We went to community boards, had meetings with city councilmen, senators... to explain the importance of community gardens. Community gardeners became community-savvy."

In 2000, community gardeners won an injunction to stop the garden auction, and in 2002, the city agreed to a three-quarter set aside for community gardens with the remainder being developed. But Washington warned that the fight continues, as the agreement is only for eight years and the underlying problem of a city housing shortage remains unresolved. She noted that more could be done to ease the threat to community gardens, such as turning illegal parking lots into housing instead.

Community gardeners in the Bronx are not just activists, Washington asserted – they are urban farmers. Urban farming has brought many benefits to the poor communities in the Bronx: fresh produce, a community safe haven, green space, a farmers' market that links rural and urban farmers, and education about how to grow and cook agricultural products. Washington explained that a new term, "Feed Education," emerged from the Bronx community garden movement. It reflects several insights: that the urban poor are consumers who do invest in quality products, but that the community needs education to meet its food security and standard of living aspirations.

Cross-border Farming for Sustainable Lives

Education about agriculture and community also supports Jose Montenegro's work with the Centro Internacional para el Desarrollo Rural Sustentable (CIDERS). Montenegro, the director of CIDERS and a U.S. Mexican immigrant, helps Mexican immigrants maintain their identity and supports Mexican farmers by investing in agroecological farming systems in their communities of origin. Mexican immigrants, he explained, primarily support their families in Mexico. However, several trends prevent communities of origin from improving their lives through the U.S. income,

"Mexicans face hard choices: sell land, the only asset that they have, or continue to suffer poverty. Both exclude sustainable development. CIDERS realized that we need a process to recover our identity and rights. We have a living, but not a life."

José Montenegro

which results in more immigration. Of the millions of dollars sent home, Montenegro explained, 15-30 percent never reaches families because the intermediary companies keep it. In addition, Mexican farmers are abandoning their land due to the loss of agricultural profits, soil erosion, and the promise of higher wages in factories. But companies often leave and Mexicans face hard choices – whether to immigrate, sell land, or continue to suffer from poverty.

Montenegro described the social and psychological challenges that immigrants face:

Every Mexican immigrant's fate was determined by political, social, and economic structures, and he or she enters into a long, difficult quest: Where do I belong? In the process of seeking our own answers, we immigrants become the new members of an invisible workforce whose employment can be summarized as dirty, difficult, and dangerous. It is squeezing our ability to survive with dignity. A rural sociologist said, 'How you refer to something is how you act towards it.' As we cross the border, we are given new names: lawbreakers, wetbacks, illegals, disposable. Our histories, our contributions are not recognized nor properly rewarded. We begin to lose our identity–treated as clients, individuals always in need.

CIDERS works to restore Mexican immigrants' rights, dignity, and hope for more than just a living, but a life. They work in the "trenches," communities that have been left behind and have no government services. They form leadership groups; hold training workshops on agro-biodiversity, agroforestry, food security, gender equity, forest restoration, seed preparation, and native seed preservation; learn from successful organic and agroecological models in Mexico. They established a university agroecology program in Durango, Mexico, and invested in home communities' sustainable development by providing economic opportunities for women and children left behind. CIDERS also works with immigrants who want to return home. They support them through agroecological training, to build sustainable livelihoods for their return.

Agroecological Technology: Family Farmer Networks

Agroecological training and technology are cornerstones of family farming in Brazil as well. Jean Marc von der Weid, an agroecologist with Assessoria e Serviços a Projetos em Agricultura Alternativa (AS-PTA) in Rio de Janeiro, Brazil, described the historical process of land concentration and the subsequent diminishment of family farming in rural Brazil, and AS-PTA's work to implement agroecological systems that increase crop yields and agro-biodiversity.

AS-PTA established a network of family farmers practicing agroecology in the northeast, southeast, and south of Brazil. Von der Weid explained that the Green Revolution

farming model – which supports agribusiness and large-scale monocropping – resulted in 40 million people, many of them family farmers, leaving rural areas. Today, an estimated 5 million family farmers remain, often located in the worst areas for farming, but contributing significantly to food security and market food supply.

Agroecology is making slow but important inroads with Brazil's family farmers. Approximately 100,000 family farmers have adopted agroecological systems. Rather than provide single-solution agroecology technology packages, AS-PTA learned that each farmer needs to develop his or her own ecological design. AS-PTA technicians introduce agroecology information, but technologies are adapted by farmers as creative, diversified solutions. Technology transfer, von der Weid explained, is most successful when it results from group work on social dynamics that improves farmer idea exchange and experimentation and builds on common knowledge.

AS-PTA's technology transfer method has resulted in improved yields and diversification of crops. In the south, family farmers in the AS-PTA network increased black bean yields by five times and corn yields up to four times, representing an average increase of 300 percent and 100 percent, respectively. In the northeast, the yield increases are not so significant, but agroecology systems have improved their resilience to drought. Von der Weid explained that the agroecology network also works to promote public policy changes that support local agroecological solutions. This is vital, because, he asserted, "the struggle goes far beyond the technical choices."

Cuba's Self-Sufficient Urban Farmer

Cuba's history and success with urban agriculture demonstrates that technology is not the silver bullet for food security. Catherine Murphy, associate researcher at FLACSO in Havana, explained that establishing food self-sufficiency, or food sovereignty, was vital to Havana's food supply. Despite eradicating hunger and malnutrition, Cuba remained dependent on the Soviet Union for food and agricultural input imports. Following the loss of this support, the entire country, and Havana in particular, experienced dramatic food shortages. Havana's residents responded by spontaneously planting gardens and began a movement that led to over 30,000 residents growing their own food. Murphy stressed that Cuba – 80 percent urbanized – serves as a how-to model for an increasingly urbanizing world.

In 1989 when the movement began, Havana residents did not have the knowledge to feed themselves through agro-diverse means. The government established an urban agriculture department to meet the needs of Havana's growing urban gardens. The department specifically provided: 1) usufruct rights to areas already in production; 2) agricultural support including a network of extension workers in each community, farmer supply shops, municipal compost sites, urban agricultural training centers, nurseries, and biological control centers; and 3) marketing laws that allowed farmers to sell their products on-site and pay no taxes.

Murphy asserted that Havana's urban agriculture demonstrates that "it is possible to achieve urban food sovereignty and jobs that honor producers and consumers." She explained that replication of these achievements would require political will, organization, and institutional support for grassroots efforts and farmers' needs.

Commentary

New Farmers and New Alliances

Angela Steward, a doctoral candidate at the City University of New York, noted that the panelists' discussion of new farmers indicates that our conception of farmers is changing in this stage of late capitalism. She explained that today's farmers have a lot of terrain to negotiate. In facing the challenges of the global market, the panelists demonstrated that it is important to have good internal community organization – but this is not enough. Farmers also need to organize with other communities, as RECA did with the Catholic Church and unions in Brazil.

Farming, Steward asserted, is not just about producing food. It is a social process by which new visions of democracy and new ways of engaging in politics emerge. The panelists showed different methods for negotiating with new challenges, Steward concluded. They demonstrated specific ways, in the words of Jose Montenegro, of "not just having livelihoods, but lives, [of being] citizens. That will continue to be the strength of the new farmers' movement."

New Consumers

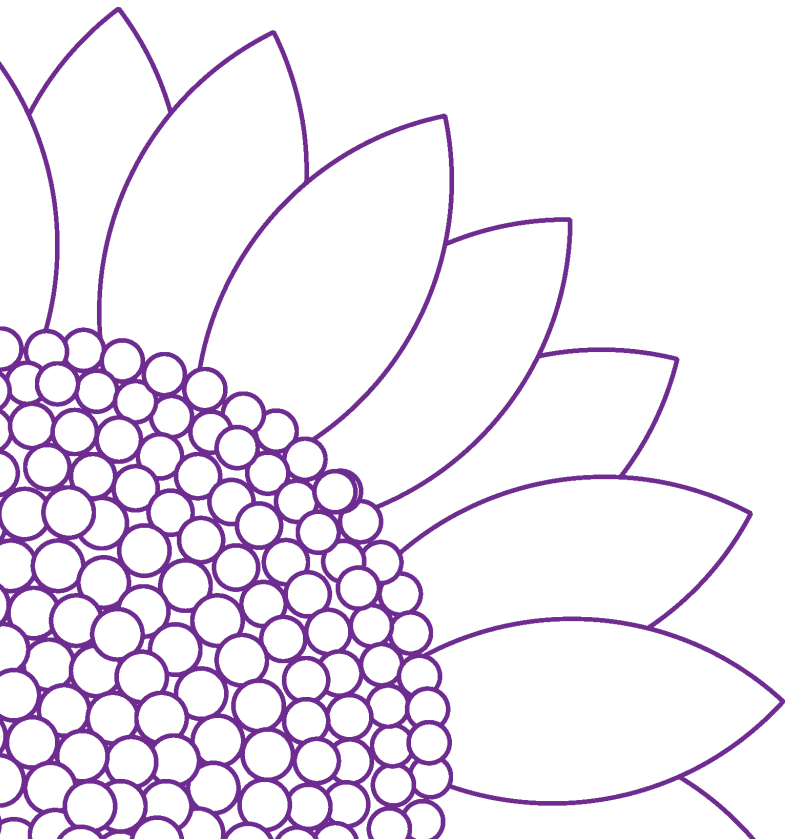
Corrina Steward of the Yale School of Forestry & Environmental Studies argued that, just as the panel showed that agricultural producers are diverse in their experiences and social organization, so are consumers. They can be urban or rural, rich or poor.

Steward noted that several themes emerged from the panel with respect to farmers: working toward new visions of democracy, using social organizing to take charge of their livelihoods, harnessing cultural identity to strengthen agricultural production and economic development, and having food production methods shape the outcome of small farmers' output. But, Steward asserted, these linkages and connections that improve small-scale, agro-biodiverse farming's track record need to be made with consumers. She asked the audience: "How do we make these connections and link consumers with farmers?"

Producers are educating themselves about this new global terrain and making choices for themselves, but we have yet to allow consumers to make choices. In fact, Steward argued, choices are being made for consumers through trade policies. She called on the audience "to do a better job as practitioners, farmers, and activists to inform consumers about the food they buy and the policies they support. In doing so, we will truly be working toward a new vision of democracy and participatory society."

Case Study: From Local to National: Scaling Up Agroecology in Brazil

Jean Marc von der Weid



Agroecology is accepted as an important tool for sustainable development of family farming in Brazil by various governmental and civil society organizations, from municipal to national administrative levels. Ministers of Agrarian Development and of Environment, heads of agronomic research entities, state governors, and many other officials have been and are engaged in finding ways to facilitate agroecological development in the country. All three national family farmers organizations, the Vía Campesina coalition, the National Confederation of Agricultural Workers (CONTAG), and the Family Farmers Federation (FETRAF) have defined agroecology as their main strategic tool to achieve agricultural sustainability.

Civil society organizations (CSOs) got together in August 2002 in Rio de Janeiro to create a new and broad national network for agroecology, known in Brazil by the acronym ANA. Luiz Ignacio Lula da Silva, the president of Brazil, strongly committed himself to ANA's proposals. But these political endorsements of CSO proposals do not mean that agroecology will automatically become the dominant system of Brazilian agriculture. First of all, agroecology's usefulness is recognized by most only for small farming activities, whereas Green Revolution approaches are seen as the only possible alternative for large-scale farming. Second and most important is the strong disparity between government discourse and implemented policies. There is a wide gap between intentions and actual administrative capacity to promote a conversion from conventional approaches to agroecological ones. There are policy formulation problems and, more than that, institutional cultures that are strongly rooted in completely different paradigms.

Why has agroecology become so important in Brazil, at least as one important path towards sustainability? What lessons can be learned from the 25-year history of the agroecological movement in the country? What can be done to mainstream these experiences?

From the Ground Up: Changing Meanings of Participation

Jean Marc von der Weid.
Photographer: Steve Taylor.

The broad-based ANA did not come into being easily or quickly. In the late '70s, some researchers, professors, and agronomist-activists initiated criticism of the Green Revolution approach, indicating its negative environmental and social impacts. They began advocating an "alternative agriculture" whose conception wasn't clear but had roots in Europe's organic and biodynamic agriculture movements. In the '80s, a new initiative, known as the PTA network or Alternative Technology Project, came into being and later became AS-PTA. The initial AS-PTA strategy was to find the alternatives first, and then see how to bring them to farmers at large. AS-

PTA was trying to create a national network of networks that would then create links down to more local organizations. The role of the network organizations was to make other organizations aware of the concept and uses of alternative agriculture, to identify whatever alternative technologies could exist among each organization's membership, and to circulate the information to whomever it might help.

But farmers needed a more systematic approach to do more than incorporate one or another interesting technology in their agroecosystems. The national coordinators of AS-PTA had to face the choice of whether to reach smaller numbers of farmers and achieve a more consistent conversion process from conventional or traditional farms to agroecological systems, or to disseminate, in a massive way, information whose usefulness and relevance it could not guarantee. The new approach was to work through demonstrations, through a concentrated local development agroecological program, in contrast to the previous approach to disseminating technology.

The first step in implementing AS-PTA's local development programs was to talk with local farmer organizations and other kinds of groups, like church community groups, that could be interested in our proposals. The second step was to identify the main problems and potentials of the farmers' agroecosystems and make an analysis of the main causes of the difficulties they identified. Through these participatory rural appraisals, farmer participants and technicians developed a common view about farmer problems and their possible causes, and a ranking of the more general and more important ones was established. Broadcasting the results of these operations as frequently as possible through local radio and television stations provoked curiosity in other, still non-involved, communities. Demands for visits to farmers interviewed in the media began to flood the community organizations' network and required AS-PTA to take a systematic approach. The technicians created a group of farmer facilitators who were responsible for supporting these farmer-to-farmer exchanges.

AS-PTA's approach has changed the meaning of farmer participation in Brazilian development experiences. From a very top-down approach it changed, pushed by strong ties with farmer organizations, to methodologies where farmers had full responsibility in technology development. Before this experience, AS-PTA used to express its strategy as a technology development and dissemination approach. After some time it created a new concept: the dissemination of technology development. The order of the words implies a big difference in conception. It is not technology that is being disseminated, but the experimentation process, seen as a dynamic social mobilization of old and new knowledge, of farmers' empirical experience and scientists' knowledge. In the end, the farmer is responsible to answer the crucial question of agroecological development: how to find a specific agroecological design for each specific farm. The methods adopted allowed an in-depth change in each farm, and enabled this to happen on a massive scale with very scarce development resources. In ten years, this approach spread the experimentation process throughout more then 200 communities in 15 municipalities in the southern state of Paraná,

involving around 10,000 farmers. In the northeastern state of Paraiba, results were less impressive in numbers but actually even more spectacular due to the inherent difficulties of promoting development in a semi-arid and very poor region.

Agroecological Solutions

Dozens of agronomic problems were tackled through agroecological approaches: soil management, fertilization, pest controls, traditional variety seed production and improvement, and agroforestry. The most important impacts on the farms involved with the projects are related to the recovery of traditional varieties of many species like beans, corn, potatoes, rice, wheat, manioc, and others. "Recovery" means that these varieties had been lost by the farmers, who either abandoned them for improved ones (in the south of Brazil) or saw their extinction in a succession of droughts (in the northeast).

Why did farmers want these varieties back? First of all, the new, "improved" varieties did not perform well in these farmers' conditions, mostly because farmers did not have the money to buy the inputs that make these varieties productive. Secondly, the agroecological techniques did not perform well with these improved varieties but instead demanded the great diversity of the traditional ones. AS-PTA's local development teams and farmer organizations in both regions identified which desired varieties were missing and then screened farms and local fairs to get samples that could then be multiplied. AS-PTA trained farmer groups on simple methods of variety improvement and quality seed production. Seed fairs from community to municipal and regional levels were organized on a regular basis, and any farmer could find a "lost variety" or a new traditional one to experiment with in his farm. In the state of Paraná, 120 maize varieties have been "recovered," as well as almost 100 black bean varieties.

Economic comparisons of agroecological against conventional or traditional farms have shown that, considering all products, the former yields more products with less investment in cash or labor. Outputs have been increased both for family consumption and for market sales. Nevertheless, farmers' evaluations point out increased security as the major advantage of the novel production systems.

Against the Stream?

Although experiences like AS-PTA's have shown more results than government-supported development programs for family farms, they have not impressed policymakers enough for their consistent support. Meanwhile, government extension agencies have calculated that their yearly costs per farmer assisted, in the southern region, was $500 – 10 times more then the agroecological participatory development approaches, which incorporated not only extension but also research and even farmers' organizations' capacity-building costs.

PRONAF, the National Program for Family Farming, has been the object of a fierce struggle between government bureaucrats, bank managers, and official extension agents against farmer organizations trying to get funding for agroecological inputs. Until very recently, a farmer needed the signature of an agronomist, veterinarian, or forester–a university graduate technician–in order to get credit for a technical project. The official extension services had a virtual monopoly over these jobs, which meant 3 percent of each project went to the technician who signed it when approved by the Banco do Brazil local manager. Of course, the larger the project budget approved, the more profit for the technician. But this also created a coalition of technicians, input sellers, and bank managers who oriented each project to expend a maximum in pesticides, improved seeds, and chemical fertilizers. Agroecological projects did not have big budgets and were a nuisance for these powerful local agents.

Little by little, the agroecological lessons made their way up. Some state government extension agencies and research institutions adopted the new paradigm, but with rather uneven results. It seems that political will and power is not enough to transform state institutions from conventional to agroecological paradigms. There is an enormous difficulty to change the institutions' culture and their established relationships with many of the economic agents who have material gains to keep when development patterns are supposed to be transformed. As in the credit example presented above, government officials and private business have created a common ground of interests that go beyond the beliefs associated with one or another of the development paradigms.

In spite of great progress in influencing more and more policymakers and government agents at various levels of public administration, the agroecological alternative for sustainable development of family farming is still working against the mainstream. National policies and institutions are still strongly influenced by the Green Revolution paradigm, even though more and more high-level government officials are adopting the agroecological "language."

Surfing the High Tide: Agroecology in Lula's Presidency

Since President Lula came to power last January, quite a number of ministers, secretaries, and program and department directors were recruited from the ranks of NGO technicians with experience in agroecological development. This fact, and the Workers Party's openness to civil society participation in its administration, meant that NGOs and farmer organizations were called to give their contribution in the formulation of many new policies and public programs related to agricultural development for family farmers.

There was a great expectation among NGOs and progressive academics that the new government would unify the two ministries dealing with agriculture, the Ministry of Agriculture proper and the Ministry of Agrarian Development. The former is oriented

towards agribusiness – that is, the big farmers (47,000 farmers with more then 1,000 hectares apiece possess around 50 percent of all productive land) adopting the Green Revolution paradigm; the latter deals with family farmers and agrarian reform. Unifying the ministries under a progressive minister was thought to be necessary to initiate a more radical change in the present pattern of Brazil's rural development, clearly indicted by many as unsustainable and terribly destructive of the environment.

It was not to be. Lula's government adopted a very cautious approach towards agriculture, keeping the two ministries apart and choosing Roberto Rodrigues, an agribusiness leader with links to the multinational corporation Monsanto, as Minister of Agriculture. To compensate, the other ministry was given to one of the more left-oriented members of the Workers Party. Some important agencies belonging to the Ministry of Agriculture were, nevertheless, given to progressive and agroecology-related technicians. The very important National Agriculture Research Corporation (EMBRAPA) and the National Food Supply Corporation (CONAB) are not in tune with Minister Rodrigues' sympathies towards conventional agriculture. EMBRAPA's new president comes from the only research center of that organization dealing with the impacts of agriculture on the environment.

So the move towards agroecology was, from the start, kept in the realm of family farming, and a dangerous dual kind of agriculture is being created without any regard for the inconsistency of this situation. The impossibility of keeping these two approaches at the same time exploded in March 2004 when Lula's government surprised civil society and many ministers and public servants by assuming a lenient position towards the illegal planting of genetically modified soybeans in the southern state of Rio Grande do Sul. Since then, this conflict split the government and eroded support for President Lula.

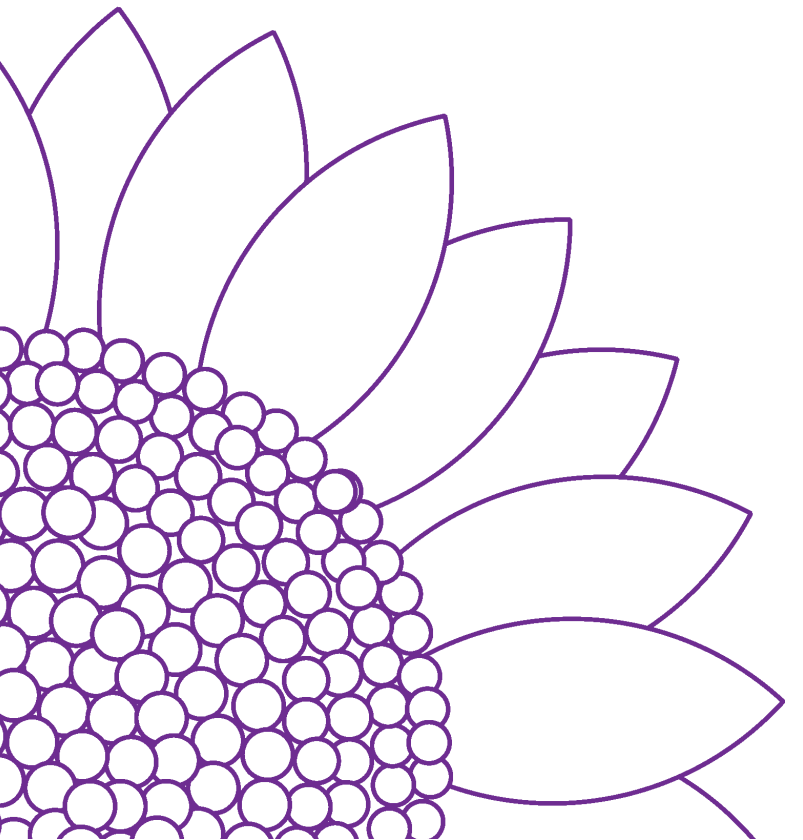
In this uncertain climate, nevertheless, civil society organizations have tried to bring to the new agricultural development policies the lessons of almost 30 years of agroecological experiences. ANA as a body, and many of its participants individually, have participated in many negotiations with various government bodies. Results are mixed in quality, but greater difficulties arise when the policies are implemented. The officials in charge of executing the new policies are either ignorant of what agroecology is and how to deal with it, or simply do not agree with the new paradigm and refuse to comply with the new orientations.

