Creating Sustainable Community Programs: Examples of Collaborative Public Administration

Mark R. Daniels
Editor

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Poem by Robert A. Macoskey in Chapter 3 used by permission of the poet.

Humankind has not woven the web of life.
We are but one thread within it.
Whatever we do to the web, we do to ourselves.
All things are bound together.
All things connect.
Whatever befalls the Earth befalls also the children of the Earth.
—Chief Seattle, circa 1855

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Preface

In August 1997, I arrived on the campus of Slippery Rock University of Pennsylvania (SRU) to coordinate the new Master of Public Administration (MPA) graduate program. During my first semester, I was assigned a graduate level course in state and local government management. I had heard about an innovative project on the SRU campus that applied the principles of sustainability to a homestead that included a house, barn, and gardens. I read some brochures that described the project and decided that my MPA graduate students would learn something about sustainable principles that were relevant for local communities if we took a tour of the project site. On a Saturday morning, students from the state and local government management class and I met at the Harmony Homestead and Macoskey Center for Sustainable Systems Education and Research and were given a tour by a graduate student enrolled in SRU's Master of Science in Sustainable Systems graduate program (called the MS3) who lived on the homestead.

Our tour of the Harmony Homestead and Macoskey Center just scratched the surface of the many projects in sustainable systems in which the homestead and center are involved and which are explained in depth in Chapter Three. Nonetheless, what I observed opened my mind about the possibilities of applying sustainable principles to local community programs, and the questions I asked myself provided inspiration and direction for this book. First, to what extent do sustainable community programs facilitate citizen participation and in turn create *collaborative* relationships between citizens and their governments? Traditionally, local officials administer programs for citizens. Once sustainable community programs are created, however, this relationship changes: citizens now administer their own programs in collaboration with local officials. Sec-

ond, to what extent do sustainable community programs support a new, *collaborative public administration*?

Part of my response to this question was to present a paper on the role of technology for creating sustainable communities at a conference organized by Regions III and IV of the American Society for Public Administration (ASPA) at George Mason University in 1998, which was subsequently published in the journal, *Sustainable Communities Review*.[1] Next, I presented a paper on the applications of sustainable programs, such as recycling, within the public administration curriculum at the 1999 national ASPA meeting.[2] Finally, I decided to begin this book project and announced a call for manuscripts in journals and newsletters, and sent invitations to public administration faculties across the country. My objective was to find examples of sustainable community programs, publish them as a collection in an edited book, and thereby provide a description of this new, *collaborative public administration*.

I want to thank the twenty-four authors who have worked with me on this project. I deeply appreciate their scholarship and patience while this volume was being prepared for publication. I also thank Dr. James T. Sabin, Director of Academic Research and Development of Greenwood Publishing Group, for his assistance with the production of this volume.

Also deserving of thanks are the staff and volunteers of the Harmony Homestead and the Macoskey Center of Slippery Rock University of Pennsylvania for demonstrating how sustainable programs can be self-supporting and successful. I particularly wish to thank Dr. Karen Kainer, Assistant Professor of Parks, Recreation, and Environmental Education at Slippery Rock University, for her advice. Dr. Valentin I. Kefeli, Staff Member with the Macoskey Center, provided me with an expanded tour of the wetlands bio-system and also provided stimulating conversation. Ms. Claire Anderson, alumna of the Slippery Rock University's MS3 program and author of Chapter Three, "Harmony Homestead and The Macoskey Center for Sustainable Systems Education and Research," went beyond the call of duty by conducting personal interviews and researching the papers of Dr. Macoskey to detail the creation, development, and current programs of one of the few sustainable systems educational programs in the United States.

Dr. Charles A. Zuzak, Dean of the College of Arts and Sciences, and Dr. Richard T. Martin, Chair of the Department of Government and Public Affairs, have given me their encouragement and support throughout this project, and for this I am humbly grateful.

Finally, I wish to thank my sons, Nathaniel and Noah, for tolerating the absence of their dad due to professional trips and much needed weekend and evening work that helped to complete this book. They have helped to remind me that the most important, enduring sustainable system is the family.