From the ANA membership, it is more and more clear that this situation will mean a disaster for the agroecological approach as a government initiative. All new policies are threatened by their lack of articulation, sheer sabotage in execution, and an institutional culture in government bodies that strongly resist any changes in the development paradigm.

Brazilian civil society organizations are expecting the participation of FAO (the U.N. Food and Agriculture Organization) in a concerted process involving NGOs, farmer organizations, and various government bodies to help to overcome several of these problems. Policy formulation can benefit from worldwide experiences that FAO can bring to the process but, most of all, it is FAO's respectability and ideological power that can enormously contribute to breaking the prejudices still ingrained in Brazilian civil servants, including the newly arrived left wingers from the Workers Party.

Case Study: Living the Amazonian Dream: Breaking Boundaries Through Market-Oriented, Small-Scale Agroforestry[21]

Corrina Steward



"Our story starts in the era of Chico Mendes,[22] but from a different side, or so we thought," explains Sérgio Lopes, the former coordinator of RECA (Reflorestamento Econômico Consorciado e Adensado) and current director of the government's Familial Production department in Acre, Brazil. Unlike the traditional rubber tappers of western Amazonia, the farmers in RECA did not come to the Amazon until the 1980s, when the Brazilian government launched a land reform effort that included giving title to Amazonian land to poor farmers from all regions of Brazil.

These colonist farmers are often blamed as the main perpetrators of deforestation in the Amazon because of their agricultural practices, which include slash-and-burn techniques, and they are often viewed as lacking social cohesion (Browder 1995). Due to these perceptions, colonists are frequently bypassed as candidates for conservation and sustainable development projects, a process that ironically continues the cycle of poverty and environmental degradation that forced them to migrate. As an organization, RECA aimed to break the social, market, and ecological boundaries that prevented them from attaining their Amazonian dream of a sustainable livelihood and home. Their story is one of hope, courage, and human ingenuity that will resonate with all smallholder farmers who are negotiating the complexities of global integration.

RECA families hail from numerous Brazilian states: Paraná, Santa Catarina, Minas Gerais, and Espirito Santo. Many families spent most of their lives moving from one state to the next, hoping to improve their lives through farming opportunities. Like so many colonist farmers, their struggle for food and economic security did not end with the gift of Amazonian land. Says Lopes, "I wanted to be a farmer. To have land. We received the land but not the working conditions. We wanted to plant coffee and cacão, but we realized we couldn't." Juraci Texeira Alecrim, another farmer in RECA, explained how he cleared his land and began planting the usual tropical crops–corn, rice, and beans–only to watch them yield nothing. "We knew coming here that it was a difficult place and there would be hardships and suffering," Maria Isabel Bacelar, also a member of RECA, recounted. One farmer remembers how they had "almost lost hope" because they "lost everything to the forest." But, Lopes explained, they changed their minds about the forest and how to farm: "We learned from the forest and the people who lived here." By observing nature and learning from local rubber tappers, the farmers developed alternative agroforestry systems.

Sérgio Lopes.
Photographer: Steve Taylor.

21 Adapted from the film "Projeto RECA: Encontra alternativa nas plantas Amazônicas" (RECA Project: Finding alternatives in Amazonian plants) (1995). Acre, Brazil: PPG7 Demonstration Project.

22 The leader of the rubber tappers' movement, who was assassinated for his efforts to protect traditional rubber tappers' rights to land and rubber trees.

Through a system they devised on their own, today the RECA farmers grow a diversity of fruit, timber, and other useful trees, many of which are found only in the Amazon: cupaçu, pupunha, acerola, acaria-boi, andiroba, copaiba, hearts-of-palm, Brazil nut, cherry, mahogany, rubber, and palm. Marcílio Sórdi, also a coordinator for RECA, describes how they adapted to the region: "This is a very hot region, you see, and we realized that we couldn't fell all the forest, because without shade to work under, we wouldn't be able to bear the heat." They planted different tree varieties together in a small area to create shade for themselves and the trees. The production was prolific, and as one farmer said, "We expect more and more in the future. We expect to grow every day."

To capitalize on RECA's production, the project now processes, packages, and sells its products. They recognize, Sórdi says, that "to develop agriculture is to depend on other structures; you depend on education, you depend on roads." By diversifying their product portfolio and minimizing the number of outside dependencies – for example, by owning the entire production chain and teaching themselves agricultural techniques – the farmers have improved their success rate. Yet, Bacelar explains, "Very often we lose the product; even knowing that you suffered for it, that you fought to get it, and in the end, you have to throw it away because we can't make good use of the product." RECA targets a market that many small-scale farmers in the South do not aim for–mainstream markets, including national and international markets. RECA is not interested in niche markets like organic. They want to compete in the big markets by "having a relationship with it," says Lopes, while at the same time avoiding food security erosion by putting family subsistence first and not aiming to overextend their productive capacities.

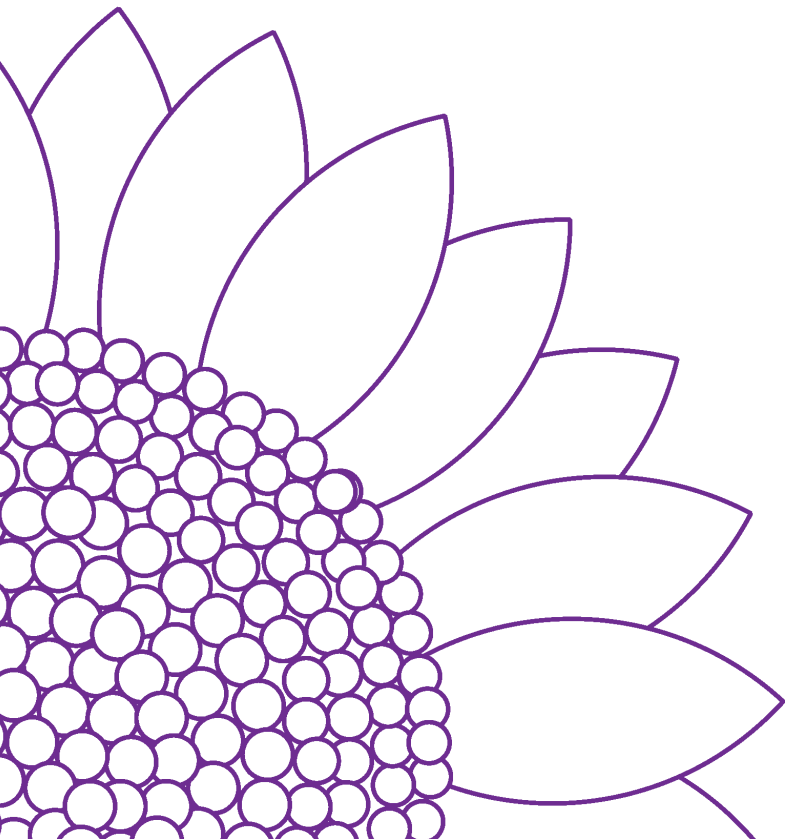
Organizing to overcome their struggles not only provided agricultural and intellectual strength, it changed the social condition of living in the Amazon for RECA's members. Lopes explained that the project is flourishing because everybody participates and fulfills their responsibility to make the project work. One farmer said, "Living together has changed things. In the past we lived isolated, in the forest, alone, just family, and went away for four days every month. Today, we have our companions, so, for us here, this is the modern way of living, right?" An elderly farmer in RECA explained, "You must trust. Otherwise, you lose heart. I mean, if you don't trust that it [will] work out in the future, you will give up. Like myself, when I first started to sow the land here, my son said, 'Come off it Dad, why fumble around? You're too old to see any crop.' Thanks to God I can see the plants producing."

RECA offers hope and guidance to others in the Amazon and elsewhere that seek to change the cycle of poverty and overcome constraints of social identity and nature. "For those who want to start a project like ours, first, you need courage; second, be aware that it is difficult because it is not a question of doing and leaving it. If that happens, the project is gone," João Pereira dos Santos advises. Concludes Lopes:

"Listen folks, living in the Amazon you must not give up. The Amazon is rich and full of alternatives. . . . Each community should look for its own way and its own solution." Sórdi asserts, "Everything that's been said sounds easy, but in fact it's hard to put into practice. It must be organized. We must have guts to build up our haven in the Amazon." RECA's determination and courage is an inspiration that one hopes will spread – making their Amazonian haven a reason to dream.

Case Study: Cultivating Community, Food, and Empowerment: Urban Gardens in New York and Havana

Margarita Fernández



An estimated 800 million people worldwide are involved in urban agriculture, mostly in cities of developing countries (Mougeot 1994). The status of urban farms in city plans is precarious, because they tend to either be labeled as vacant lots open for development or have temporary leases that terminate when the city government finds a profitable use for the land. However, in the past decade there has been an increased recognition of the social, economic, and environmental benefits of urban agriculture. The United Nations Development Program founded the Urban Agriculture Network in 1996 after conducting research on urban agriculture practices worldwide and finding that growing food in cities offers solutions to hunger, lack of jobs, and environmental degradation (UNDP 1996)[5].

By 2025, 80 percent of the world's people will live in cities. In developing countries, urban populations are increasing much faster than agricultural production, distribution, and marketing networks (UNDP 1996). The social and environmental services offered through urban agriculture are essential to today's cities, but urban agriculture is not sufficiently supported by city, regional, or national governments. There is a pressing need for integrated management plans that take urban gardens into consideration as permanent structures within the urban landscape.

The challenges and benefits of contemporary urban gardening movements can be seen through two case studies of initiatives operating in very different social, economic, and political contexts: New York City, USA, and Havana, Cuba.

Sowing Seeds of Reclamation: The Case of New York City

The history of urban gardening in the United States demonstrates the cyclical process of urban garden creation and destruction that moves in conjunction with economic crisis and recovery. Urban gardening in the U.S. dates back to the economic depression of the mid-1890s, when the city of Detroit allotted 455 acres of land and seed potatoes to 945 families. The city's temporary leasing of abandoned land spread to more than 20 U.S. cities, but with the increase in real estate development, these gardens were short-lived (Hynes 1996). The next revival of urban gardening came with the "liberty gardens" of World War I and then the postwar "victory gardens," which were part of a national campaign to supplement food shortages and "maintain morale on the homefront" (Kurtz 2001). However, once the immediate need to produce food subsided, so did the government's support. A similar story is now being lived in New York City, but this time communities are fighting to keep the gardens alive.

In the 1970s, communities in low-income neighborhoods throughout New York City took over abandoned lots and built community gardens. These urban gardens were part of a grassroots movement to reclaim and revitalize a way of life to counter the decaying landscape. The loss of manufacturing jobs to a service-sector economy, the middle-class movement to the suburbs, and a decaying infrastructure led to wide-

scale abandonment of tenements, crumbling buildings, and arson. New York City experienced one of the worst fiscal crises in its history. Cutbacks in public services affected low-income neighborhoods the worst. By 1977 there were more than 25,000 vacant lots in New York City (Lamborn and Weinberg 1999).

A young artist from the Lower East Side, Liz Christy, became a leader in the urban gardening movement of the '70s. She and like-minded activists, known as the Green Guerrillas, began taking over abandoned lots and planting gardens. The city's solution to controlling crime in these vacant lots, which were serving to empower drug dealers and further the heroin and crack epidemic, had been to fence them in. Armed with wire-cutters, pickaxes, and seeds, the Green Guerrillas took it into their own hands to revitalize their neighborhoods by taking control of these spaces.

The Green Guerrillas became an informal extension resource that provided technical assistance, tools, and seeds to new gardens. In 1978 they became a nonprofit, and to this day they continue to provide these services as well as community organizing assistance, garden preservation initiatives, and an urban agriculture program. Liz Christy was also instrumental in lobbying the city government to create a program that would serve the increasing needs of urban gardens and legitimize the use of city-owned land. In 1978 Operation GreenThumb was established as a Parks Department program. GreenThumb provided temporary leases to gardeners for a flat fee of $1, under the condition that if the city planned to use the land in the future, it would give 30 days notice for gardeners to vacate. Today there are approximately 650 community gardens in the five boroughs of New York City. These gardens range in size from 1,000 square feet to two acres.

As the city's fiscal crisis subsided, the threat to community gardens from developers increased. City development plans typically took over a few gardens at a time, and community gardener resistance occurred politically at the local level. However, this changed when in January 1999 Mayor Rudolph Giuliani placed 115 GreenThumb gardens on an auction list for developers. Community gardeners, greening groups, and garden supporters worked to stop the auction through continual street protests and acts of civil disobedience. Green Guerrillas, along with the Natural Resource Defense Council (NRDC), filed two lawsuits against the city for not performing the environmental and land-use reviews necessary to place gardens on an auction list. The Puerto Rican Legal Defense Fund filed a lawsuit on grounds of discrimination against people of color. Community garden coalitions actively sought the support of community-based organizations, city council members, borough presidents, and other elected officials.

In May 1999, the day before the auction, the Trust for Public Land and the New York Restoration Project (NYRP), founded by actress Bette Midler, negotiated with the city the purchase of 112 gardens for $4.2 million. These gardens are now protected in perpetuity under land trusts. But 152 gardens remain under threat and will most likely be bulldozed for residential housing or commercial space.

Social Benefits

In New York City, community gardens are open green spaces that play a central role in the social fabric of neighborhoods. Individuals depend on these gardens for such basic human needs as fresh food and open space, and as a social center. Local residents' voluntary participation in the creation, establishment, and ongoing activities of a community garden instill participants with a sense of ownership and empowerment, which are key ingredients for building healthy communities. Gardens host diverse activities – concerts, theater pieces, sculpture exhibits, weddings – and are used for growing food and flowers, and as playgrounds for children and tranquil escapes from hectic city life.

Education

Education is provided both formally, through organized workshops, classes, or trainings, and informally, through practical gardening and social organizing experiences. Community gardeners and outside experts lead workshops, classes, and training sessions on horticulture, organic agriculture, food preservation, and community organizing. Local schools also use the gardens as outdoor classrooms for environmental education programs.

Food Security

A large percentage of community gardens grow food, but the intensity of production and distribution systems vary widely. Approximately 25 gardens throughout the city sell their produce either via an on-site farm stand or via a farmers' market. Since the produce is being grown on city-owned land, the profits must go back into the garden (i.e., to purchase materials). The majority of gardens simply donate their produce, either informally to passersby who ask or more formally to a local emergency food provider, soup kitchen, or food pantry. About 15 gardens have formed partnerships with local rural farmers and established community-supported agriculture (CSA) systems. The NGO Just Food initiated this rural-urban partnership program in 1996. Through the partnerships, nearby rural farmers secure a market in New York City, where buyers purchase a 'share' of vegetables, which are delivered weekly to the community garden throughout the growing season. In many parts of the Bronx, Brooklyn, and Spanish Harlem, fresh vegetables are scarce and not always affordable. Food from these gardens and CSAs can represent a large portion of a family's source of vegetables.

Strengthening Community Cohesion

The 1999 auction was a blessing in disguise for building social networks because of the increased political and social organizing done by gardeners and their supporters in response to this crisis. Gardeners solicited letters of support from community-based organizations, met with local politicians, and formed coalitions with other

community gardens in their districts, boroughs, and citywide. The garden coalitions represent a social network that serves multiple purposes – from technical, material, and labor exchanges to a space where members of the community can discuss any issue at hand.

The Case of Havana, Cuba

Historically, Cuba's economy has been based on exports, predominantly of sugar, tobacco, and citrus. Since the majority of Cuba's arable land was used for these export crops, there was little left to grow crops for domestic consumption. Cubans depended on food imports to feed their country. With the fall of the Soviet bloc in 1989, Cuba fell into the worst economic crisis of its history. Cuba had depended on the former Soviet Union and the socialist bloc countries for 85 percent of its imports, including food and agricultural inputs (Sinclair and Thompson 2001). The United States embargo exacerbated the situation by severely limiting U.S. trading partners from trading with Cuba. Cuba's people found themselves isolated in the middle of an economic and food crisis, forcing them to find solutions on their own.

Food imports had fallen by more than half, pesticide imports by 60 percent, fertilizers by 77 percent, and petroleum by more than 50 percent (Funes et al. 2002). Cuba was faced with having to alleviate the food crisis with practically no agricultural inputs for its predominantly conventional agriculture system. The response was a national restructuring of agriculture, away from large-scale, high-input, monocrop agriculture, toward small-scale polycultures based on agroecological principles (Murphy 1998).

The creation of an urban agriculture system was a key component in building a newly self-sufficient, sustainable food system, and in bringing consumers closer to producers. This effort was initially a grassroots response to food shortages, with urban residents cultivating abandoned lots in the early 1990s. But soon the Cuban government saw the potential that urban agriculture offered to alleviate the food crisis. Schools, institutions, and workplaces began producing food on their land. Urban gardens sprouted all over the capital city of Havana, mostly as home gardens, at community centers, and in vacant lots.

However, many urban residents lacked the agriculture expertise needed to grow food. In 1994 the Ministry of Agriculture created the Urban Agriculture Department to provide technical and material support for these urban gardeners (Murphy 1998). For urban residents interested in obtaining a piece of land for cultivation, local Consejos Populares (Popular Councils) now provide land-use rights free of rent, and municipal government offices each house at least three agriculture extension agents with different specialties such as pest or soil management. Today there are over 20,000 urban gardens in Havana (personal communication, Paez).

The decentralization of the food market system is another action taken by the Cuban government and citizens to improve the availability and accessibility of food in the city, through on-site farm stands; direct marketing to local schools, hospitals, and senior homes; and state-run farmers' markets. Urban gardens sell their products to schools, hospitals, and senior homes at a lower price than at local markets. But the urban farmers receive government subsidies to compensate for this difference in price.

Education has also been a large part of the urban agriculture movement, facilitated by extension agents, garden clubs, and seed houses that supply gardening knowledge and supplies. Urban gardens serve as outdoor classrooms where environmental education programs are run in conjunction with schools and local residents, and for recreation: cookouts, exercise, or finding shade under a tree.

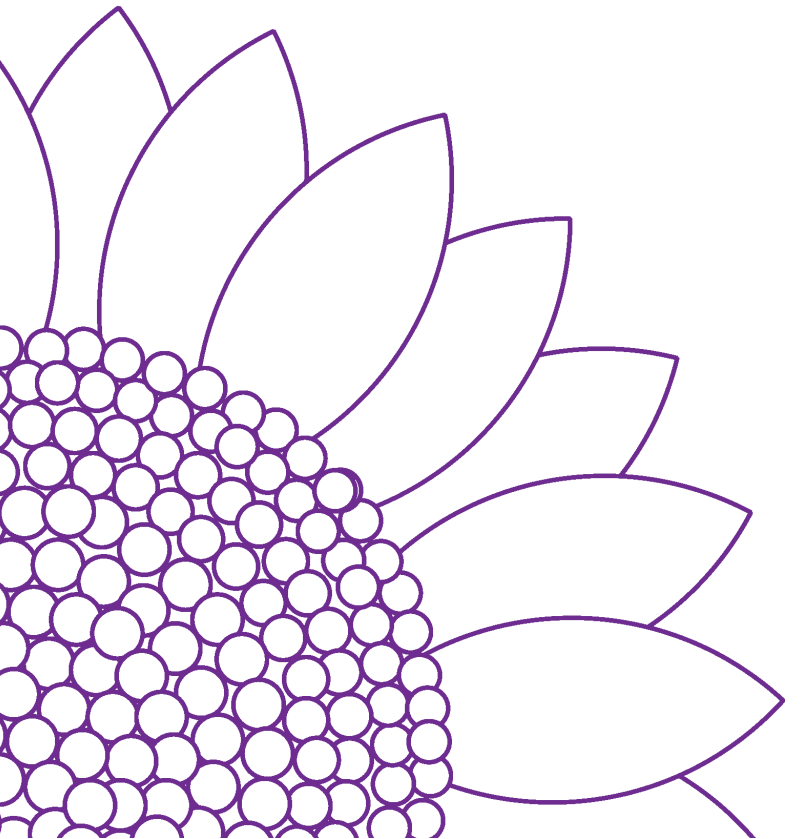
Urban agriculture has been essential to alleviating the food crisis in Havana. Half of the vegetables consumed in the city come from urban gardens (Sinclair and Thompson 2001). The fruits and vegetables grown in urban gardens are sold at prices 30-50 percent below the farmers' market prices, making them more accessible to urban residents. Over 100,000 jobs have been generated by urban agriculture in Havana. Urban farming is among the highest paying jobs in the country: up to $80 per month, compared with the average Cuban's earnings of $15 to $20 per month. Many urban farmers also get a quota of fruits and vegetables from their gardens.

Although the Cuban government has played an essential role in supporting Havana's urban agriculture movement and clearly sees the contributions it has made to alleviating the food crisis, integration into the city's proposals and plans for the urban landscape is still limited (Cruz et al. 2001). Havana's increasing ability to feed its population through rural production and food imports, along with pressures to develop for the tourist industry, is leading to under-appreciation of the importance of urban agriculture.

As Maria Caridad Cruz writes in Agricultura y Ciudad: Una clave para la sustentabilidad (Agriculture and the City: A key for sustainability), "If urban agriculture does not establish a direct relationship with the urban environment in which it is inserted, and solely limits itself at all costs to food production, it will always be a vulnerable activity with a tendency to disappear" (Cruz et. al. 2001: 62). The cyclical process of urban garden creation and destruction moves in conjunction with economic crisis and recovery, as we have seen in the U.S. It is a cycle that Cubans like Cruz know needs to shift towards a more integrated urban planning system that includes urban gardens as permanent structures of the city landscape.

Food Sovereignty

Report by Kathleen McAfee



This session explored the concept of "food sovereignty," a goal that has been put forward by rural social movements such as the international small-farmers network Vía Campesina. During the session, participants discussed the definition of food sovereignty, how it differs from food security, and the wide range of factors affecting food sovereignty, from trade and intellectual property rights to local, national, and global policies to sustainable agriculture.

A short definition of food sovereignty might be: the right of communities and countries to produce for their own needs, determine their own farming methods and food policies, and decide what to import and export. But what does this mean in practical terms? Does food sovereignty make sense at the level of a rural community? Can it apply to cities? Or is it conceivable only as a nationally coordinated goal? What is the difference between food sovereignty and food security? What policies and what structures of power relations stand in the way of food sovereignty?

Phil Dahl-Bredine, a Maryknoll lay missioner working with farmers in Southern Mexico, said, "The Mexican government says NAFTA [the North American Free Trade Agreement] will give us food security. But campesinos say, 'We've lost control over what we have, what we produce, what's in it, and how we use it.' People want to have control over what they produce and how they produce it, so they can preserve their way of life and culture and be independent. We need to build food security from the places where people still have it, such as in the communally owned lands of Mexican indigenous peoples."

Ronaldo Lec, a permaculture specialist at IMAP in Guatemala, agreed and added that "Food sovereignty has cultural and spiritual aspects too: producing food involves a way of seeing life."

Silvia Rodríguez of GRAIN (Genetic Resources Action International) added: "There are two basic positions on food policy. One is that trade, based on the comparative advantage of each nation, will result in food security. The other is that food security comes from people having the right to food and the capacity to control their own productive decisions."

"Control over our own seeds is the first step towards food sovereignty."

Silvia Rodríguez

"In Costa Rica," she continued, "those who think trade is the whole answer tell us that the cheap food imports dumped in our markets from the U.S. are good for consumers and the country because it cuts our industrial and other production costs. This theory assumes that Costa Rica's comparative advantage lies in low-wage factory exports and that food production in our country is not important."

Carlos Perez, a sustainable agriculture researcher at the University of Georgia, pointed out that it's not a question of "food security" versus "food sovereignty"; it's a matter of scale. "Food security applies at the household level; food sovereignty

makes sense at a larger scale. The food sovereignty concept is good because it shows that food security isn't just about technology; it's about policy and power, both within states and across nations. It shows the politics behind food. Choice is important, too: trade and markets are not bad in themselves, but they can have bad effects when you have no choice of whether or how to participate in them. Food sovereignty is necessary for real democracy."

"The problem isn't that we lack the technology for sustainable agriculture, but that there is lack of structural support for it."

Eric Holt-Giménez

Eric Holt-Giménez, Latin America Program Manager at the Bank Information Center, said that we need to work at all scales on a food sovereignty agenda but that "the key is who has control over the labor process, over the different factors of production. When the Green Revolution and other high-external-input technologies are brought in, farmers lose control over labor, fertilizer, seed, and post-production processes. The big companies – agrochemical and processing and marketing – take away farmers' control, their relations with consumers, and farmers are stuck producing one commodity. Now, genetically modified organisms are the latest form of this colonization of agriculture by big capital."

Karl Zimmerer, from the University of Wisconsin's Geography Department, raised the idea of "foodsheds" that has emerged from the community-supported agriculture movement in the U.S.: "An idea parallel to watersheds: semi-autonomous growing sheds for supplying regions of people with food: that's an example of a scale to work at."

Richard Levins, from the Harvard School of Public Health, believes that "there has to be a national-level policy because countries need a buffer against the rise and fall of international markets in food and farm inputs. Even a small change in world food prices can bring a big change in food availability and sovereignty." He offers the case of Cuba, where diversification of food production in space serves as a buffer against natural or manmade disaster."You produce a diversity of crops, so in case of disaster, you have a food commodity to fall back on. . . . You use a mix of technologies: animal traction as well as mechanical – the key is to diversify."

"You'll pay to feed the same people through welfare if they're not able to produce food by working. Ecological agriculture is socially more productive than capital-intensive agriculture."

Richard Levins

A number of participants brought up the relationships between hunger, food aid, and food sovereignty.

Jesús León Santos, farmer and president of CEDICAM (Centro de Desarrollo Integral Campesino de la Mixteca), said that seeking food security was not enough and that farmers in Mexico needed to work for food sovereignty. He added: "Now, too much

"Food sovereignty should respect the cultural rights of indigenous peoples, and protect our economies."

Jesús León Santos

comes from other places – it's too risky. Food aid and food trade can be used against us if we take decisions contrary to what our trading partners want. Food sovereignty should respect the cultural rights of indigenous peoples, and protect our economies. It must be tied to controlling the whole chain of our farm inputs, too."

Ivette Perfecto, from the University of Michigan, warned that we should not disregard the concept of food security because hunger is still a problem and food security is a way to address that. But the issue is the way that hunger and malnutrition problems are addressed. Sarah Vogel, a Ph.D. student at Columbia University, pointed out that "international communities dump their surplus grain to relieve hunger but, over time, that only makes the problem worse because local farmers are put out of work and the country becomes dependent on imported food." Teferi Abate, a Yale Agrarian Studies Fellow agreed and added: "The cause of hunger in Ethiopia is not drought, it's not climate; it is food trade and how it's controlled, and the resulting lack of purchasing power."

So then, what are the links between rural food sovereignty and the needs of urban dwellers? What role should governments play in enabling or ensuring food sovereignty? Food security?

Zimmerer suggested the need for more direct producer-consumer linkages, but also some state regulation of the market as well as market access for landless poor consumers. Levins added that government policy must start with the right to eat: "The state must have the means to ensure that everyone has that right. That may mean control over land and water. State control over these resources is essential, even though planning how to produce has to be done with farmers, with high inputs of local intelligence."

After much discussion about policy, participants discussed the relationship between sustainable agriculture and food sovereignty. The question was raised of why, if ecological agriculture is so good, doesn't everyone use it?

Holt-Giménez described how farmers in Nicaragua who were able to convert to sustainable agriculture practices now have fewer problems with pests and soil fertility and often have higher yields. However, he continued: "The problem isn't that we lack the technology for sustainable agriculture, but that there is lack of structural support for it. For example, you can get credit to buy chemical fertilizer, but not to cover costs of labor to produce on-farm compost. The problem is the structural factors that determine the context of agriculture: prices, tariffs, credit, labor incentives. The impediments to ecological agriculture competing with industrial agriculture are political-economic."

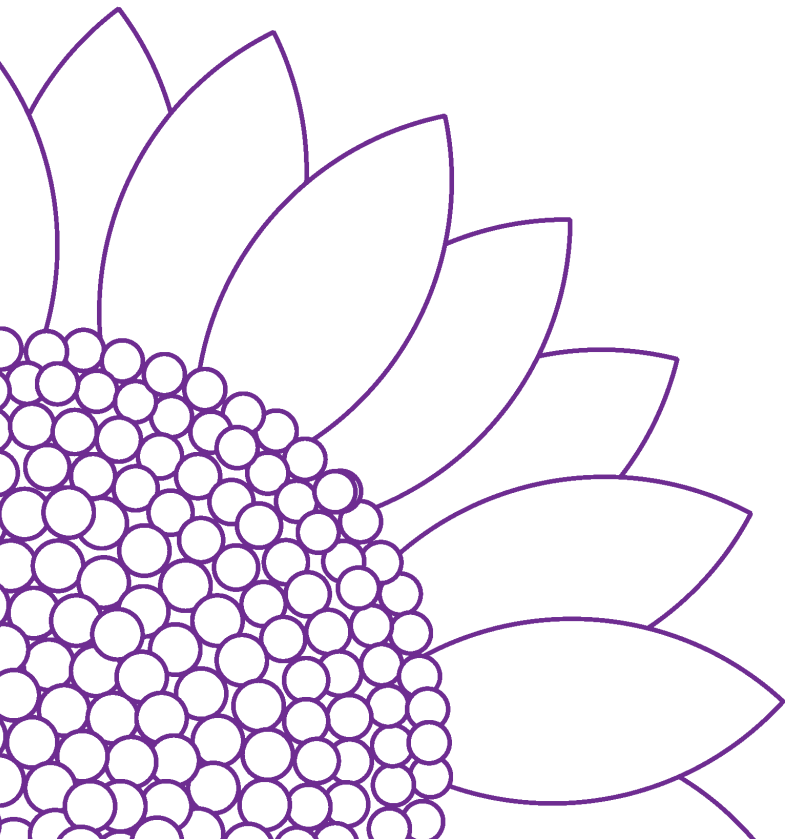
Levins added: “Figures comparing large- and small-scale dairy production show that small farms are more productive: in mini-dairies, people can give more attention to individual animals, so there are fewer problems with diseases.”

“High-tech agriculture,” he continued, “is not ‘more efficient.’” Claims of pesticide success by companies are based on doing things their way versus doing nothing. It’s been shown that pest control can be done more efficiently on smaller farms. Sometimes this takes more labor, but that’s not a loss to society – those people must eat, anyway – so ecological agriculture is economically preferable. You’ll pay to feed the same people through welfare if they’re not able to produce food by working. Ecological agriculture is socially more productive than capital-intensive agriculture.”

In closing the session, Rodríguez emphasized that neither food security or food sovereignty can be achieved as long as transnational corporations have control over intellectual property rights, especially patents or plant breeder’s rights on crop varieties. She concluded the session by saying, “Control over our own seeds is the first step towards food sovereignty.”

Farmer Identity, Organizations, and Networks

Report by Seth Shames



This session explored issues of "campesino" and "family farmer" identity and analyzed the implications of these identities for domestic farmer organizations, international networks, and political movements. Participants covered a wide range of issues related to these topics by sharing their personal experiences. Participants focused on the commonality of struggle among family farmers and campesinos, the diversity of scale and unity of purpose of campesino movements, and the importance of focusing on the struggle of migrant farm workers in the United States.

On the issue of "family farmer" and "campesino" identity, George Naylor, from the National Family Farm Coalition in Iowa, first clarified that "family farmer" is a common term in the U.S. that refers only to a farmer who exploits his or her own labor or that of his or her family. Ideally, family farmer independence is guaranteed by ownership of the farm, but most family farm operations today depend on renting a high percentage of their farmland. Naylor stressed that while there are obvious, important differences between agriculture in the U.S. and other parts of the world, including the intensely industrialized nature of U.S. agriculture, the principal similarity between family farmers in the U.S. and campesinos in Latin America is that both are being told it is possible to succeed in an industrialized agriculture system and that failure is the fault of the farmer. Under this increasingly industrialized system, farmers throughout the Americas are struggling economically. In both North America and Latin America, in order to survive, farmers often need off-farm income. These shared economic circumstances provide a basis for family farmers and campesinos to organize collectively.

On the issue of terminology, Sérgio Lopes, from RECA (Reflorestamento Consorciado e Adensada) in Acre, Brazil, added that he uses the term "family producer" as opposed to "agriculturalist" because of his understanding that the work of the farm comes from the entire farm family, including men, women, and children.

Speaking from his experiences in Mexico, Alberto Gómez Flores from the Unión Nacional de Organizaciones Regionales Campesinas Autónomas (UNORCA) discussed the simultaneous diversity and unity of campesino movements. He explained that there is not one, but many campesino movements. They are unified by the powerful economic and social forces they are fighting against. To work against these forces, campesinos have created organizations at family, community, regional, national, and international levels.

These organizations are often structured around farming issues as well as social and political issues. At the local economic level, they look to find niche markets or create value-added products. Socially, they focus on education, health, and the conservation of natural resources. Among these local organizations there can be a wide range of goals, but these groups can come together nationally to create an agenda and work toward larger political change that will help to address local issues.

The strength of having this diversity of scale and commonality of purpose is that as one organization falls, another can quickly take its place to continue its work.

Gómez also emphasized the importance of these campesino organizations in developing innovative forms of grassroots organizing and economic development. Farmer organizations can promote their own solutions and act as bridges between different sectors of society but, he added, an organization that only focuses on opposition to public policy without involving the grassroots is doomed to fail. Gómez used the example of Mexico, where there are 18 campesino organizations that consider themselves national, but the majority of them have no grassroots base. The majority of campesinos, he claimed, are not organized.

Lopes spoke of an identity problem in farmer organizing in Brazil as a consequence of [President] Lula's political success. In Brazil, the groups that supported Lula believed that once they got into the government, things would be different. Now the movement is the government, no longer outsiders, and organizers are figuring out ways to come to terms with this.

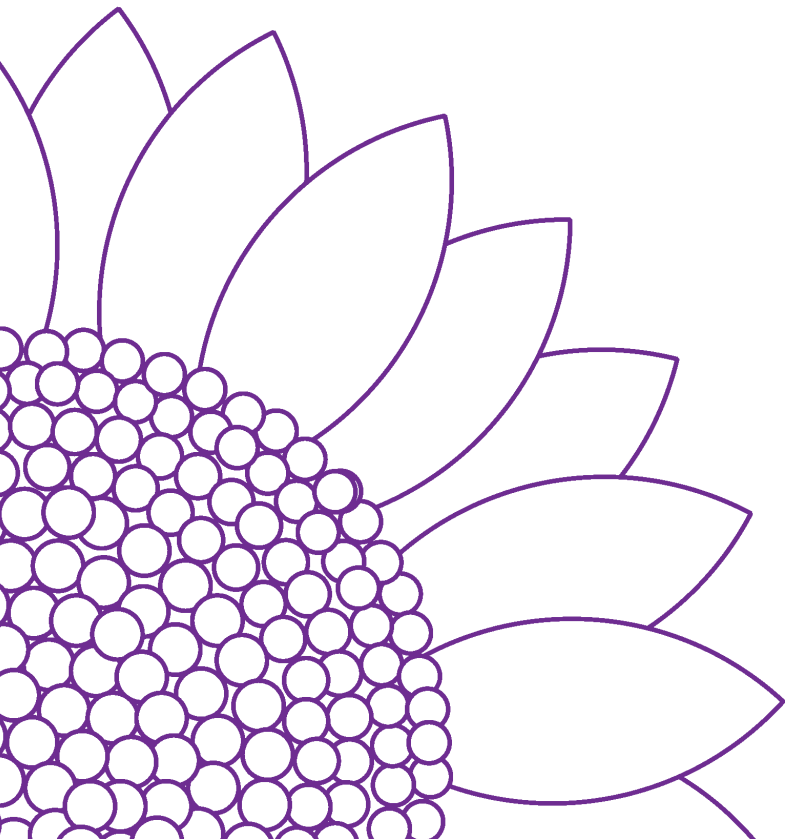
Participants agreed that immigrant farm worker issues needed to be emphasized in any discussion of farmers' movements. Jose Montenegro, director of CIDERS, an organization working with Mexican farm workers in the U.S., has found that a large percentage of migrants feel connected to their homeland and identity as farmers, and many of them express interest in one day returning to Mexico to continue farming. However, Montenegro acknowledged, this is not always possible: "When we cross borders, we lose our histories." Now declining economic conditions are providing fewer and fewer opportunities for young people in parts of Mexico to continue farming, forcing them to migrate north to the U.S. Montenegro stressed the importance of training and outreach to young people who feel pressured to migrate. Robin Sears, from Columbia University, added that she has observed the positive effects of this sort of education and outreach to rural youth in Amapá, Brazil.

Montenegro cited the example of Sinaloa, Mexico, to emphasize a point revisited throughout the session and the workshop in general: farmers are struggling due to the increasing consolidation of agricultural land in few hands. In the next twenty years, he estimated, beautiful green fields will cover Sinaloa, but they will be owned by only four companies, not the families and communities that once occupied them.

Minor Sinclair, from Oxfam America, spoke about a boycott against Taco Bell, organized by the Coalition of Immokalee Workers in Florida, to raise awareness of the plight of 2 million undocumented workers in the U.S. who have no legal rights. He believes that organizing people without rights can succeed, although this work is very challenging. Participants in the session agreed with this assessment. Although the problems are difficult and organizing can be complicated, all participants are committed to continuing to work on them.

Changing Pressures on International Trade

Report by Kelly Coleman



This session focused on the changing pressures that consumers and farmers are exerting on international trade, and how in turn international trade is impacting the choices of consumers and farmers. Participants discussed the major sources of friction, which both consumers and farmers experience in their contact with the international market, and discussed possibilities for change in the current international trade regime.

Major themes which resonated in the discussion were the role of consumer purchasing power in influencing international trade; the growing awareness among both farmers and economists about the true costs of export-based economies; the conflict between calls for free trade and other social and environmental concerns; and the inherent conflict between consumer society's desire for uniformity and long shelf life of food products on the one hand, and the desire to maintain diverse agro-ecological crops on the other.

Kristin Dawkins of the Institute for Agriculture and Trade Policy began by reviewing the major forces exerting pressure on the current international trade regime. She noted that consumer pressure is expanding beyond the niche market of fair trade products, and that "the principles of the fair trade movement are becoming part of civil society's demands in regard to all trade." Civil society movements, she said, are pushing for more comprehensive trade agreements that encompass labor and environmental rights, and are rejecting the notion that the desire for free trade trumps these rights.

"The principles of the fair trade movement are becoming part of civil society's demands in regard to all trade."

Kristin Dawkins

The question of whether international trade should take precedence over other societal concerns is currently being tested by the U.S.'s challenge of the Cartagena Protocol on Biosafety, which allows countries to restrict the importation of genetically modified organisms. The U.S. is using World Trade Organization rules to challenge the Protocol in order to try to force other countries to open their borders to imports of genetically modified organisms and products.

Dawkins also brought up the importance of trade distortions, which encourage overproduction and undermine the food sovereignty of individual farmers and entire countries. She discussed the history of agricultural dumping – the practice of selling cheap products abroad at prices below the cost of production, thereby undermining food production in other countries. Dawkins noted that disagreements over modern-day agricultural dumping have historic roots in trade between the U.S. and Europe. The original 1947 GATT (General Agreement on Tariffs and Trade), precursor to the WTO, allowed countries to place restrictions on the import of dumped goods, and the WTO restricted dumping cases until December 2003.

Several participants raised the issue that the quantity and effects of dumping are difficult to calculate accurately and to control. Dawkins agreed that more work should be done to develop an accurate formula for calculating the impacts of dumping. However, she argued that a complete ban on agricultural dumping would reduce the impact of overproduction on international markets and would force countries to handle surpluses within their own borders.

Jean Marc von der Weid then spoke about his experience with trade in Brazil from a local perspective. The region where he works is not an exporting area, but it is impacted by imports. Von der Weid went on to describe the pressures that both national and international markets put on farmers who are developing a cash crop. In the case of black beans, he noted, most stores only buy two varieties of beans, although over 105 varieties have traditionally been grown in Bahia, where he works. There is a "conflict with the laws of markets to have such variety . . . because supermarkets want uniformity, which is a contradiction to the diversity goal," he said. He has been working to develop a market for these other varieties of beans, which requires that he convince retail outlets to accept and sell different varieties, reintroduce these varieties to the consumers, and at the same time encourage farmers to grow such diversity. Another participant noted that mass producers have driven the loss of variety, and now consumers must be retrained to appreciate diversity on a local level.

Bernadette Orr, from Oxfam America, brought the conversation back to the macro scale, commenting that there are signs of hope at a local level, but that these efforts are marginal in the context of the entire food system. She mentioned the reintroduction of heirloom tomato varieties by Mexican bishops as an example of good local efforts but asked, "How do you make the jump from the projects of small organizations and relatively marginal programs to the creation of macro-level policies that will allow these examples to flourish?"

In response, Kristin Dawkins noted that the WTO could still serve as a place to "make rules, not to eliminate rules." She suggested that "rules should be limited to that which is traded, but should not obligate trade in products [whose importation is] keeping countries from being self-sufficient." One participant wondered how corporate power could be reduced to allow such changes in the WTO to happen. Another responded that organizing and education would be key to any change in the international trade regime.

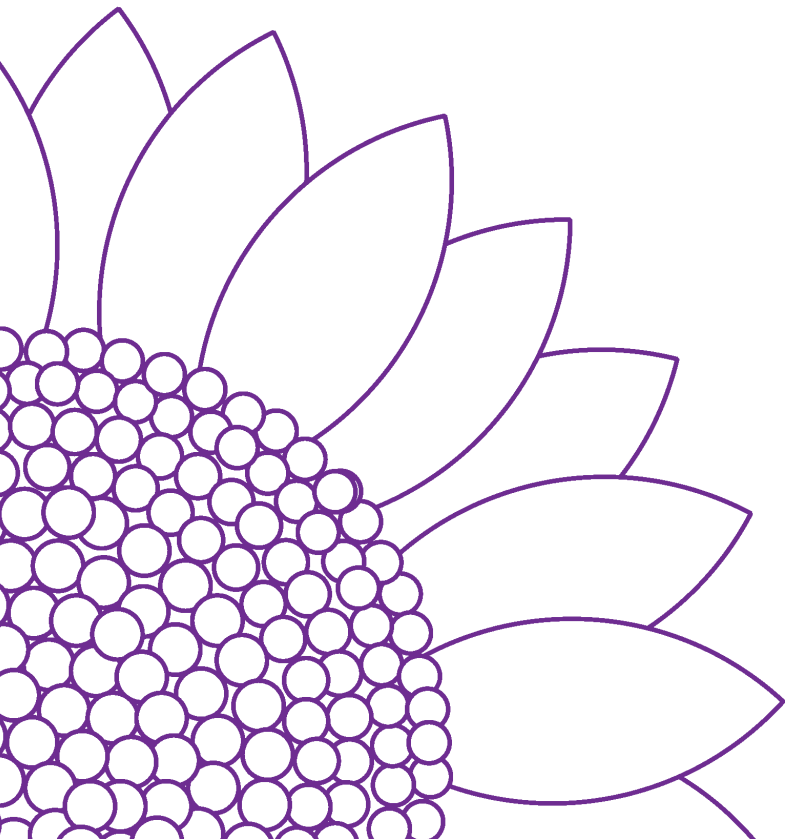
Participants felt that civil society, particularly farmers and consumers, do have leverage points within the international trade regime, but that these sectors need to be further educated if they are to have macro-level impacts. One participant noted that farmers around the world are gaining an understanding of their role within the international market, but that this process is not universal. Economist Bob Bloch

added that development economists now recognize that the economic policies of the last century are not having the intended effects within developing countries.

All felt there was hope that the currently prevailing rationale of 'trade for trade's sake' could be overcome, but recognized that this would involve overcoming barriers within the current trading regime and would require education, time, and commitment.

Relationships Between Export Markets and Local Self-Reliance

Report by Jonathan Cook



This session addressed some of the relationships between agricultural production for export and subsistence purposes, for local and foreign markets. Discussions of smallholder agriculture in Latin America have tended to construct these categories dualistically. Emphasis is either placed on the need for farmers to find new export opportunities, or to produce more for local and regional consumption. An important consensus emerging from this session was that this description does not adequately represent the complex mix of livelihood strategies that farmers pursue. Participants pointed to specific examples of farmers blending subsistence and export production, seeking to generate additional cash income while feeding their families and communities. They described promising schemes for export certification, like fair trade, while also urging greater attention to smaller-scale production and national-level markets.

Jessica Steele from Clark University raised a crucial question regarding export-oriented agriculture: "How do commodity producers survive when prices collapse?" Another participant from Clark discussed the example of Ethiopia, which receives 70 percent of its foreign earnings from coffee. But the terms of trade are poor; according to the NGO Oxfam, coffee farmers in nearby Uganda get $0.14 a pound for coffee that sells for more than $1 a pound at the docks in London, and sells for much more to consumers. The problem stems from the collapse of the price floor set before 1989 by the International Coffee Organization (ICO). Supply now greatly exceeds demand, so prices of coffee have crashed.