NOTES

1. The paper was entitled, "The Role of Technology in Creating Sustainable Communities," and was published in *Proceedings of ASPA's Regions III/IV 1998 Conference: NextWork—Public Administration in the 21st Century* (George Mason University, 1998). The

article was entitled, "The Technology of Recycling Programs in Sustainable Communities: Applications and Future Prospects" and was published in *Sustainable Communities Review* 3, no. 1 (Spring 1999): 18–23.

2. Mark R. Daniels, "Programs for Sustainable Communities: Applications for Public Administration Education," at the National Conference of the American Society for Public Administration, Omni Hotel, Orlando, FL, April 9–14, 1999.

Chapter 1

Introduction

Mark R. Daniels

INTRODUCTION

In 1975, *Public Administration Review* published a symposium devoted to the "energy crunch."[1] In one article, Glenn T. Seaborg wrote of how society would change twenty years in the future (that is, 1995) as a response to the energy crisis. He predicted a new, "Recycle Society," in which virtually all material would be reused indefinitely and virgin resources would be relied upon solely to make up for materials in usage or needed to expand production. He predicted that in the Recycle Society all waste and scrap would become our major resources and our natural, untapped resources would become our back-up supplies. Further, he predicted that in 1995 society would have developed a new ingenuity in materials substitution and in what Buckminster Fuller calls "ephemeralization," or the process of doing more with less.[2] Technology would be developed that would allow for materials recycling and substitution and would make possible the process of ephemeralization.

Seaborg's vision of a transformed society of the future is part of what is now called "sustainable communities," that is, communities that adopt programs that result in self-supporting outcomes. For example, just as an ecological system consists of the web of supporting relationships among living organisms that allows for their continued health and well-being and that of future generations, a sustainable community system is the web of programs and activities engaged in by members of a community that results in community-generated support for all its members: a self-supporting community.[3]

Sustainable community development involves the notion of "meeting the needs of the present without compromising the ability of future generations to meet their own needs."[4] The goal of sustainable community development is to (1) build communities

which are self-supporting and which can sustain and regenerate themselves through economic self-reliance, community control and environmentally sound development; and (2) build communities which will be worth preserving because they are grounded in the life experiences of people who live in them and in the natural histories of specific regions.[5]

BOOKS ON SUSTAINABLE COMMUNITY PROGRAMS

Published books on sustainable systems/communities fall into three categories, as detailed in the references found at the end of this chapter organized by subjects. The first category is "commerce and economics." These books emphasize the relationship between economic development and self-sufficiency. One theme is the tension between the industrialized nations and the developing world and how the demands of the industrialized nations for raw material and cheap labor undermines efforts of developing nations for self-sufficiency. Another theme is how a healthy global ecology can exist together with a consumer driven global economy. A third theme is how to create utopian societies incorporating self-sufficient economic systems. These books emphasize the academic areas of political science, economics, sociology, and regional and global planning.

The second category is "Community Planning and Design." These books approach urban and regional planning with a concern for the ecological design of communities. Topics include how to transform existing cities through planning and development into sustainable communities and how to build new communities that incorporate sustainable features such as green areas, community common areas, mass transportation systems, and business zones that support residential dwellings. These books emphasize the academic areas of urban planning and design, geography and ecological biology.

The third category is "Ecology and Population Studies." These books emphasize how to protect and preserve the planet, a mega-sustainable system called "Maia," by finding harmony between the needs and outputs of the human population and the rest of the life systems on the planet.[6] These books focus on recycling, environmental concerns such as pollution and contamination, industrial systems that are more peaceful and less destructive, and public awareness to ecological issues. These books emphasize the academic areas of sociology, ecological biology and philosophy.