Sarah Vogel from Columbia University argued that without a quota system, there is no incentive for farmers to diversify away from coffee. Jean Marc von der Weid, from AS-PTA in Brazil, commented that "The logic of a farmer is not so different from that of a country." Though diversified production systems are inherently more stable, commodities like coffee are a considerable investment and make it harder to diversify. Alberto Gómez Flores from UNORCA in Mexico, said that governments should create stabilization funds for coffee (Mexico has one, but it is flawed). The idea is that when coffee prices are low, the government gives some financial aid to farmers – but when prices are good, farmers pay into the account for programs to diversify agricultural opportunities and provide technical assistance.

Participants debated various models for promoting fair trade and invigorating local and national markets. Stephanie Daniels from Clark University pointed out that cocoa farmers in Costa Rica have obtained certification that gives them access to both local and national markets. Kelly Coleman from the Yale School of Forestry & Environmental Studies argued that local markets need to value certification, too – otherwise it's just the same old export structure with fairer terms. Daniels agreed that local demand for certified products is higher in Costa Rica than elsewhere. But Marina Spitkovskaya from Yale questioned rosy notions of fair trade for another reason. As another type of export niche that doesn't change market structures or

foster relationships between communities and local farmers, fair trade can harm efforts to build healthy local markets and communities in both North and South. Perhaps, Spitkovskaya added, encouraging local production would be better.

A participant from the University of Michigan argued that governments can link food sovereignty and security programs by, for instance, combining food aid and community-supported agriculture (CSA) schemes. While organic and fair trade certification have been touted for expanding export opportunities for small farmers, Gómez pointed out that Mexican farmers are also trying to create an internal market for organic coffee. Mexicans drink five cups of coffee a day, so national production could be absorbed at home. Farmers' organizations are working to open points of sale for coffee and fruits.

Traditionally, long production chains have meant that intermediaries have extracted most of the profits from processing agricultural goods. What will enable farmers to actually capture more of the value added at this stage? Bernadette Orr from Oxfam underlined the importance of giving farmers greater control over exports. In Mexico, Gómez pointed out, farmers have started their own technical enterprises to try to capture value added through, for instance, juice processing.

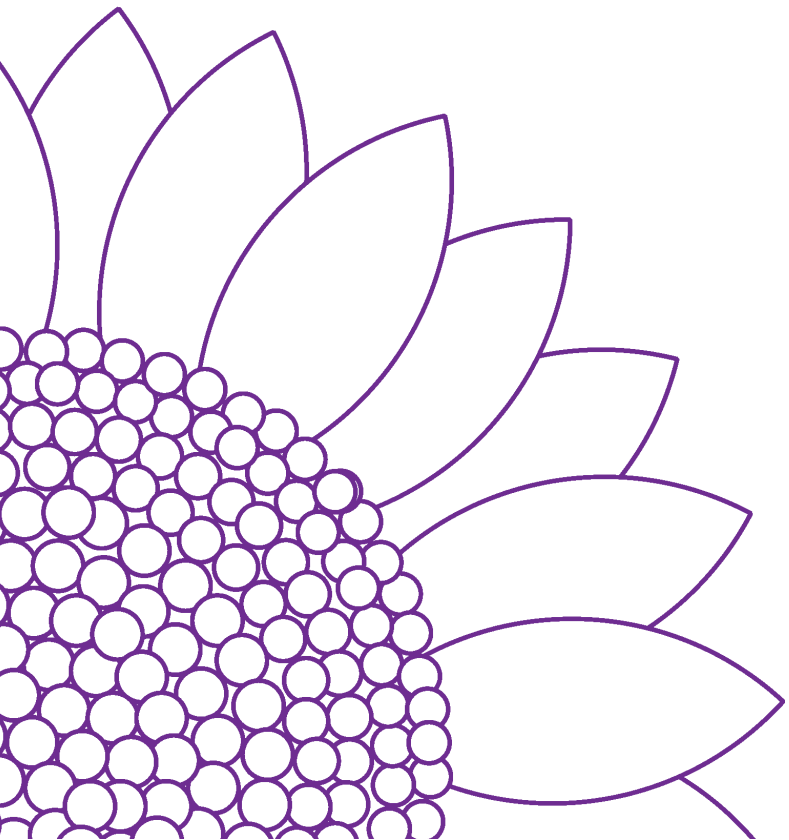
The role of government in expanding farmers' market opportunities was another major topic of discussion. In Mexico, there has been little government willingness to develop national markets; Gómez argued that the government should fix price signals and change regulations in order to help small farmers. Daniels, from Clark University, cited the example of Cuba, which moved from being heavily dependent on sugar toward a more diverse range of export products like citrus, tobacco, rum, and shrimp. State controls limited the dumping of imports and helped to protect the linkage between domestic production and consumption. Jonathan Cook from the Yale School of Forestry & Environmental Studies agreed that the issue of state support is often neglected in the rush of praise for certification and other non-governmental schemes to develop markets. However, Sarah Vogel from Columbia University questioned whether a "quarantine" model relying heavily on state protection, like Cuba's, was necessarily a good thing. Clearly, questions remain about the role of government in promoting these models of development.

There has been debate within the social justice movement, most notably between the NGOs Oxfam and Food First, over whether to support fair trade schemes for Latin American farmers or a more localized production model that shields small farmers from market vagaries and competition with more efficient overseas producers. While disagreement over this question persisted throughout this session, there were points of agreement. Participants agreed that a monoculture model of export-driven production is fundamentally risky and that diversity allows farmers greater flexibility during market fluctuations. Autonomy was also recognized as of paramount importance; farmers need to retain the ability to make their own

decisions and respond to new opportunities. Finally, participants agreed that the promise of fair trade and private certification programs should not distract from governments' responsibility to level the trade playing field and to support small farmers and internal markets.

Urban/Rural and Producer/Consumer Relations and Food Systems

Report by Alder Keleman



This session addressed the challenges of maintaining the economic and social viability of small-scale agricultural production in the context of increasing agricultural industrialization and the "rural exodus" from farming regions to urban centers. Discussion centered on strategies for making small-scale production economically competitive with industrial agriculture, and tactics to involve young people in farming. However, the conversation also reflected practitioners' convictions that movements to support small-scale agriculture must not be limited to the economic and the technological, but must also be political. While participants agreed on the significance of political action, they also acknowledged the importance of approaching politics in a way that creates lasting change, rather than simply re-creating existing power structures.

Examples of strategies for supporting small-scale agriculture were offered by Sérgio Lopes from RECA in Acre, Brazil; Alberto Gómez Flores from UNORCA in Mexico; and Catherine Murphy from FLACSO in Cuba. Emphasizing the need to make small-scale producers' products economically competitive with the products of larger industrial interests, Lopes asserted that, in the experience of RECA, it has been indispensable to "learn the rules of capitalism." For his organization, which runs a packaging and marketing plant for the products grown by its producers, this learning process has entailed building the capacity to comply with the same hygienic standards that large-scale producers are required to follow. Central to this process, Lopes related, has been RECA's desire to go beyond niche markets for rainforest products and its commitment to making RECA's socially responsible, organic, high-quality products accessible to the average consumer. The success of organizations like RECA, he asserted, should not be due to niche market-based charity, but underpinned by quality-based competitiveness in larger market arenas.

Gómez's comments seconded many of Lopes' themes. Drawing from UNORCA's experience in Mexico, Gómez discussed how farmers can come together in networks to put together a diverse package of marketable agricultural goods. In this strategy, production remains farmers' primary task, but a focus on integrating production activities with business savvy also becomes central. This tactic eliminates intermediaries from the production chain, and, in Gómez's experience, has allowed for the marketing of a broad range of products to national supermarkets, as well as for the revitalization of local markets.

Catherine Murphy's observations on the urban gardening system in Cuba contrasted with Lopes and Gomez's experiences. In Cuba, food production has come to depend not just on strengthened rural-urban market links, but on urban agriculture itself. Due in large part to the country's communist government, she pointed out, Havana's urban garden system operates under a distinctive set of economic conditions, with less pressure from large agricultural conglomerates. The urban gardening movement in Havana, she explained, arose as a reaction to the food shortages and economic

difficulties that followed the collapse of the Soviet Union. In that period, cheap food imports from the communist bloc countries disappeared, and urban gardens filled this gap. In response to the question of whether or not urban gardening provokes competition with rural producers, Murphy pointed out that crops grown in urban gardens tend to be perishable and difficult to transport, whereas less perishable foods are cultivated in rural areas. In this way, urban gardens – and the sale of urban-grown produce – serve a special set of consumer needs.

In addition to discussing strategies for marketing small-scale producers' crops, participants addressed concerns about the "rural exodus." To illustrate this concern, Lopes and Murphy pointed out that in the countries where they work, more than 70 percent of people live in urban areas. Lopes shared RECA's attempt to combat this process in Acre by providing incentives for rural youths to remain in their communities. Over the past decade, RECA has sponsored children to study in special agricultural family schools, where attendance is broken into 15-day blocks, allowing students to alternate between time at the institution and time in their communities. Additionally, the organization is currently supporting the construction of a new school in its home community. Lopes expressed hope that by providing greater access to educational opportunities, it will be possible to revitalize a community-based approach to farming.

Adding a further comment in this vein, Karen Washington of New York City's Garden of Happiness shared her experience with drawing urban children into gardening. Washington suggested that gardening could best be promoted by making children aware of the connection between the meals on their plates and the gardens in which food is grown. Seth Shames of the Yale School of Forestry & Environmental Studies built on this comment by pointing out that a large percentage of the food purchased in the U.S. is served institutionally in schools, prison cafeterias, and similar sites. Shames suggested that changing the policies governing institutional food acquisition in the U.S. could do a great deal to change the way people view and relate to agriculture.

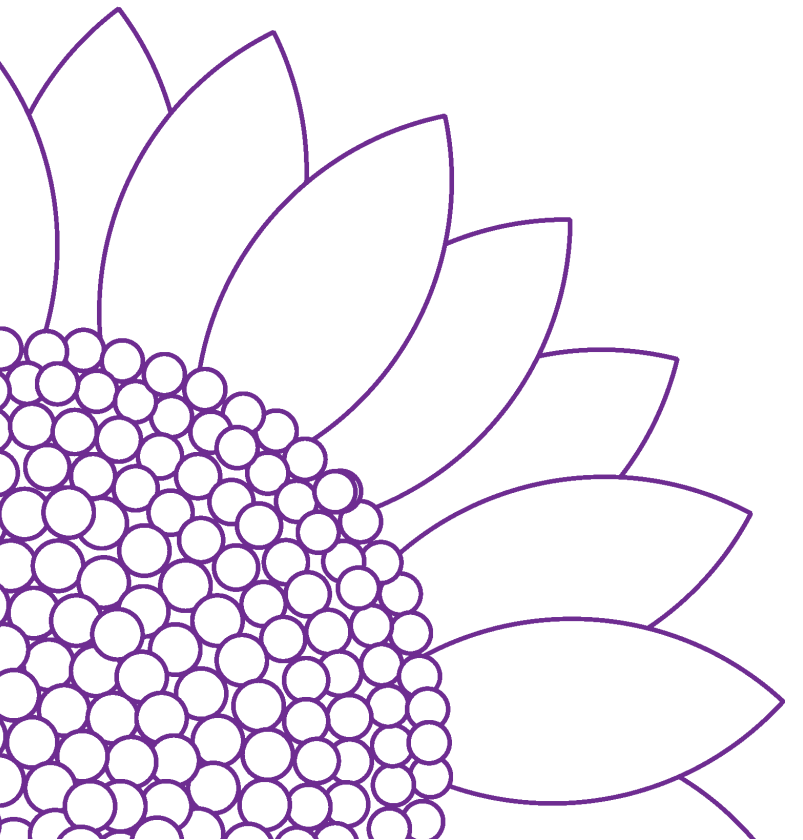
Out of a shared acknowledgement that small-scale agriculture is strongly influenced not just by local action and markets but by policy, the session also addressed the role of farmer organizations in strengthening local producer-consumer networks while also achieving lasting political change. Many expressed disillusionment with the role of large agricultural conglomerates in national and international economies. Gómez pointed out that more than half of the world's largest economies are not sovereign nations, but rather corporations – an important fact to remember when examining these actors' influences on national governments' policies.

In this context, Gómez defined the mission of farmer networks as fighting for the interests of their members, but fighting without becoming beholden to the same political machine that is at the root of current problems.

The tension inherent in the balance between advocating political change and maintaining independence from the political machine was also discussed by Lopes. He discussed his experience as a member of the Worker's Party (PT), which now controls the government of the state of Acre and the presidency of Brazil. Attaining positions of power has brought its own problems: the dilemma of how to separate the government from the movement, and the challenge of turning the movement's values and ideals into practicable policies. While Lopes expressed hope that larger organizations and institutions might one day take on the progressive ideals of his movement, his acknowledgement of the tension between the counter-current and the mainstream raised a salient point about the challenge of achieving and maintaining political power to protect small-scale agriculture through farmer network movements.

Education and the Diffusion of Agroecological Practice

Report by Rebecca Reider



This session addressed how farming practices and knowledge spread among farmers, and how both farmers and academic researchers can disseminate agroecology practices and ideas through farmer networks. Participants offered many recommendations for effective farmer networking based on their own experiences. A major consensus emerging from this session was that it is not enough simply to spread education about ecological farming techniques; these educational efforts will only succeed if they are integrated with efforts to improve farmers' livelihoods. Some participants emphasized the necessity of going even further to integrate these educational campaigns into larger efforts to build movements for social and political change.

Participants working in several different countries in Latin America emphasized the importance of encouraging the spread of knowledge from farmer to farmer, rather than trying to make farmers learn from outside researchers. Farmers learn by doing, by hands-on experience, and through direct contact with their neighbors. Ronaldo Lec, from the Instituto Mesoamericano de Permacultura in Guatemala, pointed out that farmers are more likely to adopt practices that they see working for other farmers, and that it is important to value what farmers already know instead of only trying to teach them. Jean Marc von der Weid emphasized that farmer education networks should be based on already existing personal and familial relationships. His organization, AS-PTA, promotes informal visits and learning among Brazilian farmers by identifying informal networks that already exist, and encouraging them to formalize themselves as organizations and to join forces with other groups of farmers. Eric Holt-Giménez, from the Bank Information Center in Washington D.C., described the Campesino a Campesino Movement, which has integrated farmers into informal networks throughout Central America. Some participants questioned how comprehensive these existing networks are, and which farmers are integrated into them.

All participants agreed that the most crucial element of any educational program is to offer farmers proven techniques that work and that produce beneficial results. Farmers will only adopt techniques that fulfill their fundamental needs and help them secure their livelihoods. As obvious as this sounds, it is a truth often overlooked by NGOs, as von der Weid pointed out. Rather than offering farmers specific techniques, he said, AS-PTA encourages them to develop their own practices through individual and collective experimentation. Robin Sears, from Columbia University, argued that NGOs, extension agents, and researchers working with farmers should aim not just to help improve farming methods, but also to help link farmers with markets for their products. She added that the existence of a market for secondary timber species and açaí palm fruits in parts of Brazil has resulted in a shifting emphasis from annual crop production to forest and fallow management by smallholder residents. This market incentive to manage trees and forests has, in turn,

resulted in an increase in forest cover in the region. In many cases, smallholder farmers know very well how to farm, and they are constantly updating their strategies in response to different drivers.

A major topic of discussion was the relationship between farmers and non-farmer researchers and academics – what the relationship has been, and what it should be. Farmers and academics often speak different conceptual languages, and the way academics receive career incentives for doing research but not necessarily for helping people has often been a barrier to meaningful relationships. Jesús León Santos of the Centro de Desarrollo Integral Campesino de la Mixteca (CEDICAM) in Mexico called for a move beyond campesino-a-campesino networks, toward improved campesino-academic networks. He explained how in Mexico for the last 20 to 30 years, relations between campesinos and agricultural extension agents have been strained; extensionists have perceived farmers as ignorant and backward for using traditional methods and have urged farmers to use more chemical methods, pushing farmers away from what they already know. León emphasized that academics must learn to listen to farmers, but that farmers must also speak up for themselves, as both parties have useful knowledge to contribute to the practice of agroecology if they can learn to speak a common language.

Holt-Giménez of the Bank Information Center and Carlos Perez, from the Sustainable Agriculture and Natural Resource Management (SANREM) program at the University of Georgia, both discussed ways that academics and NGOs can form better relationships with farmers. Holt-Giménez discussed the need for "action research," in which researchers give up some control and allow the community of farmers to define the research questions and protocols around their own needs. This kind of research requires building long-term, trusting relationships with farmers. Perez described the example of an extension project in Egypt that acted as a clearinghouse of information instead of a top-down instruction project. The NGO running the project asked farmers to define their problems in meetings, then brought in local experts, including expert farmers, to teach the farmers about each topic. In this way, both Perez and Holt-Giménez emphasized, NGOs do have a role to play in farmer networks. By understanding the social and physical landscape of an entire country, they can act as facilitators, helping to link researchers and farmers to one another.

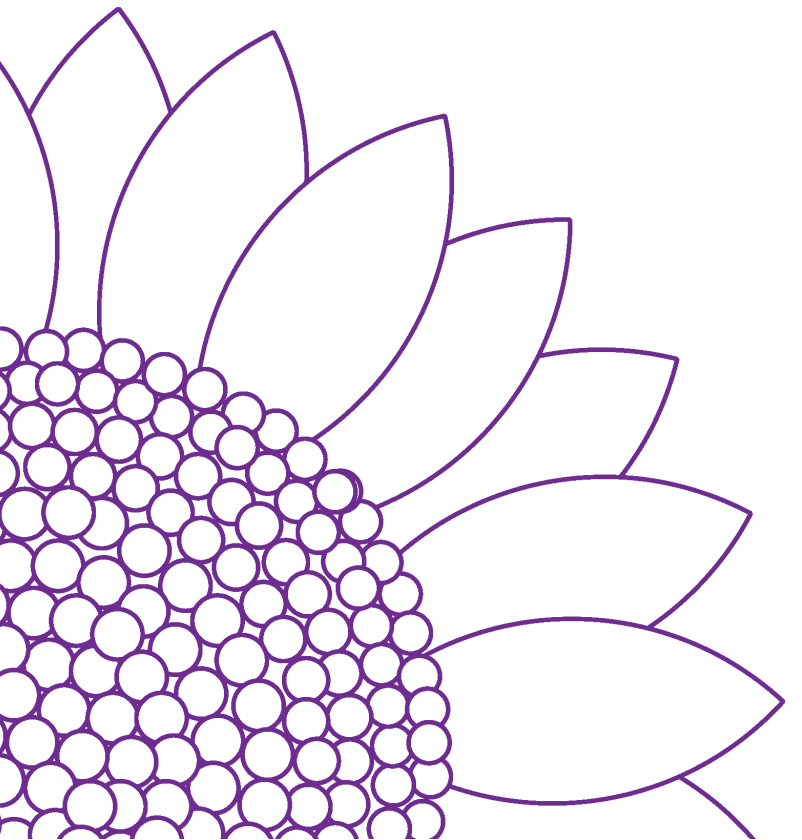
Participants in this session also raised many concerns about the need to address larger political and economic structural issues affecting farmer networks. Von der Weid stressed that farmer networks need more institutional support if they are to be scaled up to spread agroecology practices more broadly. He explained that the funding of these networks could be institutionalized; for example, in Brazil, his organization is campaigning for the national government to establish a development fund that would prioritize farmer-led networking projects.

Holt-Giménez also spoke to the necessity of paying attention to the wider political framework in which farmer networks exist. He suggested that helping farmers share agroecology techniques is not enough, and that farmer networks could play a greater role in consciousness-raising to build social and political movements against the processes of corporate globalization, which endanger all farmers; farmers, in his view, need not just more information but major political change. As an example, he mentioned the issue of genetically modified crops. GMOs have been addressed in a largely depoliticized way as an ethical and ecological issue, but if Latin American farmers came to see GMOs as part of a new wave of colonization in which outsiders are trying to control farmers' seed sources, farmers could be mobilized more around the issue.

Still, participants agreed, it is important for farmers and their allies to keep working on local-level conservation and economic issues even as they turn to these larger political battles. As farmer education efforts are scaled up to include politics, the local priorities of farmer education and people's immediate economic needs should not be abandoned. Moreover, political movements will not last if they ignore people's need for direct economic benefits. Those working with farmers must consider how much farmers see themselves as part of larger resistance movements as they negotiate their own survival. It can be powerful to see one's own sustainable agricultural practices as part of a larger struggle for autonomy, but farmer advocates need to consider whether farmers are experiencing their personal livelihoods in that way.

Practicing Agroecology, Using Local Knowledge

Report by Margarita Fernández



This session raised a number of important questions about how local, traditional, or indigenous knowledge is defined, produced, controlled, and preserved. There was much debate among participants about what terminology to use in representing farmer knowledge: local, traditional, or indigenous? From this discussion emerged a rich exchange of people's perceptions and experiences about the process of creating knowledge and the shifts in power and control associated with who creates that knowledge and how it is shared.

Ronaldo Lec, from IMAP (Instituto Mesoamericana de Permacultura) in Guatemala, believes that "local" is a better term than "traditional," but he noted that local knowledge is often misrepresented. For example, slash-and-burn farming can be more productive than conventional sedentary agriculture, but often can't be practiced due to land tenure systems and property rights restrictions, so farmers have switched to other systems. Lec added that people from the North and universities in Guatemala often bring in outside formulas and technologies without considering local knowledge.

Michael Dorsey, from Dartmouth College, raised a number of questions that sparked interesting discussion: Where is the boundary between local/traditional knowledge and other types of knowledge (scientific, foreign, etc.)? If that boundary doesn't exist, does local knowledge exist? Why has it been discussed for 20 years?

Silvia Rodríguez, from GRAIN (Genetic Resources Action International), believes that more concrete definitions are needed. Some say that "traditional" knowledge refers only to indigenous communities, while "local" refers more to peasants. Karl Zimmerer, from the University of Wisconsin, added that there is a "blurring of boundary, a continuum of knowledge." He gave the example of Andean potato farmers and Mexican corn growers taking Green Revolution technologies and seed varieties, renaming them, finding out something from agricultural extensionists, and weaving them somewhat seamlessly into local knowledge. Is this "scientific" or "local"? Zimmerer added that the focus on knowledge systems traces back to ethnobotany, an object-oriented style of categorizing information and making use of it. This emphasizes the "thingness" of knowledge rather than the process itself, which is adjustable, evolutionary, and something that can be learned quickly.

Sérgio Lopes, from RECA (Reflorestamento Econômico Consorciado e Adensado) in Brazil, responded by saying that if agroecology were easy, everyone would be doing it. Scientific knowledge is written down and has a beginning and end, but agroecological knowledge arises from the interaction between researcher and people. Lopes believes that local knowledge depends on the intuition of people within the system.

A number of participants felt that although it was important to discuss definitions and terminologies for local, traditional, and scientific knowledge, emphasis should

be on preserving the process by which local knowledge is created. Elizabeth Shapiro, of the University of California at Berkeley, raised a number of interesting questions about how knowledge is produced and preserved. What is the role of traditional farmers in the face of rapid changes in Latin America? People are migrating and communities are disrupted – so what role do local or traditional knowledge have? You can't "preserve" local knowledge in an unchanging farming preserve or a museum seed bank. What about farmers in Brazil who are resettling on newly claimed land as part of the landless movement, the MST?

Lopes responded by saying that people who are forced to move are very open to innovation, learning, and new types of knowledge, although they bring their original knowledge with them. They thirst for new types of knowledge because the old did not work out. He added that farmers are researchers and thinkers by nature, and some farmer groups are so advanced that academic institutes are conducting research with them to learn about permaculture.

Rebecca Reider, of the Yale School of Forestry & Environmental Studies, said that what's important to the locality of knowledge is seeds. Migrant people may adopt knowledge, but knowledge evolves with seed varieties. A useful distinction, she said, is not who is producing knowledge (local or scientific) but for whom it's produced. Much scientific knowledge in agriculture has been created by and for agro-industrial companies.

"Agroecology requires the production of local knowledge."

Eric Holt-Giménez

Phil Dahl-Bredine, a Maryknoll lay missioner working in Oaxaca, Mexico, said that keeping the process open and sharing with communities that have had their process of knowledge transmission truncated, as in some parts of El Salvador and Guatemala, is important. He added: "We must concentrate on why some have been and are factories for growth, experimentation, and the bringing together of new techniques, and find ways to protect them. We need to link open growth of communal knowledge with some that don't have the whole picture, to enable them to newly become centers of knowledge energy. A danger facing [Mexican] Mixtec communities is that they may be wiped out by economic forces bringing in new values. We risk losing not just indigenous science, but the atmosphere that created it and can keep producing it. We need to support places still doing this."

Eric Holt-Giménez, from the Bank Information Center, brought in issues of power and control. He said that agroecology requires the production of local knowledge. The Campesino a Campesino Movement requires an epistemic system of sharing local knowledge, experience, technologies, and wisdom. If shared in a deep cultural way, that knowledge becomes adapted and applied in a new way appropriate to the new

context. Holt-Giménez added: "The production and use of knowledge is power. There are false paths in the production of knowledge, and we need to know where knowledge is generated". He cited the example of an international research center that asks a community to elect local researchers, then provides funds for trials on varieties. He said that these researchers are able to generate knowledge that can fit into the local context, but rather than supporting local knowledge-generation processes, this truncates them. Local communities don't naturally elect researchers to conduct varietal trials. These approaches do not support, advance, or strengthen the power of local knowledge systems.

Continuing with the issue of control, Rodríguez addressed the topic of patents. When she held workshops on intellectual property rights issues for campesinos, their first reaction was "Let's patent everything before they do!" But this is against local culture, she says. "Sharing is important, and patenting cuts off the flux [that it creates] . . . everything would be lost. We don't want this flux of knowledge to be cut off, and we ask the world not to allow that to happen." Kathleen McAfee added that "when bioprospecting of genetic material happens, local knowledge is reduced to something tiny. People concerned with indigenous rights have made indigenous people mistrustful of sharing knowledge, because someone else will make the profit."

"Scientific knowledge abstracts away from particularity or local context and ends up looking for magic bullets."

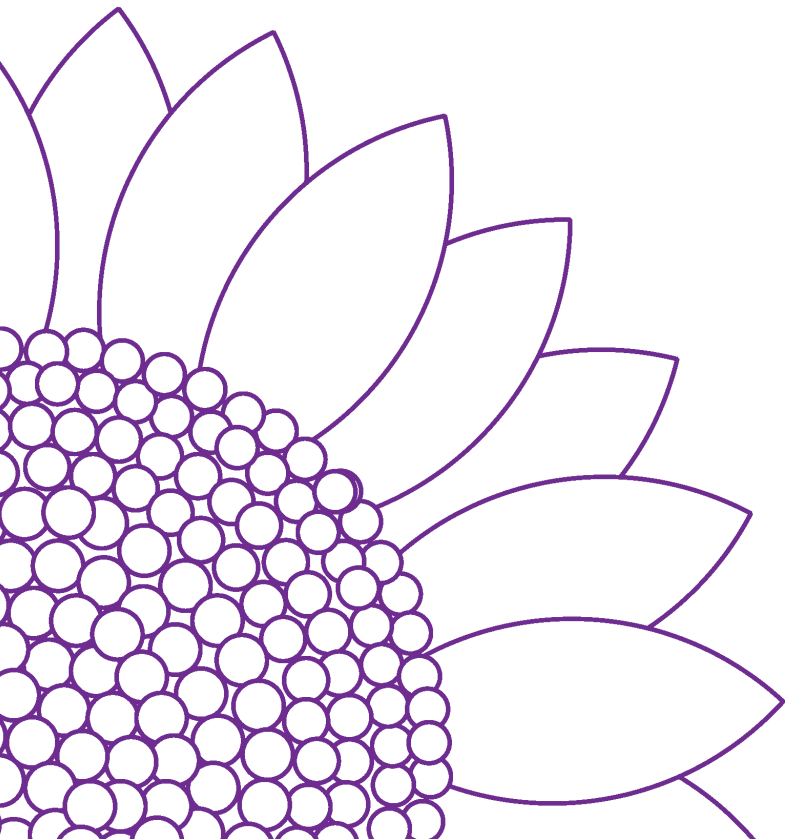
Eric Holt-Giménez

Richard Levins, from Harvard University, made the distinction between two clashing rationalities: that of a corporation which invests in technology and has the right to a return, and that of a community whose knowledge is the culmination of 10,000 years that nobody can individually claim. He argued for the need to counter the corporate position that everything can be commodified, recommending that "it needs to be resisted methodologically because it comes not from irrationality or carelessness, but rather is the logical extension of a rationality."

Levins concluded the session by saying: "It is easy to become sentimental about 'traditional knowledge'. All knowledge comes from experience, through the same processes; it just depends which we use. Scientific knowledge abstracts away from particularity or local context and ends up looking for magic bullets. We need to think of this, share experiences, and think of relations between ourselves and communities in this context. There will never be enough agronomists in the world to make agroecological plans for each locality. Each place needs to develop its own, adapting concepts from elsewhere."

New Farmers

Report by Avery Cohn



A session on new farmers might seem an odd choice, but throughout the Americas many farmers and ways of farming are rapidly disappearing. The second half of the 20th century brought a flurry of government policies and practices that have hindered the viability of small farmers and have caused a widespread and deepening rural exodus. These policies and practices have occurred against a confusing political backdrop. At times, governments have trumpeted the importance of small farmers, and at times they have argued that farming is a backwards lifestyle that stands in the way of development and modernization.

Moreover, government rhetoric doesn't always match government practice. The Hightower Report (Hightower 1978) details how land grant research and Congressional farm bills put the squeeze on U.S. small farmers by favoring agribusiness – even as politicians speak about these as ways of supporting the mythical "family farmer". Likewise, throughout the 1990s the Mexican government continued to express support for campesinos, even as policies like ejido privatization and the North American Free Trade Agreement (NAFTA) have accomplished the stated – but not publicized – goal of reducing Mexico's rural population by 1.5 million during the decade. Rural populations all over the Americas are declining as a result of these and other policies. Moreover, greater population shocks may be looming. The average age of U.S. farmers is 72. In Mexico, many rural areas have had so much out-migration that there are not enough men around for population replacement to occur.

However, even as many farmers leave the countryside in response to the more trying political-economic conditions there, new farmers of differing backgrounds and with differing livelihood strategies are taking some of their places. A rapid rise in minority farmers in the United States, the landless movement in Brazil (the MST), and land reforms in Central America during the post-civil war 1990s have meant an influx of new people to rural areas. These new farmers and the farmers who stayed behind have had to start anew in order to farm successfully in the ever-changing global economy to which they are linked. This session explored both new farmers and new ways of farming.

Much of the discussion centered on a basic paradox, articulated by Nikhil Anand, from the Yale School of Forestry & Environmental Studies: If farming has always been challenging and is now becoming more difficult, why would anyone begin to farm? Who are these new farmers? Catherine Murphy, from FLACSO in Cuba, explained that the new farmers with whom she has worked are urban residents of Havana. These urban farmers began farming out of necessity – spurred by a food crisis in Cuba during the early 1990s, sparked by the sudden decline in food imports when the Soviet Union collapsed. Murphy sees many positives from this upsurge in urban farming. She emphasized that opportunities for policymakers and academics to

provide support to new farmers should not be overshadowed by current trends of rural "crisis" and farmer exodus.

Jose Montenegro, from CIDERS (Centro Internacional para el Desarrollo Rural Sostentable), noted that in Central California, many new farmers are immigrants and the children of immigrants. The children of established farmers seem less likely to take up farming. Montenegro suggested that the choice to farm in California appears not to be financially based. While stable employment might be less of a financial risk than farming, Montenegro said many new farmers feel more comfortable farming than working other kinds of jobs. They value the way of life, with its senses of independence and ownership. Montenegro pointed out that while farming might not be as financially stable as wage labor, the latter may not be good enough to make it more appealing than farming on one's own. He suggested that when 17 wage laborers are living in a two-bedroom apartment – a situation he has observed in Central California – this must surely be an indicator of the limited opportunities wage labor provides.

Montenegro's mention of the feeling of independence brought on by farming turned the discussion to one of the central themes of the workshop: sovereignty. Avery Cohn, also from the Yale School of Forestry & Environmental Studies, asked if sovereignty, such as the kind Montenegro's new farmers say they feel as farmers instead of wage laborers, is antithetical to rural development. Mary Gable of World Hunger Year said that if development is defined as the extension and expansion of economic interests controlled by the elite, then sovereignty and development do not mix. As evidence, she suggested that communities' relative lack of power to mobilize against powerful economic interests indicates just how dependent these communities are on those interests.

Gable's point sparked a conversation about new farmers in terms of resistance. Cohn reminded the group of a question prevalent throughout the workshop: What happens when the new becomes old, or when the marginalized becomes the norm? A great deal of advocacy for the rights of small farmers seems to arise in the form of resistance to the corporate and statist push to "modernize" agricultural production.[23] To counter the modernization stance, movements of small farmers often work to establish the value of alternative practices. Because social movements speak out against this myopic "modernist" vision, these groups are often perceived as advocates for traditional farming practices, even though they may also advocate practices that embrace many new methods and actors. The groups are challenged to draw a distinction between the modern or new form of agriculture they advocate, and the modernist agricultural discourse a government produces. Anand emphasized the need to see beyond the dichotomy of the powerful and the marginalized. He

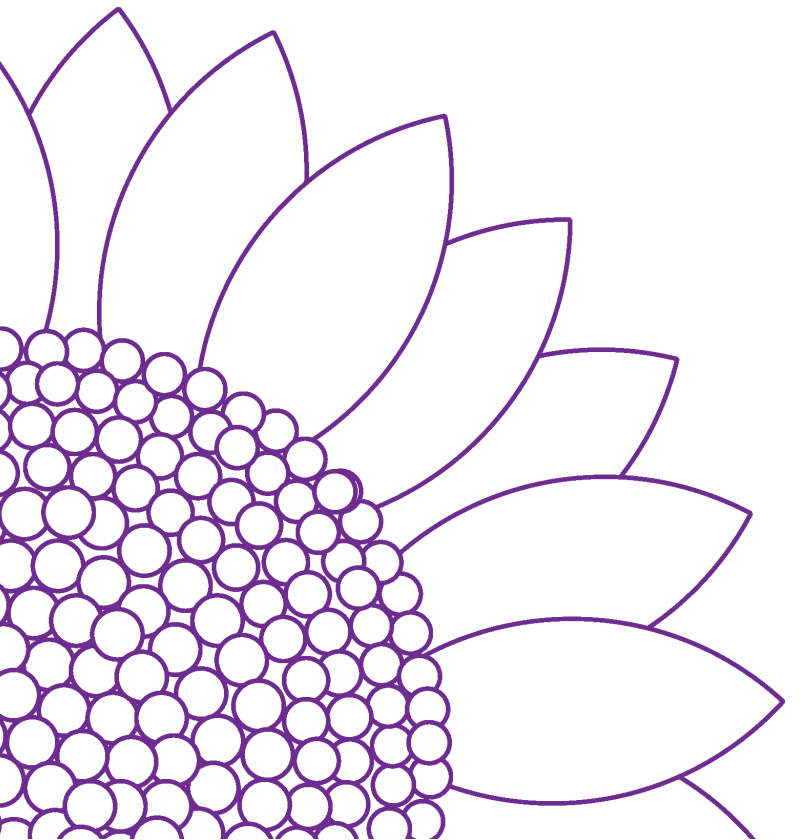
23 As seen in the Green Revolution: Increased use of inputs, economy of labor, and improved seeds.

suggested that sometimes social movements representing marginalized people, such as laborers or agriculturalists, can marginalize minority groups within the movement themselves.

The discussion closed with Jose Montenegro emphasizing the importance of a sensitive, just process by policymakers and academics to engage multiple stakeholders about the complex issue of new farmers. He urged the group to engage society, and not just farmers or consumers, and to do so by creating space for people to feel comfortable sharing views and perspectives in participatory processes. This is essential to creating a sense of ownership of the vision for agriculture throughout society.

Biodiversity, Conservation, and Ecosystem Services

Report by Corrina Steward



This session addressed the linkages between biodiversity, conservation, and ecosystem services. Participants discussed how to support and reward farmers who create and/or conserve biodiversity. A point of contention was at what level – local, national, and/or international – and by what mechanisms – markets, policies, and/or regulations – should the nation-state and the global community assist farmers. At the heart of the debate were varying definitions of biodiversity, the value placed on it by diverse actors, and the question of who benefits from biodiversity and ecosystem services.

Participants described how biodiversity and ecosystem services schemes play out in their research, work, and home communities. One participant pointed out that the value placed on biodiversity is not universal; rather, it depends on farming landscapes and practices, social organization, and community values. For instance, Janette Bulkan, a doctoral candidate at Yale University, explained that in Guyana agro-biodiversity is strongly linked to identity, gender, and spiritual worldview: "Women in Guyana share cassava varieties like daughters – it is a very personal relationship involving kinship and place identity, cosmology." John Lewis from ProNatura described how agro-biodiversity, such as home gardens and carbon sequestration projects, can be a form of economic development and conservation – which he called "conservation co-management."

Many participants raised concerns that the introduction of markets for conserving biodiversity ignores farmers' rights. John Tuxill, a doctoral candidate at Yale University, asserted that many farming communities no longer control the biodiversity with which they have worked traditionally. Liz Shapiro, a doctoral candidate at the University of California-Berkeley, went further, saying that because markets for ecosystem services exist and will continue to grow, "the key is that communities maintain sovereignty over their ability to continue to use their biodiversity and other resources." Silvia Rodríguez from GRAIN explained that, in the case of Costa Rica, the ecosystem services market is taking sovereignty away from local communities and research scientists. She indicated that with each new environmental service, buyers assume increasing priority over natural resources like trees and water: "Biodiversity is under 'national treatment' for any would-be buyer. We could sell nature to whoever will buy. We won't be able to give preference to national scientists in bioprospecting."

While markets for ecosystem services were criticized, participants offered steps for improving them. Ivette Perfecto, from the University of Michigan, asked the group to consider whether it is appropriate to require farmers to shoulder the burden of biodiversity conservation. She noted that biodiversity can be the byproduct of farmer practices, and not the goal. Rodríguez agreed that the introduction of markets changed priorities for Costa Rican farmers; therefore, an improved practice would be to understand farmers' priorities. She said that in Costa Rica, "Crops are a part of

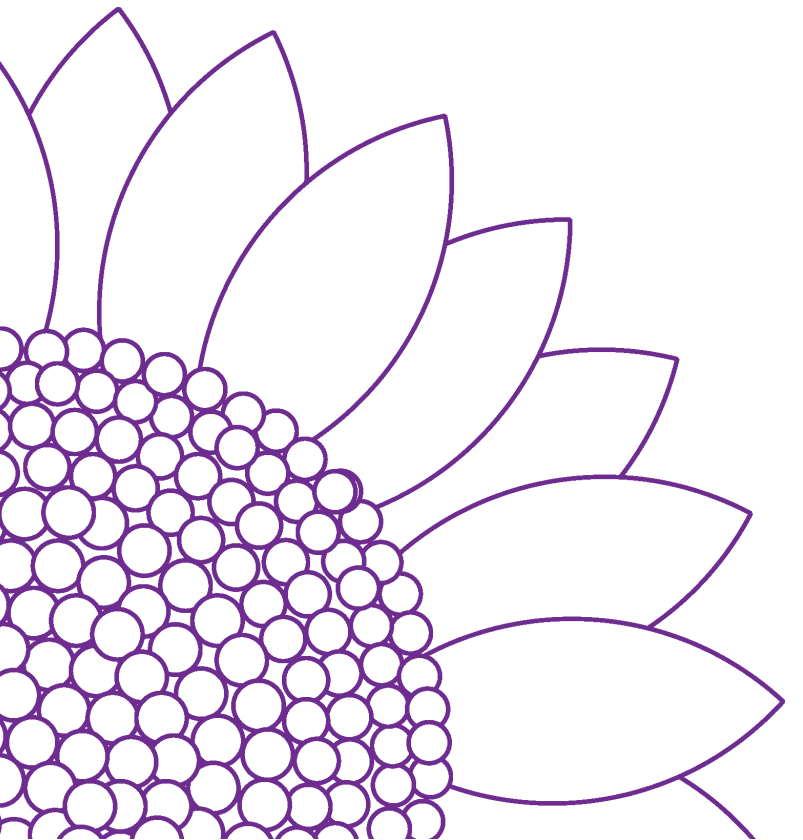
culture. Now the generation that remembers pre-Green Revolution days wants to go back . . . wants to return to coffee culture." John Lewis argued that securing land tenure for small-scale farmers would improve their ability to benefit from ecosystem services markets.

The session concluded with a discussion of steps forward. Participants noted that ecosystem services is a relatively new approach to conservation and development, and practitioners, farmers, and academics are still grasping how to manage and implement them as conservation tools. Shapiro pointed out that biodiversity measurement and quantification techniques remain undeveloped, which makes it especially difficult to implement markets fairly. Perfecto suggested that new techniques would require merging various disciplines, including agronomy, conservation, and social sciences. In the end, she concluded, "We need to bend the mainstream market approach [to] make community-to-community links."

Interview: Alberto Gómez Flores

National Union of Autonomous Regional Peasant Organizations (UNORCA), Mexico

Interviewers: Jonathan Cook and David Kneas



Q: How did you become involved in your work? What were some personal reasons?

A: I come from a campesina family. My father is an ejidatario of a small piece of land. My grandfather on my mother's side was part of the revolution with Emiliano Zapata in Guanajuato. Afterwards, he was involved in the struggle for the distribution of land under Cárdenas. In short, he was a fighter. I did not know my paternal grandfather, who was assassinated because of his struggle for land. I also had to struggle along with my colleagues for land, to have a small plot. . . . I see that there is no other alternative for us as campesinos but to be organized, and we have to make sacrifices to advance the organization. The leaders need to be different from the traditional ones, from what we know of corrupt leaders who negotiate behind the backs of their members. This has led us to accept the responsibility that is given to us by our colleagues.

Alberto Gómez Flores.
Photographer: Steve Taylor.

I studied through middle school. When I go to a university in Mexico, they call me "licenciado" (licensed) or "ingeniero" (engineer). I say, "If you say so." But I only have a middle school degree. We are not rich, we are a poor family, so I took on responsibilities in my community. I have been the president of UNORCA for six years, and in November my charge ends. There is no reelection – so in November, I finish this service to my colleagues and will return to my home, to my work.

Q: How has your job with UNORCA changed in the last six years?

A: Personally, I have learned a lot. Vía Campesina has helped me to understand that our issues are not only of Mexico but of the world, and these issues are much more serious in less developed countries. [I've learned a lot from] exchanges with other organizations' directors. It's a great opportunity when one oversees an organization to be in contact with academics and intellectuals discussing the issues. [It's also positive] that part of our responsibility is to negotiate with officials from the Mexican government. I've learned to understand more clearly and to look for how to influence the role that should be played by this campesina organization. I think that in these six years we have worked a lot for the cooperatives, the community organizations, for the local economic groups, the ejidos, so that they could get organized – but even more, so that they have results in terms of local development strategies. We insist a lot on that – the immediate; but the strategic part of our activity is also fundamental to continue existing as an organization. Our role, since UNORCA is a network of organizations, is to synthesize the best of all our experiences and to translate that synthesis into laws, into political plans, into major demands. This has allowed us to have a series of firm plans for what we want in this country of Mexico.

I think that in these past six years we have not stopped learning new things. At the national directorate, we are nine people. We have made an effort to imprint a stamp of transparency, of democracy, of firmness in our positions, to struggle in the search for local alternatives but also to search for how to change public policies, and to be willing to propose alternatives. We aren't going to only oppose and say "No" to these things. In November our assembly will take place, and the assembly members will evaluate the work we have done. I believe we've fulfilled our duty. Despite some flaws, we fulfilled a role, and we've paved a path for the organization.

Q: What are the most important issues for the campesinos you work with?

A: How to keep surviving. Yes. We don't want to emigrate for reasons of poverty. We want to be rooted in our communities, to maintain our cultures, our story. But we want to live with dignity and live by our profession, because being a campesino is a profession, and it is a right, and today they are denying us that right. So in order to continue to exist, to continue practicing our profession, we need to raise the issue of food sovereignty to a political level in the country of Mexico. Food sovereignty, far from being a [mere] concept, needs to be a central strategic axis for overarching policies. Food sovereignty is the guarantee of our existence; it is the central issue of our existence.

The other issue has to do with trade, and how to develop local markets in our country. This is an important issue because it has to do with access to food. The question is: How do we develop local markets using other rules, with intervention from the state to develop new laws even at the international level? How do we look for alternatives in a world where the existing international institutions are in crisis? How do we develop other international institutions that treat this agriculture and food system differently – not as a business or to make more profits, but instead as a source of benefits for humanity?

Q: Which experiences, ideas, do you think you will take back with you from this workshop? What will you tell your colleagues?