The books in the above three categories provide concepts and theories that can be applied to sustainable community programs. However, none of these books give specific examples on what kinds of sustainable community programs have in fact been developed, how these programs were implemented, and how well they accomplish their given objectives. Absent is a book that explains what programs have worked well and why and how to implement the successful programs in local communities. Although two books come close to accomplishing this, neither provides in-depth case studies designed to assist public administrators in implementing sustainable community programs. The first, *The Quickening of America* by Frances Moore Lappe and Paul Marting Du Bois, is a workbook for citizens on how to become more involved in their local community and emphasizes citizen empowerment, citizen action, and local democracy.[7] The second, *Toward Sustainable Communities* by Mark Roseland, provides con-

cepts but does not provide the in-depth case studies that I think are needed for public administration students.[8]

Creating Sustainable Community Programs builds upon the existing knowledge of sustainable community systems as found in the subject areas of commerce and economics, community planning and design, and ecology and population studies by presenting on-going, working sustainable programs in place in communities across the country. *Creating Sustainable Community Programs* is the first book on sustainable programs that is intended for an audience of public administrators, in addition to urban planners, economists, sociologists, environmentalists, community activists, and ecological biologists.

CHAPTERS IN *CREATING SUSTAINABLE COMMUNITY PROGRAMS*

The chapters in *Creating Sustainable Community Programs* provide a variety of examples of sustainable community programs that have been successfully implemented in local communities. Most of these programs exist through government funding or regulation, although one, "Food Gatherers," is a purely voluntary, non-profit program without any government funding.

Chapter Two, "Working Toward Sustainability: Successful Community-Based Efforts," presents five cases of successful sustainable community programs in Austin, Texas, Olympia, Washington, San Francisco, California, Santa Monica, California, and Willapa Bay, Washington. Jason Venetoulis, the author, predicts that creating sustainable communities will be the greatest challenge of the twenty-first century and believes that these five cases show how agreement upon a vision of the future and participation on the community level by members of a community can result in improvement of the quality of life for all.

Chapter Three presents an experiment in self-sufficiency, a homestead located on the campus of Slippery Rock University of Pennsylvania called "Harmony House." Claire Anderson explains how the Harmony Homestead and Macoskey Center for Sustainable Systems, Education and Research came into existence, and details the operations of the homestead which include a greenhouse, a compost toilet, a permacultural design constructed with recycled and reclaimed material, organic gardens, photovoltaic systems for energy collection, a solar water heater, a masonry stove for heat, and a graywater system that collects water from sinks, showers, and baths and purifies it through an artificial wetlands. Ms. Anderson's comprehensive presentation of this demonstration project provides a road map for other academic institutions or communities that would like to experiment with sustainable living practices.

Chapter Four presents the results of a two-year evaluation of the outcomes of conflict management training involving government administrators, elected officials, and community leaders. Authors Patricia J. Fredericksen and Nicholas P. Lovrich explore how the concept of "community sustainability" is supported through collaborative relationships among all members of a community. Although conflict is inevitable in any community, the authors demonstrate how constructive conflict management works to build social capital among members of the community.

Chapter Five, written by Eric Linquist, offers a comprehensive presentation of sustainability and community transportation planning and policy. The chapter first presents the concept of sustainable community transportation and then examines the barriers to developing sustainable transportation programs. Finally, the chapter presents working examples of sustainable transportation programs in the communities of Toronto, Ontario, Bryan/College Station, Texas, and Barnstable County, Massachusetts. The chapter concludes by offering a general strategy for adopting sustainable transportation programs.

Chapter Six examines "microcredit," a financial program that is intended to assist communities in achieving economic sustainability. Microcredit is a term given to financial credit programs aimed at encouraging entrepreneurial enterprises among the poor (defined as welfare recipients), the unemployed and underemployed, and single parents. These programs are underwritten by governments, such as the U.S. Small Business Administration and the U.S. Department of the Treasury, and also by private financial corporations such as Bank of America in response to President Clinton's "New Market Initiative." Authors Douglas Snow, Terry F. Buss, and Colette Dumas identify the many different kinds of microcredit programs and explain the arguments for and against this type of market intervention strategy. They provide examples of microcredit programs in New York, New York, and El Paso, Texas, and explain how and why they work.

Chapter Seven examines Los Angeles' Empowerment Zone, a program that blends tax incentives, job creation, and social services to jump-start a community's economy and end poverty. Author Gerry Riposa explains how an empowerment zone program involves collaboration among government leaders and community members, in stark contrast to orthodox top-down economic development programs. Empowerment zones require citizen driven political institutions that will help to sustain the financial vitality of a community once the cycle of poverty has been broken.

Chapter Eight explores the reuse of contaminated industrial or commercial sites, referred to as "brownfields." Written by Richard C. Hula, the chapter presents how the State of Michigan has enacted laws that supplement federal legislation and are intended to promote brownfield development and examines the cases of two Michigan municipalities, Kalamazoo and Grand Rapids. Legislation enacted by Michigan allowed these two cities to adopt decentralized administrative approaches to brownfield development that were custom designed to fit the unique challenges of each city. Dr. Hula concludes that a decentralized, market-based approach results in successful brownfield development because it allows local authorities to create a land recycling program that is consistent with their local political culture and community preferences.

In Chapter Nine, authors Feisal Uzair Khan and Jennifer E. Tessendorf present this book's only comparative study of community sustainability, the Aga Khan Rural Support Program and the Orangi Pilot Project, both in Pakistan. These economic development programs depart from the usual top-down approach of the 1960s and 1970s, staffed mainly by engineers and economists. Instead, these programs stress sustained beneficiary participation consistent with the notion that a community's economic activities are embedded in its structure of social relations. This "bottom-up" approach increases the capacity of local community residents to solve their own problems. The

authors conclude that both of these programs have improved the quality of life for some of the poorest people in one of the world's poorest countries mainly because of a community-based approach to sustainability, an approach that is cross-cultural and cross-national.

In Chapter Ten, authors Y. Mina Chang and Anand Desai examine the outcomes of local control of water pollution. Recently, there has been a devolution of authority and control over water pollution regulation from the federal to state and from the state to local governments. This shift reflects the increasing belief by federal policy makers that community-based decision making results in more informed regulation because local community decision makers are closer to the problem and have a better understanding of local water pollution. The authors examine funding and technical aspects to local water pollution control and focus on the cases of two communities in Ohio, Columbus and Lima. This study explores the importance of local capacity, or a community's socioeconomic strength, to design and enforce water pollution controls. The study also tests several theories that suggest that the design of local pollution programs reflects the relationship between the community's government and industry. The authors conclude that when a local government has a stronger socioeconomic profile, a diverse economy, stronger financial ability and more inclusive control, the more effective it is in regulating water pollution. These findings can help higher level governments become more aware of the needs of a local community in carrying out a community-based, sustainable water pollution control program.

In Chapter Eleven, I review the extent to which we have become a "Recycle Society," a community that reuses its resources in a material loop: production, consumption, recycle and reuse. I examine the status of recycling many resources such as paper, aluminum, plastic bottles, tires, textiles, and wastewater and also discuss source reduction, landfills, composting, and waste-to-energy production. I conclude that greater efforts must be made to prove that recycling is marketable, that it is economically advantageous. I also recommend greater use of partnerships in recycling efforts, such as collaboration among neighboring communities and the use of public-private partnerships to provide incentives to industry for recycling efforts. Finally, I urge greater education about the principle of "reduce, reuse, recycle," and discuss the efforts of Slippery Rock University of Pennsylvania in undergraduate and graduate educational programs in sustainable systems.

Chapter Twelve reviews a program that encourages residential recycling that is both innovative and practical. Authors Jothi S. Themozhi and Gail Johnson present the case of radio frequency identification technology in curbside recycling in Hampton, Virginia. Hampton's residents were accustomed to a standardized, low fee for solid waste pickup. In an effort to encourage recycling, each resident's recycling bins were fitted with a specially coded tag that can be read with a low wattage radio frequency wave to obtain information about the address, date and time of pickup. The solid waste fee that residents pay is now variable, with those participating in recycling receiving the same, low fee but those not participating receiving a higher fee. This economic incentive, which is about two dollars per tag, resulted in an overall increase of material recovery of

60 percent and an increase of paper related material recovery of 121 percent. This is a program that begs for replication in other communities.