A: How the issues are approached from different experiences and ideas about agriculture in relation to food sovereignty and natural resources. There were some contradictions today, or various opinions – but because there was an open space for debate, these important issues that [can seem] antagonistic seemed complementary. I think I will share the list of issues discussed here, because in some way there exists a maturity that allowed us to approach these issues from different opinions and positions, and that is what makes these events rich. It is not about reaching conclusions – it is about exchanging ideas, experiences.

Q: How do you think all of these different people – academics, activists, campesinos, NGOs – can work together?

A: In terms of big issues, there are common points; for example, the importance of agriculture in this world is a common point. The importance of sustainable agriculture, that we produce natural products – this is a common point. The fact that we as organized campesinos cannot ensure the advancement of family farming alone [makes] it necessary to have alliances and relationships with all sectors.

A second point: We campesinos have what is called the school of life, knowledge of life. We have the imagination and the ability to know what to do, but not the capacity to translate all of this in writing, or to technically support all of this. So there should be integration between the capacity of technical professionals from the universities and the everyday, practical knowledge that we have accumulated over generations as small farmers. We should try to integrate these different capacities.

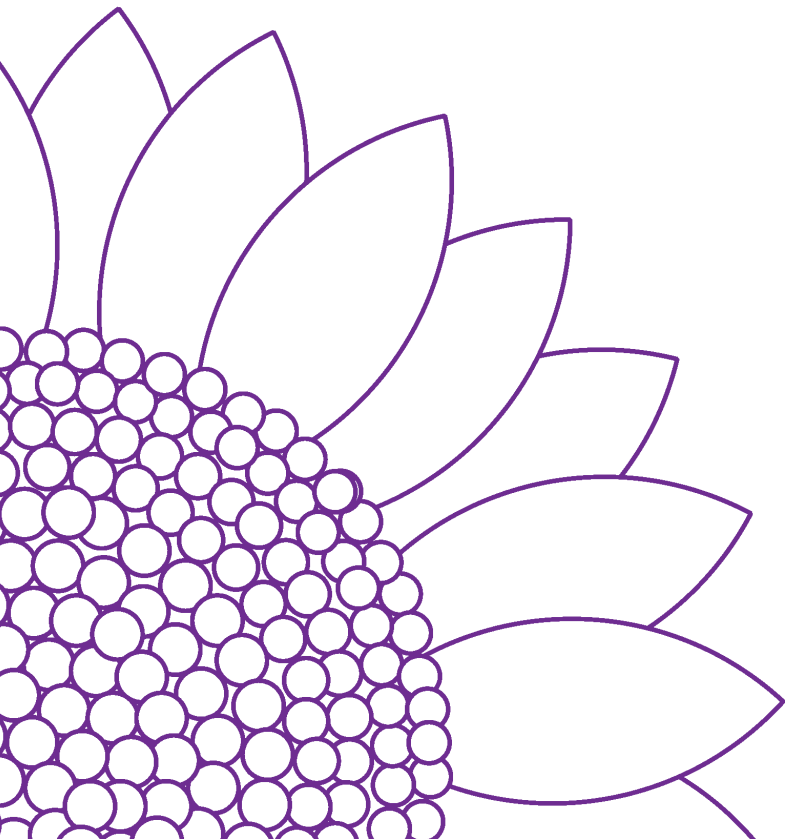
So I believe these are aspects that require us to look for common ground that will allow us to move forward. We have to continue discussing and debating the big issues, but those big issues should not stop us from working together on the common points. Campesinos, academics, students, NGOs – we all share a common point with the issue of agriculture, and that is good.

We campesinos have what is called the school of life, knowledge of life. We have the imagination and the ability to know what to do, but not the capacity to translate all of this in writing, or to technically support all of this. So there should be integration between the capacity of technical professionals from the universities and the everyday, practical knowledge that we have accumulated over generations as small farmers. We should try to integrate these different capacities.

Interview: Ronaldo Lec

Mesoamerican Permaculture Institute (IMAP), Guatemala

Interviewer: Rebecca Reider



Q: What's your reaction to the workshop, first of all? To the people from all these different areas coming together?

A: Well, my initial concern was that it was going to be very académico (academic), and very técnico (technical)…but it wasn't. I think that's a very positive outcome – to see hope that things at this level of academia are being discussed in a very sincere way. . . . I thought it was very interesting to see the combination of farmers, grassroots organizations, and academics – bringing them together. You don't see that very often.

Q: What are the most valuable things you got for your work, or for the way you think about your work?

A: Well, for one, it's seeing examples of other people who are already doing things at the grassroots level. That's kind of how we find our inspiration – by seeing other farmers or other communities being successful in what they're doing. So that's one side, but the other side is to see these academics trying to question their work and their approach. . . . That gives me hope to really try to continue working with some academics, to see that there is sincere interest in trying to find answers to these questions that we also have.

Q: Were there specific things you saw in the other projects that were presented that inspired you?

A: Yes – for example, to hear that there is a movement that is trying to link farmers from the South to the North, engaging in dialogue and trying to unify the forces. I think that's something I value, to see that there's really an actual force bigger than just community work, that is addressing bigger issues, political issues, and that farmers are supporting each other from the North and South. That's one thing that really inspired me.

Ronaldo Lec distributes seeds to Guatemalan villagers as part of a seed bank project of the Instituto Meso-Americano de Permacultura (IMAP). The project aims to strengthn community control over seed sources by engaging farmers in seed production. Photographer: Rebecca Reider.

The other is concrete examples. One thing that I find very interesting is this project where they're trying to address the issue of immigrants, how they go back home, and how to engage these people in a very positive way – that they contribute to their community, not only to their family. I always thought about it when I lived here in the United States, and I tried to do it, but that was more in one specific community – whereas this project here, with Jose Montenegro, is trying to build a movement too.

And then one of the projects that really moved me was the project in Brazil [RECA], where they have made it economically viable . . . but the success of this particular project is not just the economic part – it's how the people who are benefiting are involved, and how the people are the ones who make decisions. The whole decision-making [process] seems very unique to me. Usually in our work we see – and we always address this too – that if you don't have organization and you don't have an adequate decision-making process, then your project's not going to be successful. We always say in Guatemala that if you're organized, you can do anything. If you're organized, you can move mountains. So it made me curious to find out more about their decisions, because as they presented it, it's not your traditional hierarchical organization. . . . I think that's very important – how you take each individual into account – and that's not easy, you know? Sometimes we just want to get things done quickly, and when you want to get things done quickly a lot of times you discard people's opinions, because not everybody is very fluent or lucid in transmitting their ideas – but you have to really take them into consideration. In Guatemala, for example, if you really want to listen to people, you have to listen to them for a long time in order to get information, that little [bit of] information you want. You can't just ask them and they give you an answer – it's a long process.

Q: We also want to hear more about you and your work. For example, what first inspired you to get involved in the work you're doing?

A: My work was more like a commitment that I didn't choose personally to do – it's [something] that my family, my ancestors, my community already started. My family always thought that as a principle, you owe to community. You don't owe to your family, you owe to community. That's always what was implanted in me . . . you could say that all my life, I've had that in mind. During the violence, during the armed conflict in my country, I was forced to go out [of the country], and my family too. . . . For me it was more like, "How can I return to my country? And what am I going to do when I return to my country?" Looking for this answer, I concluded – well, my country, my culture, is a land-based people, a land-based culture, so . . . the work that I was supposed to do has to be land-based. People have to be around agriculture.

So that's kind of what gave me my initial approach: going back home. I come from a part of the world that has a rich history, and also a history of great achievement, in all the cultural senses . . . architecture, medicine, everything. So, coming from that background, it's like, "How can we revive those things? How can we have our glorious moments again?" And contrasting that richness of history and the past with today, where Guatemala is one of the poorest countries in the region, in the Western hemisphere, how can we bring this knowledge from the past to help improve the situation of today?

That's how I started getting involved in trying to apply those things, looking for remaining knowledge that's still there and trying to apply it in order for people to see that it works. But traditional knowledge has eroded a lot throughout these 500 years of colonization, and now with modern development it's disappearing even more rapidly, with the Green Revolution and new technologies. That's taking all this local knowledge away. So that's also made me research and look for other alternatives. . . .

Q: *With permaculture, what kind of solution is there for people in Guatemala? How do you see it, and how do the farmers that you work with see it? How does it meet their concerns?*

A: Well, the way I see permaculture is that it gives me the technical background to support all the things I think could be done. Permaculture just comes to reaffirm and make sense of what I consider to be local, traditional knowledge. For farmers, how do they see permaculture? Well, on the one hand, it's idealistic and radical – but it still makes sense to them. But they cannot adopt it, and the reason they cannot adopt it is that there are very basic issues that need to be addressed first . . . issues like land ownership, like feeding your family, like curing your sickness. I think if you're hungry, you can never think about designing future well-being. If you're not well right now, you can't think about the future. So that's why farmers have been very slow in adopting permaculture in their ways, but I think that eventually, once they have overcome their basic needs, it will become more powerful, and they can adopt the whole system or the whole philosophy.

Q: *Do you want to say more about the aspects of permaculture you've been trying to apply, or what permaculture means?*

A: Well, permaculture literally means "permanent culture" or "permanent agriculture," inferring that if you don't have a permanent food source, you cannot have a permanent culture. If you don't have food, you can't write poetry, you can't write songs. You cannot be creative if you have an empty stomach.

Permaculture is not only about food – it's a way of seeing things. It's an applied philosophy . . . and I think the principles and ethics of permaculture totally fit with our philosophy, which is a philosophy of care of the earth, care of the people, and equal distribution of surplus. . . .

Technically speaking, permaculture is about design, but you design your environment not only with new knowledge. Permaculture is based on traditional knowledge, on what already has been done, on what already has worked and is working. We don't need to reinvent the wheel, so that's where permaculture starts. And then secondly, permaculture integrates new knowledge. And third, in permaculture all the designs for implementing systems are based on natural

systems. It's how you imitate nature. So permaculture in general is not only about techniques. . . .It's about a way of seeing life.

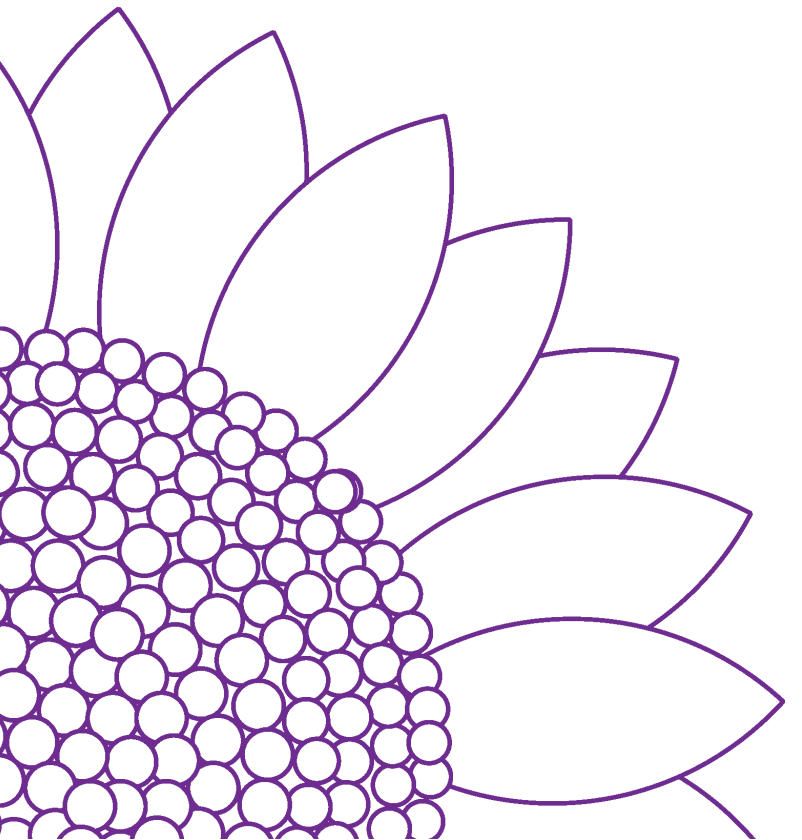
Q: What are your goals for the future? If there was no limit to the work you could do, what's the vision you would have?

A: Well, my vision is that we can again build a society that is land-based. I think if we can create a land-based society, then we can create culture, then we can create all other things. . . . If we have self-sustainability, that will change any other situation, because we will be independent. We will be powerful individuals or communities that can then make decisions because . . . we would not rely on any politicians or any funders from outside. That's my idea: to work on examples that can inspire other people, that other communities can see and can relate to and take the same path.

Interview: Jesús León Santos

Integral Peasant Development Center of the Mixteca (CEDICAM), Mexico

Interviewer: Liz Shapiro



Q: How did you become involved in this area that you're working, struggling in?

A: Well, as I've said to many people, I'm of campesino origin, and this has permitted me to analyze and see the problems that are facing us now. . . . Campesinos are faced with many limitations and this, I believe, has helped me to think that we have to look for strategies to get out of this very difficult situation. We can't grab onto the easiest escape, that of "We're living in a difficult place, and the easiest thing is to go somewhere else, and that's all there is to it." What we have to do is [ask], "How do we find solutions and alternatives in our own place of origin?"

We're not living in the countryside because we don't know how do to anything else, or because we don't have enough education. I think many of us who are living in the countryside are living there because we like it, because we feel that it is an important profession too.

Q: And what are the biggest problems confronting the campesinos with whom you work?

A: Well, in the first place, for a long time one of the primary serious difficulties that we've had is the quality of the soil. It's highly eroded due to the long history of a strong pressure [on the land], mainly following the arrival of the Spanish to this region, and so drastic levels of erosion have been reached.

Another of the serious difficulties we're facing is the scarcity of rain. We are in a zone where rain is really extremely limited. We have the lowest rainfall in the state.

Another thing is that in the last three decades of the last century, the Green Revolution really caused campesinos to become totally dependent, and to forget the systems of production they had before. Making changes now is much more difficult, because campesinos have been drawn into this system of dependence on agrochemicals, principally fertilizers that make the soil produce more – and this complicates the process of finding changes and making campesinos believe that the systems used before are efficient. . . . [Among] campesinos, even though many of them are seeing that the purchase of agrochemicals and such isn't repaid when they sell their products in the markets, there is still great resistance to this.

Another of the limitations is the scarcity of many natural resources in order to be able to make rapid changes. In many tropical places, for example, they obtain changes and results and success and all this in two years. In the Mixteca, there really is a need for much more time in order to obtain changes – because it isn't easy to achieve immediate changes.

Q: You talked in your presentation about the fact that there is an idea in Mexico that campesinos don't know anything, but what you are promoting is that to be campesino is an ongoing profession, right? It looks as if your organization is trying to do more than to be campesinos – saying that you do work at this, and

do it well, but that you also have to make connections outside. Do you think it is sufficient to just be a campesino these days? What more do you have to do?

A: At the moment, in Mexico, with all of these structural adjustments that the government is making – enforced, of course, by the international financial organizations – there is a program they are calling "Opportunities" (Oportunidades). In this program, they are awarding scholarships to children so that they can study. . . . What they are saying now is that they are giving scholarships to study at the middle-to-high school level, so young people have opportunities to continue studying, and they don't remain ignorant like their parents.

And, really, when I listen to this kind of [talk], I debate it a lot. Once I was in a meeting and I said, "You consider these people – who produce food, who take care of the environment, who are familiar with the effects of the seasons and all of this – as ignorant? That they have different knowledge than others, that's another subject, but it doesn't mean that . . . they are ignorant."

I believe that campesinos are just as important as professors, as lawyers, as any other profession. . . . But I also believe that what we campesinos have to do in the future is – we can't stay isolated. . . .

Jesús León, at work on CEDICAM lands. Photographer: Phil Dahl-Bredine.

We campesinos have to find new paths that, in the first place, allow us to recognize that we are also an important sector among all the other sectors of any nation, but also that we play an important role within the conservation of all this diversity – that it is not just the conservationists who are playing an important role in conserving natural resources. . . . We campesinos have lived for hundreds of years in zones where there are still natural resources. This is not occurring in the areas where large-scale agriculture has been practiced.

For example, in the northwest [of Mexico], large areas of land that are no longer productive, no longer useful, that were first exploited only forty or fifty years ago, are being deserted. In forty or fifty years, these lands stopped being useful.

Q: How is it that people who are not campesinos but perhaps academics, people who work with NGOs, or others – how is it that they can be involved in your

struggle? What is the best way for them to help you not to be isolated, or in what other ways can they help?

A: I believe the academic sector can play an important role, as long as it makes an effort to understand and relate to campesinos. . . . It's very difficult for academics to forget their type of language, or ways of understanding things, because it's not for nothing that they've spent a lot of years in spaces like these [Yale], and really sometimes it makes it very difficult for them to relate with people. . . .

I don't know what the university does to erase what they brought in with them . . . but at the end of it all they don't understand campesinos. Much of the time in Mexico, for the simple fact of being an agronomist, they have to come to the community in a truck, they have to wear boots, they don't want to get dirty, they don't want to get wet, they don't want to do anything like that. How can a man like this truly involve himself in the campesino process if he doesn't want to act like a campesino?

I think that what we have to do is [figure out] how we can bring academics to community development without disturbing what the communities are already doing – because this is the problem: that often academics want to change, or to introduce things without thinking about the consequences. They have to make an effort to pull at least one foot out of academia in order to really feel what it is to be campesino, what it is to be a person who has lived for many years in difficult conditions. It makes me sad, because many of the agronomists who are coming out of the university in Mexico are children of campesinos – but once they've studied agronomy, they no longer understand campesinos despite being of campesino origin.

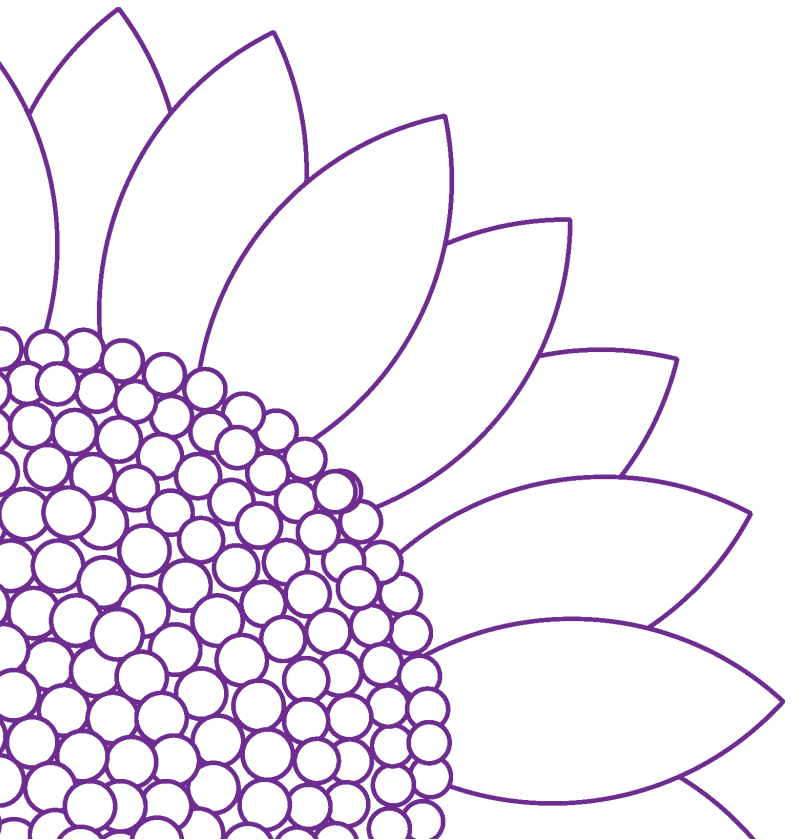
Q: What are some of the ideas and concepts that have been discussed here at this workshop that you plan to bring to your community or your organization?

A: I think what I am understanding is that academia is thinking differently. I hope it's true – the idea that academia might want to involve itself in a real development that can contribute to the process in which the campesinos are already engaged. ... I believe that it is possible. I take with me this idea that there is interest, that many academics are taking action in different parts of the world related to the preservation of resources – but it's not enough to think just in terms of the preservation of resources. It's important to think about the survival of this sector that has taken care of these resources for many years.

Interview: José Montenegro

International Center for Sustainable Rural Development (CIDERS), California, USA

Interviewer: Rebecca Reider



Q: What is your personal background, and how did you come to do the work you're doing?

A: My organization came to be because of my own personal background as an immigrant and because of my background as a child of farmers, small farmers in Mexico. My dad said, "You need to go to school, because things are tough on the farm – so you need to develop opportunities for yourself." He told me, "I foresee tough times ahead for farmers." So I went to the school of agronomy in my state of Durango, Mexico, from which I graduated as an agronomist, in plant science. I actually had an opportunity to work for one of these agencies, for the Secretaria de Agricultura in my state. At that time I knew the system of this agency was really corrupt, and I felt that by joining this agency, I was going to be betraying my dad in some way because this agency was very paternalistic, very destructive – in that the agronomists would just go to the fields and collect information from the farmers without really leaving them with tools, knowledge, and skills, without really developing meaningful opportunities for them. And I just felt that I just cannot be a part of this, I can't.

José Montenegro.
Photographer: Steve Taylor.

And I learned that there were people who had been here for 18, 20, 25 years, who aspired to go back. And so I wanted to find out more about what that meant in people's minds. And the sense I got was similar to what I had felt: that I wasn't prepared to go back physically – but that we needed to find ways to go back through other means, through collaborations among families and communities, communities of origin and immigrant communities in the United States.

I ended up leaving Durango in September of 1990, and I arrived in Milwaukee, Wisconsin, where I have some relatives. That was the first time I experienced the sense of invisibility, of powerlessness, that immigrants often talk about. I started working in a foundry, in a factory, for almost two and a half years, under really difficult circumstances. For me, it was especially very difficult morally – because throughout that time I had this internal struggle: "Why did I leave my country, why didn't I go back to farm?" But after 1990 and for the next few years, I met hundreds of immigrants like myself. I know one thing I experienced the first day I arrived here was "I want to go back. I want to go back." And in talking to immigrants, I learned that it wasn't only Jose thinking along those lines. It was the Marias and Rositas and Margaritas and whoever also thinking along those lines.

In 1993, I started working for a nonprofit organization in Salinas [California], the Rural Development Center, which works with farm worker families who aspire to become independent farmers. And during those years I observed a trend: that more and more immigrants kept coming. So we asked ourselves the question, "What's happening beyond the border?" I began to realize that in some respects we were dealing with issues of migration in a vacuum, that we were dealing more with the consequences than with the root causes of the problem. And that is really when I began to think about the project, about the need for a project that would work across borders, that would help us to think through and analyze not only the problems and consequences associated with migration, but also the opportunities. What opportunities are there? Why don't we begin to look at this issue of forced migration as an opportunity, rather than as a conflict, rather than as a constant barrier?