The next three chapters, Thirteen, Fourteen, and Fifteen, present examples of community-based food cooperative programs. In Chapter Thirteen, David Campbell and Gail Feenstra discuss the development of a farmers' cooperative, PlacerGROWN, that was designed to protect rich, valuable farmland from residential and commercial development by increasing the profits of farmers through direct marketing. The authors discuss how farmland can be protected by linking farm production with direct, local marketing programs. They also emphasize the importance of public investment by all stakeholders in the community, both farmers and consumers. In Chapter Fourteen, Rhonda S. Kinney and Michael Harris present the case of Food Gatherers, a volunteer program started by a delicatessen to recycle and distribute food not consumed by restaurants and food stores to agencies who feed the hungry. Food Gatherers are able to recover and deliver a pound of food for less than the price of a postage stamp, and has served as a model for almost 200 food rescue operations in the United States. The authors observe that converting wastes to useful resources is one of the keys to building sustainable communities. They conclude that Food Gatherers has been successful in large part due to policy entrepreneurs at the local level and the use of strategies to lower participant costs. Finally, in Chapter Fifteen, Alice Kaiser-Drobney presents Empty Bowls, an annual charity dinner that provides soup and entertainment for the community, supported by a web of interrelationships among volunteers from the local university, farmers, and the community itself. Over a three-year period of time, more than 1,700 people from the community have attended the Empty Bowls dinner, about 300 students and community members have volunteered at Empty Bowls, and more than $14,500 has been raised for the local food bank. This chapter includes a detailed "tasks and time-line" section that provides a step by step guide to sponsoring an empty bowls dinner for any community.

Chapter Sixteen presents the development of a decentralized, community supported, health and human services umbrella organization in Gwinnett County, Georgia, called the Gwinnett Coalition. Author Pat Mitchell traces the development of the Gwinnett Coalition over the past decade and details the evolution of the organization from what was first a modest attempt to develop a computerized list of county service providers to what is now a $9 million organization that is dedicated to helping ordinary people think more clearly about social problems. Leadership for the organization is provided by seven decentralized councils staffed by community volunteers from all walks of life. The author details three of the Coalition's programs in housing, neighborhood leadership training, and community cluster teams that link local schools together to meet the needs of students and their families in education, counseling, wellness and prevention, and crisis intervention. The author concludes by predicting that non-profit organizations, not the government, will become the most important factor in meeting the health and social service needs of a community.

Chapter Seventeen explains the importance of Environmental Management Information Systems (EMIS) that collect comparison data from communities that share similar demographic characteristics. Authors Michelle Wyman Pawar and Sherman

Wyman observe that government, like the private sector, must operate a technologically advanced system in order to establish benchmark standards for community services and programs. This data supplies the feedback loop of information on the operation of government services and programs that is necessary for any sustainable system.

Finally in Chapter Eighteen, Alice Kaiser-Drobney explains the concept of "service-learning," a sustainable program that helps to foster civic responsibility by exposing students and other participants to community service. The community service is linked to an academic curriculum and is designed to provide students with an opportunity to learn through experience. The chapter explains the service-learning model, reviews the development of the National Youth Service Movement, and includes examples of service-learning projects.

CONCLUSION

Public opinion polls consistently reveal the lack of confidence, disillusionment, and mistrust that citizens feel toward government. Cheryl King and Camilla Stivers have stressed the need for changing the relationship between citizens and their governments by facilitating greater citizen collaboration with government.[9] Sustainable programs require citizen participation in order to build community support to self-sustaining levels.[10] Often, sustainable community programs are created through "grassroots" movements that are initiated and managed by citizens themselves, bringing them in contact with their local elected and appointed officials. Traditionally, local officials administer programs for citizens. Once sustainable community programs are created, however, this relationship changes: citizens now administer their own programs in collaboration with local officials.

Creating Sustainable Community Programs is the first book on sustainable programs that is intended for an audience of public administration students, academicians, and practitioners who are searching for ways to change the relationship between citizens and their governments. The chapters included in this volume are intended to provide a guide for those striving for *collaborative* approaches to community needs and problems. By meeting the needs of the present without compromising the ability of future generations to meet their own needs, communities can sustain and regenerate themselves through economic self-reliance, community control and environmentally sound development. Hopefully, this book will contribute to the creation of communities that promote sustainable programs with self-supporting outcomes: the sustainable communities of the new millennium.

NOTES

1. Glenn T. Seaborg, "The Prospective Change in Life Style Signaled by the Energy Crunch," *Public Administration Review* 35 (July/August 1975): 333–336.

2. Ibid., p. 335.

3. Mark R. Daniels, "The Role of Technology in Creating Sustainable Communities," in *Proceedings of ASPA's Regions III/IV 1998 Conference: NextWork—Public Administration in the 21st Century* (George Mason University, 1998).

4. Joel Darmstadter, *Global Development and the Environment: Perspectives on Sustainability* (Washington, DC: Resources for the Future, 1992).

5. Marcia Nozick, *No Place Like Home: Building Sustainable Communities* (Ottawa, Ontario: Canadian Council on Social Development, 1992).

6. David H. Folz and Joseph M. Hazlett, "Public Participation and Recycling Performance: Explaining Program Success," *Public Administration Review* 51 (November/December 1991): 526–532.

7. Frances Moore Lappe and Paul Martin Du Bois, *The Quickening of America: Rebuilding Our Nation, Remaking Our Lives* (San Francisco, CA: Jossey-Bass, Inc., 1994).

8. Mark Roseland, *Toward Sustainable Communities: Resources for Citizens and Their Governments* (Philadelphia, PA: New Society Publishers, 1998).

9. Cheryl Simrell King and Camilla Stivers, *Governing Is Us: Public Administration in an Anti-Government Era* (Thousand Oaks, CA: Sage Publications, 1998).

10. Sustainable Design Group, *Project: The Urban Village Concept* (1997). http://www.sustainabledesign.com/urbanvillage.htm.

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Chapter 2

Working Toward Sustainability: Successful Community-Based Efforts

Jason Venetoulis

INTRODUCTION

Since the inception of the sustainability movement an array of groups ranging from grassroots neighborhood to international organizations have attempted to make practical the objectives of ensuring current and future generations a prosperous society and economy that does not threaten the integrity of the natural environment. In short, their aim is sustainability. As their varying scales suggest, the diversity of programs and indicators that have emerged is impressive.

Research conducted by Public Research Incorporated has identified 700 sustainability related projects in the United States. Redefining Progress reports that there are over 200 projects in the United States that employ some type of indicators. Currently, Maureen Hart has cataloged over 1,000 domain and goal based sustainability indicators from projects around the United States and the list is growing. Many of the programs that are often referred to as sustainability projects (SPs hereafter) designate themselves explicitly as a sustainability "program" or "initiative," while others may use terms like "quality of life project" or "benchmarks." Despite the differing nomenclature, among most SPs similar threads of environment, equity, and economy can usually be found. This chapter will focus on a handful of community-led initiatives that have pursued citywide implementation of land use and energy programs, sustainability indicators and targets, local economic restructuring, participatory democratic input, and watershed level analysis in their efforts aimed at achieving sustainability. Though this narrows the scope of the inquiry, an ancillary benefit is that some of the most effective ways communities are overcoming the challenges of sustainability are brought forth. The case descriptions are not exhaustive. Instead some of the "big" ideas that have been ap-

plied practically will be the primary focus here. Admittedly, it is my hope that this discussion will encourage communities that are already taking up the challenges of sustainability and win over other communities that may consider sustainability to be an untenable and inoperable vision for the future.