Q: What kind of effect have you seen from the work you've been doing?

A: We have been around for two and a half years, almost three years, and I feel we have made tremendous progress on both sides of the border. . . . The arraigo program was designed for young people in Mexico who aspire to remain in their communities and build a sustainable livelihood through agriculture, through forestry-based projects. In my site visits to indigenous communities, farming communities in Mexico, rural settings in Mexico, I kept hearing this strong message: I want to stay, and I want to conserve my river, I want to conserve my forest, I want to conserve my land. I value this way of life; this is where I want to stay; I want to grow roots in my land. And that's where this arraigo, this kind of deep-rootedness, came from. . . . We selected 15 participants who represent the diversity of agriculture and ethnicity in Mexico. We were able to put together a program responsive to their needs and priorities that included formal and informal trainings and workshops, but also site visits to model farms and projects throughout Mexico. They participated for 12 months in this course. We asked them to develop a project during this process, a project that they wanted to implement in their communities.

One of the participants, for example, said that he had been observing this trend in the region in which he lives, that lots of young people were migrating to the United States. And he was very concerned about it – he wanted to do something. So the analysis he conducted in the community showed that the people were interested in developing a training farm for young people, for the children of farmers in the region. So they came up with a training program around agroecology that is now in place.

What we wanted to see was agents of change – people who would come, benefit, gain knowledge, go back to their communities and multiply the knowledge – and that is exactly what has happened. We have six or eight states in Mexico where

this vision of CIDERS, my organization, is spreading quickly, it's growing, and this knowledge went far beyond this group of 15 participants, through their own organizations and through their own networks and in their own communities and regions. And a lot of these participants really work at the regional level, not just in a small community.

Q: From what you have been doing, have your ideas changed – or your sense of what the farmers with whom you work in Mexico need? Do they need agroecology training, do they need different policies, or do they need different structures to make these policies?

A: Policy, I think, is one of the most important issues in Mexico. Because the challenge farmers are facing is structural. It's not an issue of commitment, it's not an issue of desire, it's not an issue of wanting to leave the land – it's a structural problem that I relate to two key issues. One is the Green Revolution, which has had tremendous implications in Mexico and of course all over the world – people became dependent on agrochemicals. But the other is agrarian reforms that have been paternalistic, erroneous – top-down approaches that have only displaced people from the land, rather than helping them secure a better future or promising a future in their communities.

Q: You mentioned the effects of the agrarian reforms and national policies. Can you say more about this?

A: The agrarian reform, especially through Article 27 [of the Mexican Constitution] – where thousands of ejidatarios were displaced, and they were allowed to sell their properties very cheap – [happened] right after NAFTA, when Salinas de Gortari was president of Mexico. The ejidatarios represent a huge percentage of small farmers in Mexico. They were already facing a very serious crisis. And Article 27 was the last thing people needed. . . . It was just a political agenda initiated by Salinas de Gortari to somehow free the land so corporations could come and privatize or take over, which is exactly what is happening in Mexico. You will see huge maquiladoras or manufacturing companies in small, rural settings. I never ever dreamt of seeing such things. And what happened is people ended up selling the land and migrating. And suddenly you want to go back – what do you do? You sold your land. There is no going back. There is an ongoing struggle – and you enter a kind of survival mode as a result of this displacement. And how to recover from that is one of the things we talk about a lot in my organization. How do you recover from that?

Q: How could the way policies are made give a better voice to the voiceless?

A: I've seen the emergence of movements in Mexico – and not only in Mexico, in Latin America – that are bringing the voices of farmers to policymakers, that are proposing new legislation, that are proposing new . . . reforms related to the

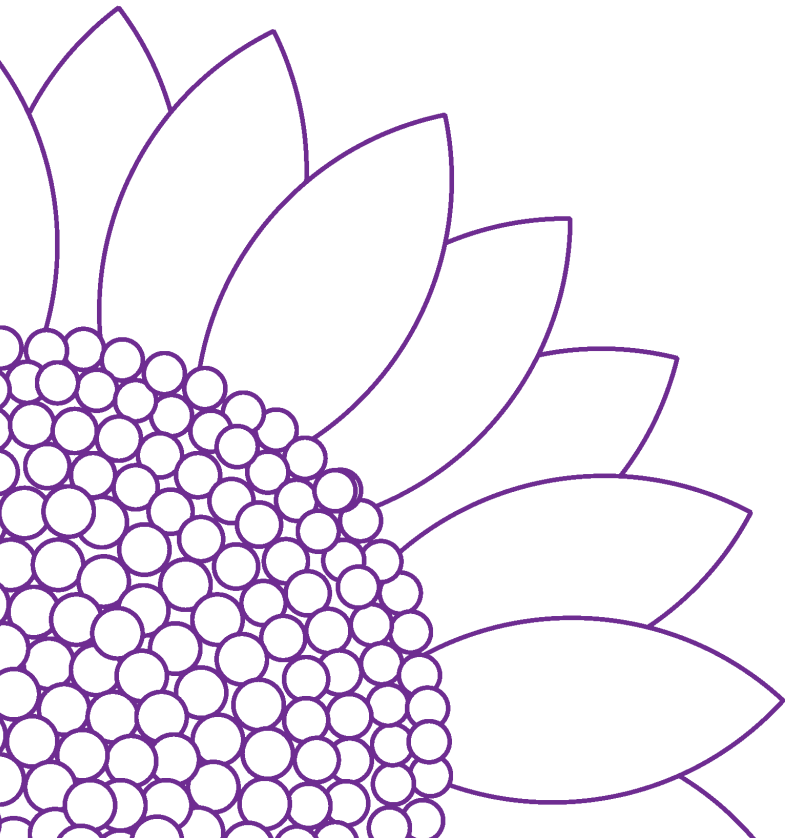
distribution of land, new reforms related to the structures of support for farmers and rural communities, that I think are highly innovative and offer new opportunities. And these networks and emerging movements are bringing together people and entities; they are bridging the gaps between those who represent government agencies, for instance, or policymakers, and the grassroots movements.

I think at this point there are two or three things we need to continue doing. One is to continue to support grassroots efforts, continue to go and work in the trenches, work with communities, partner with them, continue to create models of sustainability at the very local level – something that can be modeled, replicated. . . . We should also continue to strengthen these networks among young people and among farmers – for instance, in Mexico – people who share the same vision, but didn't know that they have the same concerns and that they have the same dreams.

Interview: George Naylor

National Family Farm Coalition, Iowa, USA

Interviewer: Avery Cohn



Q: There were two terms used a lot at the workshop that are sort of related: "family farmer" and "campesino." What do these mean? As president of the National Family Farm Coalition, what does the term "family farmer" mean to you?

A: The concept of family farms goes back to the founding of our country, and Thomas Jefferson's regard for the yeoman farmers and the importance they played in democracy. They were independent and didn't have to worry about losing customers. They had a certain amount of wealth, so they could express their political opinions. It became an important concept in contrast to the slave system. Family farmers, small businesses, and wage laborers all joined together to oppose slavery.

George Naylor.
Photographer: Steve Taylor.

Being free and independent was an important concept for a long, long time. That's an important contrast. The family farmer isn't exploiting other labor. They might exploit their own family's labor. Corporate agriculture depends on hired, exploited labor, or on exploiting the labor of family farmers who are only nominally independent.

Q: So, like Jefferson, you see the political independence of family farmers as important to the political process?

A: Yeah. There are a lot of business people who are afraid to speak out because they are afraid of losing customers and offending people. A family farmer isn't in that situation, although some family farmers under corporate contract with big hog confinement operations might be blackballed if they speak out. In my own community, some people won't sign petitions against hog confinement companies because they already work for them – or think they might need to in the future.

Q: I gather that one of the main roles of the NFFC is to call attention to the destructive cycle of agribusiness today. How are family farmers under threat?

A: Well, throughout history farmers have lived in poverty and have been paid low prices for their commodities. One of the reasons for this is that they're dealing with Mother Nature, cultivating the land and using natural resources. If there are good times, people expand their production and prices go back down. And when prices are going down, individual farmers aren't able to adjust to the situation in a rational manner. They produce even more, because as individuals, producing less is only going to reduce their earnings even more.

Consequently, they are caught in the poverty/resource degradation cycle. Their response to poverty or low prices is to increase production, which only drives prices lower. In the process, they are degrading their resources, making land less

productive. This only increases poverty. That cycle only stops when agricultural production diminishes and food prices go back up. Since the Depression, it's been recognized that society has to do something through political processes to take farmers out of that cycle.

Q: There is a lot of rhetoric about the need to save the family farm. Obviously, that rhetoric doesn't match the reality of what politicians are signing into law. On the other hand, in Mexico, the government doesn't use this sort of rhetoric. When they signed NAFTA, they publicly stated that they were trying to reduce the rural population. What difference does the family farmer rhetoric make, since we are seeing a rural exodus in both countries?

A: The rhetoric is easy to explain. Family farms are an important part of our past. People want to think of their food as produced on family farms. When they leave the city, they don't want to drive through faceless corporate agriculture. Therefore, politicians are going to say that's what they support. The reality is quite the contrary. The prescriptions they have enacted are cooked up by corporate economists to increase the power and profitability of big multinational agribusiness corporations. The main aim is cheap commodities to increase profits and to increase competitive access to foreign markets.

Q: I hear you saying that corporations have an unhealthy amount of control over the process of allocating funds and making farm policy. One goal of this workshop is to talk about how activists and NGOs can have a greater impact on these sorts of decisions that affect agriculture. What do you think is a good strategy for breaking down this unfair distribution of power?

A: The sentiment that policy people in Mexico were expressing – that we need to get people out of the rural areas – was expressed in the United States once, right after World War II. They said that we had too many farmers, too much food, farm programs were guaranteeing too-high prices, and society would be better off if we got rid of inefficient farmers, the small farmers, and relied more on efficient farmers. The small farmers could move to cities and do things that society needed to get done. Policies were made to move farmers off the land.

But when you're making policies to move farmers off the land, you're not necessarily moving the worst or least efficient farmers off the land. You're actually telling farmers to exploit the land, exploit labor, or use modern technologies that damage the environment, or else to get out of farming. In the long run, you end up with big corporate farms. You end up with a landscape that isn't used in diverse ways. Biodiversity is lost. After over 40 years of that policy here in the United States, prices below the cost of production are the norm, and despite the most modern technology imaginable, even these remaining farmers are insecure. Those bigger farmers

end up owning a smaller percentage of their land, so they're vulnerable to the decisions of absentee landlords.

There is no promised land at the end of this progression for farmers who get bigger and more efficient. It's all really a smokescreen for favoring agribusiness, so that they can make more profit by getting cheaper commodities.

Q: *I've heard you talk about a price floor – guaranteeing farmers a price that covers their costs of production and costs of living – as a solution. It sounds to me like a price floor is a way of allowing farmers who aren't willing to exploit technology, labor, or the environment to stay in the game. Is this true? Is a price floor enough to encourage more sustainable farming? Is it the case that all farmers who benefit from a price floor are going to farm in more environmentally friendly and socially just ways? Or is there a need for some other kind of mechanism to encourage sustainability?*

A: Sometimes farmers who advocate for parity or a price floor fall into the trap of thinking that if we just fix that one thing, everything will fall into place. What we're saying is that a price floor is necessary, but not sufficient. It's hard to figure out how we're going to have sustainable agriculture if you don't have that price floor – because without the price floor, you can pretty much guarantee that prices are going to decline and that's going to benefit only industrial-type production. It's a starting point. Therefore, it's the very first thing agribusiness is going to oppose.

But a price floor isn't enough. There has to be a culture that encourages respect for the land and biodiversity, and the understanding that we're part of this natural system.

Agricultural programs since the 1930s have had many facets. There have been, and there need to be, programs to give farmers incentives to seed down fragile land, to encourage crop rotations, and to make sure farmers have open markets for their products. I've talked a lot about price supports for storable commodities. I think we also probably need marketing orders for perishable commodities, to make sure every farmer is offered equal access in the marketplace.

Otherwise, any buyer, broker, or processor is going to want to deal with the biggest farmers – because it's more efficient to deal with a few farmers than a lot of farmers.With a marketing order, you have a system where all farmers bring their products to a central marketplace where they have some way of evaluating every farmer's production so it meets certain minimum standards. So every farmer's produce gets offered for sale rather than just the produce of the biggest ones, or the ones with political clout.

Q: Is there a need for public infrastructure to process agricultural goods?

A: We definitely need new processing facilities and marketplaces, which could be encouraged with government assistance. Their success will depend on a true commitment, because there can be great risk in such new ventures, and we don't need new examples of failure.

Q: I've heard you talk about instances where well-meaning advocacy groups support policies that end up being detrimental to their cause. Could you describe how you go about examining these issues? How could others do this better?

A: There are certain agricultural policies that have been advocated over the years. There are some that seem to make sense, and appeal to people wanting to have family farms and protect the environment, but they actually don't. I don't want to say it's a conspiracy, but there is certainly more money out there for these sorts of findings. That kind of thinking is based on a dislike of big farmers, as if they are the enemy. Some advocates of "greener" farm policy say, "Since big farmers are such advocates of the free market, let's give them the free-market price for grain. And we're going to give government payments to small and medium farmers, or farmers who are doing the right, sustainable thing."

That's a very appealing way of looking at the problem. But in reality, the big corporations who really are in control of foreign policy and who really stand to benefit from cheap prices don't care how government farm payments are distributed. All they care about is getting their cheap commodities.

If you say, "Oh, we're going to let the big farmers get stuck with the free-market price," then the free-market price is low grain prices for everyone. The big companies can still buy their grain cheap, and you've split up the farm community. You've split up your political forces by trying to draw some line between . . . big farmers [who are] unworthy of any help, and . . . small farmers [who] need help. Where are you going to draw that line?

There can only be one market price that should cover the cost of production. Then you need incentives for family farm livestock production and conservation, like the Conservation Security Program. We should end subsidized crop insurance and provide a disaster program with caps on payments so we don't underwrite the risks of farm expansion.

Q: It's exciting to hear from an advocate of farming communities and farmer's rights in the United States who also has a global perspective about agricultural issues. I've heard you talk about how a price floor in the United States could benefit farmers in other countries too. Could you explain that? I've also heard you say that a price floor in the United States could be undermined by lower

prices of agricultural commodities from abroad. How would this happen? Does it vary by commodity?

A: It's important to realize that grains and oilseeds have always been important because they can be stored and transported easily. They aren't perishable. Corporations like Cargill, Continental Grain, and Archer-Daniels Midland have created a really big empire here based on the use of grains and oilseeds. If you set up the proper transportation facilities, you can ship them anywhere in the world. You can also transform grains. You can take the protein and the carbohydrates and the oil and create animal feed. You can also put them through various industrial processes to create a myriad of unhealthy snacks and bakery products.

The big profits that result allow for a lot of leeway to design and market these products. So it's in the corporations' interests to have very cheap grain and oilseed prices. If the United States had a program to set a floor under those grain and oilseed prices, or if people in the United States said, "Raising all those grains and oilseeds is really detrimental to our environment, so we're going to have a conservation reserve program or conservation security program," it's going to cost a lot of money. And if something like that happens, multinational agribusiness will encourage more development of grain and oilseed production in Argentina, Brazil, or almost any place where there is arable land. So action in the U.S. alone is not enough.

Because of this big empire of transportation and processing and marketing facilities, the price of feed grains and oilseeds will affect almost every farmer's livelihood on the planet, unless they are so far away from the modern transportation system that these food products have no access to their local markets. Fewer and fewer farmers are in that situation.

For many years, it was the United States that supplied most of the grains and oilseeds on the world market. Until a few years ago, 70 percent of corn, 80 percent of soy, and up to 30 percent of wheat came from the United States. Sixty percent of corn and 50 percent of soybeans still come from the United States. So until recent years, regulating the price and supply in the U.S. would have affected prices globally.

Today, the strategy of multinational corporations – with the cooperation of the World Bank and International Monetary Fund – is to encourage production in other countries and to set up the facilities so that these goods can be transported all over the world. Now it's less possible for a price floor in the United States to prevent grain and oilseed prices from being too low. Without international cooperation, it's not possible.

There's Amazonia, or the cerrado in Brazil. It's the policy of the Brazilian government [along with] the IMF and the World Bank to encourage new transportation facilities, and new ports and railroads, [so that] those lands can produce corn or wheat or oilseeds for this industrial food system, and this can affect every farmer on the planet. So today, all of these big exporting countries need to cooperate to have a fair price for their own farmers.

Q: *I am working as a consultant for The Nature Conservancy-Brazil, writing a report about how to certify soybeans as being grown in an environmentally friendly and socially just manner. Certification initiatives are often pretty small-scale – Band-Aids, maybe. What do you think about their potential effectiveness?*

A: I think certification systems raise people's understanding of the problems. Just like fair trade coffee – it helps people realize that farmers in Guatemala aren't making any money off [coffee], and another $0.50 or $1.00 a pound ought to go to those farmers down there. It's crazy for big corporations to be making millions of dollars when farmers are going hungry. Let's pay a little more, make sure those farmers get paid, and make sure they are doing it in a sustainable manner.

I think that process raises the understanding of a lot of people, and that is a good thing. But in reality, because [the regular market] is so huge, the scale of programs that encourage only sustainably produced soybeans is going to be so small that the Cargills and the Tyson Foods and the ADMs are going to live unscathed. They'll keep this other production, where the soy will be used in their industrial system without labeling or without anyone really being aware of [genetically modified] content or the environmental effects.

I think it would be much better to have environmentalists and consumers aware that cheap isn't always best. Not only are you going to vote with your dollars as an individual consumer, but there needs to be a bigger movement to bring environmental understanding and agricultural understanding together in public policy and in international policy and trade agreements. I think that's the real answer.

Biographies of Workshop Presenters

Phil Dahl-Bredine, married and the father of seven children, received a B.A. in philosophy from Carleton College and an M.A. in the same from Northwestern University. In the 1960s and '70s, he worked in the civil rights and anti-Vietnam war movements, for the Catholic Worker, and as an organic farmer and beekeeper. After 20 years working with community development projects in the Mexican-American communities of New Mexico, he became a Maryknoll lay missioner in 2001. He presently works with indigenous campesino groups (CEDICAM, the Center for Integrated Rural Development of the Mixteca) and with popular movements resisting and building alternatives to the corporate globalization model in southern Mexico and Central America.

Kristin Dawkins is Vice President for International Programs at the Institute for Agriculture and Trade Policy in Minneapolis, Minnesota, and Director of the IATP Program on Trade and Global Governance. She represents the Institute at a broad range of international negotiations and conferences. Her own work has focused on food security, environmental policy, and intellectual property rights. She created the Global Governance program to address the legal relationship among different international treaties and to build support for a more democratic multilateral system. She is the author of Global Governance: The Battle for Planetary Power and Gene Wars: The Politics of Biotechnology, both available from Seven Stories Press. She has a master's degree in city planning from the Massachusetts Institute of Technology.

Alberto Gómez Flores is the national coordinator of the National Union of Autonomous Regional Peasant Organizations (UNORCA), a network of regional groups representing 200,000 farmers in Mexico. UNORCA works to secure farmers' access to land and productive inputs, fair agricultural prices and credit, and a voice in agricultural policy-making. As coordinator of Vía Campesina activities in North America, Gómez is involved in many projects at the regional and international level. Together with Vía Campesina-India, UNORCA coordinates a thematic working group on biodiversity and genetic resources. Originally from the Mexican state of

Michoacán, Gómez began political work as a youth leader of his ejido and was later ejido president.

Eric Holt-Giménez has worked with the Campesino a Campesino (Farmer to Farmer) Movement in Mexico, Central America, South Africa, California, and the Philippines. He specializes in farmer-led approaches to sustainable agriculture, conservation, and watershed management. His recent action-research study "Measuring Farmers' Agroecological Resistance to Hurricane Mitch in Central America" was a collaborative project involving 2,000 peasant-researchers and 40 NGOs across three countries. He holds a Ph.D. in environmental studies from University of California, Santa Cruz. He is currently the Latin America Program Manager at the Bank Information Center in Washington, DC.

Ronaldo Lec a Maya-Kaqchikel from Guatemala, holds a degree in social anthropology. He has practiced permaculture for the past eight years, and holds a permaculture diploma that entitles him to certify permaculture teachers, which he has done at the local, regional, and international levels. He also has received seed-saving and propagation training in Ethiopia. Lec's work has concentrated on community organizing, food production, and seed production. He is the founder of several community initiatives.

Richard Levins is the John Rock Professor of Population Sciences at the Harvard School of Public Health. He is an ex-tropical farmer turned ecologist, biomathematician, and philosopher of science concerned with complex systems in evolutionary ecology, economic development, agriculture, and health. His mathematical research strives to make the obscure obvious by finding appropriate ways to visualize complex phenomena. Working from a critique of industrial-commercial development, he has promoted alternative development pathways to economic viability with equity, and ecological and social sustainability. As part of the New World Agriculture and Ecology Group, and as a collaborator with agriculturalists in Cuba for nearly 40 years, he has helped to develop modern agroecology, concentrating on whole-system approaches to gentle pest management. He is co-author, with Richard Lewontin, of The Dialectical Biologist.

Sérgio Lopes is the head of the traditional agriculture program at the Secretaria de Extrativismo e Producão Familiar (SEPROF) in Rio Branco, Acre, Brazil. He also serves as an advisor to the Brazilian Environment Ministry. His previous work includes 15 years of community organizing with fellow agrarian reform recipients involved in the Reflorestamento Econômico Consorciado e Adensado (RECA) project in Rondônia state. He holds a degree in philosophy, history, and psychology from the Instituto Popular de Assistência Social, Ponta Grossa, Paraná. He has also completed a course in public policy and environment at New York University and has studied community leadership through the Acre Diocese of the Catholic Church.

Kathleen McAfee is a visiting scholar in geography at the University of California at Berkeley. At the Yale School of Forestry & Environmental Studies, she was the faculty sponsor and initiator of the workshop that gave rise to this report. Her interests center on economic globalization, social justice, and the equitable sharing and sustainable use of natural resources. Her work on "Selling Nature to Save It?" analyzes problems of valuing and conserving biodiversity and distributing environmental benefits and burdens in a world-market economy. As a policy analyst for Oxfam, she authored Storm Signals: Structural Adjustment and Development Alternatives (1991). She has published research on agro-biotechnology, intellectual property, food trade, and development policy, and has consulted for the U.N. Food and Agricultural Organization and other international agencies.