FROM VISION TO ACTION: AN OVERVIEW

Efforts organized around sustainability principles have been initiated in a variety of ways. In some cases, a small group of concerned community members have started some of the most impressive SPs, for example, Sustainable Seattle. In other places, nonprofit social or environmental organizations have led the way. In still other instances, the leading members of the public and private sectors have utilized their resources to put into motion some of the most effective SPs, for example, Santa Monica, California's city-led initiative and Jacksonville, Florida's Quality of Life project that has received significant support from the Jacksonville Chamber of Commerce.

Emerging as one of the most popular approaches to garnering support and legitimacy among sustainability initiatives has been the *visioning* process. Typically, visioning includes bringing together community members, environmental and social groups, and representatives from the private and public sector for a series of discussions about where a community should be headed. One noteworthy example of this occurred in the Ke Ala Hoku project where hundreds of school-aged children were given a substantive opportunity to help set the agenda for a more sustainable Hawaii. In the capital of Washington State, Olympia, the Sustainable Community Roundtable works under the assumption that we are more likely to find the energy and passion we will need for the times ahead if we are drawn forward by a positive vision.

Once the general vision of sustainability is agreed upon by the aspiring SP, the next step is to operationalize it. This often includes focusing on small pieces of information that describe the more general concept. These concise bits of information are called sustainability indicators because their function is to provide an indication about the bigger picture of sustainability. Sustainability theorist and advocate, Dr. Lamont Hempel writes that indicators of community sustainability are measures of change in activities and forces that shape human settlements and their interactions with non-human nature. They are essentially integrative measures of ecological, social, and economic health that are designed to gauge a community's systemic balance and integrity over long periods of time.[1]

Information provided by an indicator or set of indicators can alert communities to patterns of development, transportation, or energy use, for example, that are out of sync with sustainability and help provide direction for corresponding changes. For example, an integrated set of sustainability indicators that reveals that, over a given period of time, air quality has been diminishing as the number and length of trips by gasoline powered vehicles has increased and commercial and industrial air emissions have remained steady can help give an indication of the probable sources of the unhealthful air pollution. This type of information can help clarify where effective change is needed to turn around environmental decline.

One of the most effective applications of indicators is their use as a measure of progress toward or away from agreed upon prespecified goals. These goals are often referred to as targets. Targets can inform policy recommendations or other purposeful actions. An example of this is the City of Santa Monica Sustainable City Program's target to achieve 100 percent compliance with U.S. Underground Storage Tank Standards throughout the city by the end of 2000. The objective of the indicator is obvious in this case, however, further analysis and action can be necessary to meet the agreed upon goal, as Santa Monica has shown.

The following table contains the number and distribution of indicators across four categories, environment, society, economy, and mixed, for a range of sustainability oriented projects. The mixed category captures, though crudely, indicators that do not easily fall into one of the three categories or encompass more than one of them. Census data is also included to help provide some perspective about differences in social demographics. As Table 2.1 shows, the number and distribution of indicators is quite disparate. On paper, Austin may seem to give less emphasis to environmental concerns, for example, as compared with Santa Monica; however, as we shall see, both projects take a balanced integrative approach when it comes to implementing the sustainability vision of their respective communities.

SUSTAINABILITY INITIATIVES: FIVE CASES

There are many effective programs and indicators that are employed by sustainability projects throughout the United States. For example, New Jersey's sustainable state initiative led by New Jersey Future and Governor Christine Todd Whitman, Colorado's State-County-City approach, Albuquerque's Indicators Progress Commission, Eua Claire County's focus on sustainability education, San Mateo's indicator on Biodiversity, and Hawaii's indicator of income distribution by gender. The range of programs included in this book also provides insights into the many ways sustainability can be creatively coupled with such things as community cohesion, permaculture, transportation, and other characteristics that at first may seem unlikely, such as policing and economic empowerment zones, but turn out to be important. While a systematic evaluation of each program would be useful, for the sake of brevity and illustration some of the more notable aspects of five exemplary SPs provide the primary focal points below.[2] These five SPs are usually not given as much attention as several other excellent programs, for example, initiatives in Seattle, Chattanooga, and Maine. Nonetheless, these cases show how efforts aimed at developing and implementing an effective sustainability program in concert with public support can be carried out on many different levels.