José Montenegro is the founder and director of the International Center for Sustainable Rural Development (CIDERS), a nonprofit organization that enables Mexican-American immigrants and their communities of origin to improve and sustain their local economies, cultures, livelihoods, and environments through sustainable land-use practices. For the last 12 years, he has successfully guided the implementation of cross-border exchanges involving small family farmers and Mexican professionals. Montenegro holds a B.S. in plant science (agronomy) from the University of Agronomy (ITA No. 1) in his native state of Durango, Mexico. He resides with his wife and three children in Salinas, California.

Catherine Murphy lived in Cuba from 1994 to 1999. She received an M.A. from the Facultad Latinoamericano de Ciencias Sociales (FLACSO) program at the University of Havana, with thesis research on urban agriculture in Havana. She has lectured and written widely on this topic, including the 50-page report "Cultivating Havana: Urban Agriculture and Food Security in the Cuban Special Period," published by Food First. She is currently working on a book that will reflect on the first ten years of Cuba's urban agriculture program.

George Naylor, president of the National Family Farm Coalition, raises 470 acres of corn and soybeans near Churdan, Iowa, with his wife and two young sons. Soon after coming back to the family farm in 1976, Naylor was elected to the first Iowa Corn Promotion Board and began driving tractors in tractorcades with the American Agriculture Movement. During the farm crisis of the 1980s, he was active in the Iowa Farm Unity Coalition and the North American Farm Alliance. From 1989 to 1991, he served on the Executive Committee of the Iowa Chapter of the Sierra Club. Naylor has participated in conferences in Cancún, Mexico City, Miami, and Guatemala that focused on U.S. farm subsidy policy and international trade agreements. Naylor is a plaintiff in a class-action lawsuit against Monsanto and other biotechnology companies dealing with the negative economic impacts on family farmers resulting from the introduction of genetically modified crops.

Ivette Perfecto received her Ph.D. in natural resources from the University of Michigan in 1989. She is now an associate professor in the School of Natural Resources and Environment at the University of Michigan. Her research involves biological diversity in tropical agroecosystems, focusing on the effects of agricultural intensification and its impact on biodiversity. Another aspect of her research relates to the ecological function of biodiversity in diverse tropical agroecosystems, and in particular the role of biodiversity in pest regulation. Most of this research is conducted in Nicaragua and Mexico. More generally, she is interested in sustainable agriculture and the intersection between conservation and agroecology.

Silvia Rodríguez is president of the board of Barcelona-based GRAIN (Genetic Resources Action International). GRAIN promotes the sustainable management and use of agricultural biodiversity based on people's control over genetic resources and local knowledge. Rodríguez lives and works in San José, Costa Rica, where she is Emeritus Professor at the Universidad Nacional. She holds a Ph.D. in development studies from the University of Wisconsin-Madison, a M.Sc. in rural sociology from the University of Costa Rica, and a Licenciada in social work from the Universidad Nacional Autónoma de México. She is also a member of the Biodiversity Network.

Jesús León Santos was born in the Federal District of Mexico in 1965. Since the age of 4, he has lived in the small community of San Isidro in Oaxaca State and was educated in nearby schools. From a young age, he has had a strong relationship with the land and animals. He is a small farmer, with a small piece of land that has allowed him to experiment and demonstrate that it is possible to live with dignity on the land. For 20 years, he has promoted rural development and alternative agriculture to help other families use their resources sustainably. He has experience with diverse systems of soil conservation, reforestation with native species, and the production of many types of organic fertilizers. He has participated in a variety of training programs as both facilitator and learner. He has held various roles in his community, as well as in CEDICAM (Centro de Desarrollo Integral Campesino de la Mixteca). He is currently president of CEDICAM's board of directors, and is responsible for the development of various projects there.

Robin Sears is a post-doctoral research scientist in the Center for Environmental Research and Conservation (CERC) at Columbia University in New York City. She studies the ecological, economic, and political bases for small-scale timber management on the Amazonian seasonal and tidal floodplains. She is currently working for the Millennium Project Task Force on Environmental Sustainability, a UN-sponsored project to help countries achieve the Millennium Development Goals.

Minor Sinclair is the director of the U.S. program of Oxfam America. Oxfam works on issues of sustainable livelihoods for family farmers, worker rights for low-wage workers in the food industry, and extractive industry impacts on Native Americans. Previously, Sinclair worked for four years in Cuba as co-representative for Oxfam

Canada. He co-authored "Going Against the Grain: Crisis and Transformation in Cuban Agriculture," and has commissioned two other agriculture-related reports: "Rethinking US Agricultural Policy: Changing Course to Secure Farmer Livelihoods Worldwide" and "Like Machines in the Fields: Workers without Rights in American Agriculture."

John Tuxill is a doctoral candidate at the Yale School of Forestry & Environmental Studies and the New York Botanical Garden, with a research focus on the conservation of biodiversity in traditional agricultural landscapes, and sustainable development and forest resource use in Latin America. His dissertation research is based in rural Yucatán, Mexico, examining Yucatec Maya farming systems and farmers' management of agrodiversity under conditions of agrarian change. Before returning to graduate school, he lived in Panama for two years while researching and writing about biodiversity conservation for the Worldwatch Institute. He holds a B.A. in biology and environmental studies from Williams College and an M.S. in conservation biology and sustainable development from the University of Wisconsin.

Jean Marc von der Weid founded Brazil's AS-PTA (Assessoria e Servicos a Projetos em Agricultura Alternativa) in 1983. AS-PTA works with rural labor unions and community agriculture associations to help small-scale farmers develop ecologically sound and more self-reliant food-production systems. Von der Weid now heads AS-PTA's Public Policy Department and is a leader in the movement to limit the patenting of seeds and the spread of transgenic crops in Brazil. He helped to establish Brazil's Agroecology Network and has consulted for the United Nations Development Programme (UNDP) and the Food and Agriculture Organization (FAO) in Africa and Latin America. He is active in the International NGO/CSO Planning Committee (IPC), a global network of non-governmental and community-based organizations concerned with food sovereignty.

Karen Washington considers herself a community activist. She became involved in community work when she moved to the Bronx in 1985. She is co-founder of the Garden of Happiness, a community garden; a member of La Familia Verde, a community garden coalition; and president of Crotona Community Coalition, a neighborhood association to which she has belonged for 19 years. She belongs to the board of the New York City Community Garden Coalition and is Vice-President of the Northwest Bronx Community and Clergy Coalition Board of Directors. Professionally, she has been a physical therapist for 25 years, currently working for Montefiore Home Health Agency. She has a B.S. magna cum laude from Hunter College, and an M.A. in occupational biomechanics and ergonomics from New York University. She is the mother of two children and a grandmother of two.

Karl Zimmerer chairs the Department of Geography at the University of Wisconsin at Madison. He works with rural communities in the Andes on geographies of seeds and agro-biodiversity, water resources, and challenges of conservation and

development in mountain agricultural environments in the context of globalization. He is the author of Political Ecology: An Integrative Approach to Geography and Environment-Development Studies, Nature's Geography: New Lessons for Conservation in Developing Countries, and Changing Fortunes: Biodiversity and Peasant Livelihood in the Peruvian Andes.

Biographies of Editors

Jonathan Cook received a Master's of Environmental Science from the Yale School of Forestry & Environmental Studies in 2004. His master's thesis, "Networking Against Oil in the Ecuadorian Amazon," analyzed the mechanics of a recent transnational environmental campaign. He is currently a Program Officer at World Wildlife Fund in Washington, DC, helping to manage several projects related to trade, agriculture, and the environment. Previously, he worked for three years in the environmental community, and wrote for publications including Orion and OnEarth. He holds a B.A. in Environmental Studies from Harvard University.

Avery Cohn received a Master's of Environmental Science from the Yale School of Forestry & Environmental Studies in 2004. His master's thesis, "Selling Coffee, Betting the Farm," explored interactions between agro-biodiversity conservation initiatives, agriculture certification schemes, and the livelihoods of small farmers in El Salvador. He currently works as a consultant, researching certification of ecologically friendly and socially just soybean production in Brazil.

Margarita Fernández received a Master's of Environmental Science from the Yale School of Forestry & Environmental Studies in 2004. Her thesis work explored social networks and community-based management systems of urban agriculture in New York City and Havana, Cuba. Previously, she worked for five years on rural and urban agriculture and food security issues in Latin America and the United States. She has worked as a researcher, small-scale farmer, and community organizer at NGOs in Costa Rica, Venezuela, Cuba, and New York. She is currently working in Laos, producing extension materials about shifting agriculture and natural resource management.

Rebecca Reider is a Master's candidate (2005) at the Yale School of Forestry & Environmental Studies. She has worked as a volunteer on community agricultural projects in Guatemala, and as a student, has conducted research on behalf of an indigenous communities association in the Ecuadorian Amazon. She has also worked as an environmental educator and writer in the U.S. She holds a B.A. in History and Science from Harvard University.

Corrina Steward received a Master's of Environmental Science from the Yale School of Forestry & Environmental Studies in 2004. Her masters thesis, "The Soybean Frontier: Contested Landscapes and Polarized Agriculture in the Brazilian Amazon," was done in collaboration with the Instituto de Pesquisa Ambiental da Amazônia in Santarém, Brazil. She now works as a consultant on international forest policy, agricultural biodiversity and technology, and Amazon conservation and development. Previously, she worked as a researcher with the Meridian Institute and The Rockefeller Foundation in Washington, DC. She holds B.A. degrees from Oberlin College in Biology and Environmental Studies.

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Resources

Farmer-to-Farmer Networks/Coalitions

Assessoria e Serviços a Projetos em Agricultura Alternativa (ASPTA) – www.aspta.org.br (Portuguese)
Promotes agricultural development in Brazil based on agroecological principles and family agriculture.

Canadian Organic Growers - www.cog.ca
National membership-based education and networking organization representing farmers, gardeners, and consumers in all Canadian provinces.\

GreenSpace Partners - www.greeninstitute.org/GSP/index.htm
Links to community gardens in New York City, a calendar of events, and resources for urban agriculture.

Missouri Rural Crisis Center - www.inmotionmagazine.com/rural.html
A statewide organization of farmers and their families with 13 chapters around Missouri.

MST – www.mst.org.br (Portuguese) and www.mstbrazil.org
The Brazilian Landless Workers Movement is the largest social movement in Latin America, and one of the most successful grassroots movements in the world. Organizes landless peasants in land reform efforts in Brazil, with the goals of reversing skewed land distribution and promoting food security and an alternative socioeconomic development model.

National Family Farmer Coalition (NFFC) – www.nffc.net
A network of family farm and rural organizations dedicated to enhancing rural life and the life and livelihoods of family farmers in the U.S.

National Farmers Union – www.nfu.org
An organization of farmer members that works to protect and enhance the economic interests and quality of life of family farms and ranches.

NEON (Northeast Organic Network) - www.neon.cornell.edu
An innovative consortium of farmers, researchers, extension educators, and

grassroots nonprofits working together to improve organic farmers' access to research and technical support.

NOFA (Northeast Organic Farming Association) – www.nofa.org
A nonprofit organization of nearly 4,000 farmers, gardeners, and consumers working to promote healthy food, organic farming practices, and a cleaner environment. Has chapters in Connecticut, New Hampshire, Vermont, New York, New Jersey, Rhode Island, and Massachusetts.

Via Campesina - www.viacampesina.org
An international movement that coordinates peasant organizations of small and middle-scale producers, agricultural workers, rural women, and indigenous communities from Asia, Africa, America, and Europe.

Agriculture Research Libraries/Farmer Advice

AgriFor – http://agrifor.ac.uk/browse/cabi/f1fd1913c968a1c383c88631e335a7ca.html
A gateway to quality Internet resources in agriculture, food, and forestry aimed at students, researchers, academics, and practitioners in agriculture, food, and forestry. Includes review of forest and agricultural product certification schemes.

Ag Observatory - www.agobservatory.org
A clearinghouse for agricultural news. Provides calendar of agriculture-related conferences and links.

Agribusiness Accountability Initiative – www.agribusinessaccountability.org
An evolving global network of people challenging corporate control of the food system.

Agribusiness Center – www.agribusinesscenter.org
Run by the Minneapolis-based Institute for Agriculture and Trade Policy (IATP). Strives to provide journalists, researchers, and the general public with factual information on the operations of the agribusiness industry.

Agroecology Home – www.agroecology.org
Case studies of agroecology around the world, agroecology basics, technical resources, and links to courses on agroecology.

Agroecología - www.agroecologica.com.br (Portuguese)
A clearinghouse of information about agroecology in Brazil.

Alternative Farming Systems Information Center - www.nal.usda.gov/afsic/agnic/agnic.htm
Part of the USDA's Agriculture Network Information Center (AGNIC - http://laurel.nal.usda.gov:8080/agnic/). Lists of sustainable agriculture research and publications; searchable agriculture databases.

ATTRA - www.attra.org and www.attra.org/espanol/index.html (Spanish)
Federal information service providing direct answers to questions about sustainable agriculture, with a website that gathers together thousands of resources for sustainable and organic farmers. Provides news, grant information, and guides to technical resources.

Biodiversidad en América Latina - www.biodiversidadla.org
News concerning agriculture and the environment in Latin America.

Centro Internacional de Información Sobre Cultivos de Cobertura (CIDICCO) - www.cidicco.hn (Spanish/English)
A Honduras-based NGO, founded in 1990, with the objective of identifying, documenting, disseminating, researching, and/or promoting research in the use of green manures and cover crops for small farmers.

City Farmer – www.cityfarmer.org
Resource website with information about urban agriculture worldwide.

Farmland Information Center (FIC) - www.farmlandinfo.org
A searchable clearinghouse for information about farmland protection and stewardship legislation, statistics, and technical resources.

Food and Agriculture Organization of the United Nations - www.fao.org/organicag
Website of organic agriculture at FAO, with bibliographies, articles, and statistics related to alternative agricultural practices.

New Farm – www.newfarm.org
Newsletter-style website with articles by and for farmers, recent news, and information. Has searchable international resource directory.

PlanetArk - www.planetark.com
Home of Reuters international environmental and agricultural news.

Portal Agricultura - www.portalagricultura.com.br (Portuguese)
Information and news about organic and family agriculture in Brazil.

Research Centre on Urban Agriculture and Forestry (RUAF) – www.ruaf.org
A global resource center that aims to facilitate the integration of urban agriculture into the policies and programs of national and local governments, technical departments, research centers, and NGOs and to facilitate the formulation of projects on urban agriculture with active involvement of all local stakeholders.

Rede de Agricultura Sustentável - www.agrisustentavel.com (Portuguese)
A clearinghouse of information dedicated to promoting environmentally friendly agriculture in Brazil.

Sustainable Agriculture Research and Education (SARE) - www.sare.org/coreinfo/farmers.htm

Provides grants and disperses educational materials in support of environmentally sound agricultural practices.

USDA Direct Marketing - www.ams.usda.gov/directmarketing
Provides advice to direct market farmers in the U.S. and lists additional direct marketing resources.

Women's Agricultural Network (WagN) - www.uvm.edu/~wagn
Working to increase the number of women owning and operating profitable farms and ag-related businesses and their profile in leadership positions throughout the agricultural sectors of business, government, and community. Provides assistance to new agricultural entrepreneurs and existing businesses.

Znet - www.zmag.org/weluser.htm
A community of people committed to social change. Includes information concerning rural social and environmental movements.

Agriculture/Environment Organizations and Resources

Amazônia - www.amazonia.org.br/english (English and Portuguese)
A clearinghouse of agricultural and environmental news focused on the Brazilian Amazon, maintained by Friends of the Earth, Brazil.

American Community Gardening Association (ACGA) - www.communitygarden.org
A national nonprofit membership organization of professionals, volunteers, and supporters of community greening in urban and rural communities.

The Community Food Security Coalition (CFSC) – www.foodsecurity.org
A North American organization of social and economic justice, environmental, nutrition, sustainable agriculture, community development, labor, anti-poverty, anti-hunger, and other groups. Seeks to develop self-reliance among all communities in obtaining their food.

Ecoagriculture Partners - www.ecoagriculturepartners.org/home.htm
A group dedicated to the promotion of agriculture that provides ecological services.

Food Routes Network - www.foodroutes.org
A national nonprofit organization that provides communications tools, technical support, networking and information resources to organizations nationwide that are working to rebuild local, community-based food systems.

Instituto Mesoamericano de Permacultura - http://usuarios.lycos.es/institutoIMAP/hacemos.htm
Promotes permaculture for sustainable development in Guatemala.

Just Food – www.justfood.org
A nonprofit organization that works to develop a just and sustainable food system in the New York City region.

Laboratório de Engenharia Ecológica e Informática Aplicada - www.unicamp.br/fea/ortega
Website of Dr. Enrique Ortega, an engineer with the Brazilian agriculture ministry, who promotes energy-efficient agriculture.

National Campaign for Sustainable Agriculture - www.sustainableagriculture.net
Dedicated to educating the public on the importance of a sustainable food and agriculture system and works to shape national policy.

Organic Consumers Association - www.organicconsumers.org
Grassroots nonprofit organization concerned with food safety, organic farming, sustainable agriculture, fair trade and genetic engineering in the U.S. and internationally.

Organic Farming Research Foundation - www.ofrf.org
Funds research on organics and administers a nationally survey of organic farmers.

Robyn Van En Center - www.csacenter.org
Community-supported agriculture resource guide, information, and listings.

The Rodale Institute – www.rodaleinstitute.org
Provides information on regenerative education and training, research, and organic production. Hosts long-term organic research experiments and provides information on sustainable agriculture.

International Trade/Environment/Agriculture Organizations and Resources

ActionAid – www.actionaid.org
An international development agency that works with local partners to fight poverty and injustice worldwide.

Alliance for Responsible Trade (ART) - www.art-us.org
U.S. network of labor, family-farm, religious, women's, environmental, development, and research organizations that promotes equitable and sustainable trade and development.

ETC Group – www.etcgroup.org
Dedicated to the conservation and sustainable advancement of cultural and ecological diversity and human rights. Supports socially responsible development of technologies useful to the poor and marginalized and addresses international governance issues and corporate power.

Food and Agriculture Organization the United Nations www.fao.org/es/ess/toptrade/trade.asp
The FAO commodity-by-commodity guide to external agricultural trade.

Focus on the Global South - www.focusweb.org
A program of development policy research, analysis, and action. Engages in advocacy and grassroots capacity building on critical issues.

Global Exchange - www.globalexchange.org
International human rights organization dedicated to promoting environmental, political, and social justice.

Genetic Resources Action International (GRAIN) – www.grain.org
An international NGO that promotes the sustainable management and use of agricultural biodiversity based on people's control over genetic resources and local knowledge.

Grassroots International – www.grassrootsonline.org
Promotes global justice through partnerships with social change organizations. Works to advance political, economic, and social rights and support development alternatives through grantmaking, education, and advocacy.

Institute for Agriculture and Trade Policy (IATP) - www.iatp.org
Policy-making institute that educates and assists citizens in the fostering of economically and environmentally sustainable communities.

Institute for Food and Development Policy (Food First) - www.foodfirst.org (Inglés)
Nonprofit 'peoples' think tank and education-for-action center whose work highlights root causes and value-based solutions to hunger and poverty around the world, with a commitment to establishing food as a fundamental human right.

International Centre for Trade and Sustainable Development (ICTSD) - www.ictsd.org
Engages a broad range of actors in ongoing dialogue about trade and sustainable development. Publishes BRIDGES Weekly Trade News Digest (a weekly electronic news digest on trade issues) and BRIDGES Trade BioRes (a biweekly Trade and Biological Resources News Digest).

International Federation of Organic Agriculture Movements (IFOAM) - www.ifoam.org
Seeks to lead, unite, and assist the organic movement in its full diversity. Promotes the worldwide adoption of ecologically, socially, and economically sound systems that are based on the principles of Organic Agriculture.

International Institute for Environment and Development (IIED) - www.iied.org
IIED is an independent non-profit research institute working in the field of sustainable development.

International Institute for Sustainable Development (IISD) - www.iisd.org
Contributes to sustainable development by advancing policy recommendations and engaging decision-makers in government, business, NGOs, and other sectors to develop and implement policies that are simultaneously beneficial to the global economy, the global environment, and social well being.

North America Commission for Environmental Cooperation (CEC) - www.cec.org
An international organization created by Canada, Mexico, and the United States under the North American Agreement on Environmental Cooperation (NAAEC), which complements the environmental provisions of the North American Free Trade Agreement (NAFTA). Established to address regional environmental concerns, help prevent potential trade and environmental conflicts, and promote the effective enforcement of environmental law.

Oxfam America - www.oxfamamerica.org
Boston-based international development and relief agency, an affiliate of Oxfam International. Works with local partners to implement development programs, emergency relief services, and campaigns for change in global practices and policies that keep people in poverty.

Third World Network - www.twnside.org.sg
Independent nonprofit international network of organizations and individuals involved in issues relating to development, the Third World, and North-South issues. Publishes a variety of documents and reports in print and electronic media.

Agriculture Certification

Biorastro - www.biorastro.com.br
The leading Brazilian Eurepgap certifier.

Community Agroecology Network - www.communityagroecology.net
An organization dedicated to maintaining links between agricultural communities, and between those communities and consumers through the marketing of 'fair trade direct' coffee.

Eat Wild - www.eatwild.com
A clearinghouse of information about pasture-based farming.

Eco-Labels - www.eco-labels.org/home.cfm
The Consumers' Union guide to environmental labels.

European Commission Agriculture Quality Policy - http://europa.eu.int/comm/agriculture/qual/en/syste_en.htm
An explanation of the European Union's Agriculture Quality Policy.

Fair Trade Labeling Organization - www.fairtrade.net
The worldwide Fair Trade standard-setting and certification organization.

Food Alliance - www.foodalliance.org/index.html
Pacific Northwest-based third-party certifier of socially just, environmentally friendly farming practices.

Greentrade.net - http://greentrade.net/en/default.html
Dedicated to hooking up buyers and sellers of certified products in the United States.

Organic Trade Association (OTA) - www.ota.com
The membership-based business association for the organic industry in North America. Its mission is to encourage global sustainability through promoting and protecting the growth of diverse organic trade.

Rainforest Alliance Sustainable Agriculture Network - www.rainforest-alliance.org/programs/agriculture/index.html
A coalition of leading conservation groups that links responsible farmers with conscientious consumers through the Rainforest Alliance Certified seal of approval.

Social Accountability in Sustainable Agriculture (SASA) - www.isealalliance.org/sasa
A collaborative project of several leading agricultural certifiers.

Trans Fair USA - www.transfairusa.org
A nonprofit organization that is the only independent, third-party certifier of Fair Trade products in the United States.

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