Austin, Texas: Capital Improvement Planning

As in many other urban areas in the United States, Austin's population is growing. With approximately 15 new people moving to Austin everyday, fiscal resources are becoming relatively scarcer on a per capita basis, and there is continuous political pressure on elected officials, appointed city staff, and non-profit organizations to maintain

Table 2.1
Distribution of Indicators for Fifteen Communities

Project Place, Name, & Date	Number of Indicators	Environment Indicators	Society Ind.	Economy Ind.	Mixed	Pop.	Pop. Δ (1)	Den. (2)	Edu. (3)	Income (4)	Pov. (5)	Crime (6)	Housing (7)
Austin, TX Sustainable Communities Initiative 1996	18	7	5	6	+	492,329	42.3%	2,260	34.4%	$14.295	17.9%	11,295	40.6%
Eau Claire County, WI Indicators of Community Sustainability 1996	237	91	69	52	24	86,638	9.9%	136	20.9%	$25,886	9.4%	4,282	64.5%
Honolulu, HW Ke Ala Hoku Project 1995	60	33	11	16	-	371,320	45.2%	4485	27.7%	$37,191	5.5%	5,759	47%
Jacksonville, FL Quality of Life Indicators 1985	77	15	53	9	-	661,177	22.2%	871	17.9%	$13,661	9.9%	10,591	62.1%
Kansas, MO Vital Signs 1993	112	5	61	44	2	431,553	-3.7%	1,385	22%	$13,799	15.3%	13,198	56.9%
King County, WA KC Benchmarks 1995	32	5	17	6	5	1,557,537	22.7%	733	32.8	$18,587	5%	8,040	58.8 %
Minnesota Minnesota′ s Milestones 1991	73	17	40	17	1	4,468,165	9.6%	56	21.8%	$14,389	7.3%	4,496	71.8%
Olympia, WA State of the Community 1991	47	22	11	8	3 +	36,787	34%	2,285	33.1%	$27,785	8.4%	7,463	52%
Portland-Mulnomah County, OR P-M Cnty Benchmarks 1994	85	4	77	2	2	600,811	6.8%	1380	23.7%	$14,462	8.9%	9,697	55.3%
San Francisco, CA Sustainable SF 1993	650	380	120	69	81 +	728,291	7.8%	15,609	35%	$33,414	9.7%	9,384	34.5%
San Jose, CA Sustainability Indicators of San Jose 1995	16	13	1	1	1	801,331	7.4%	4,678	25.3%	$46,206	6.5%	5,364	61.3%
Santa Monica, CA Sustainable City Program 1994	18	13	4	1	+	87,064	-1.4%	10,490	43.4%	$35,997	5.7%	11,720	62.2%
Seattle, WA Sustainable Seattle 1990	40	14	19	6	1	519,918	5.2%	6,193	37.9%	$29,358	8.4%	12,248	48.9%
Silicon Valley, CA Joint Venture Index of Silicon Valley 1992	36	7	15	14	-	801,331	27.3%	4,678	25.3%	$46,206	6.5%	5,364	61.3%
Willapa Bay, WA Indicators Sustainable Community 1995	42	14	8	20	+	19,352	13.3%	20	11.3%	$10,952	17.2%	3,965	71.9%

(1) Percentage population change; (2) pop. per sq. mile; (3) percentage over 25 with bachelors degree; (4) median household income; (5) percentage of families below poverty level; (6) known crimes per 100,000; and (7) percentage of owner occupied housing. In the mixed indicator column the + sign represents an innovative approach that is highlighted in the text. Profile data from 1994 U.S. County and City Data Book. Information from this table was drawn from Lamont Hempel, *Sustainable Communities* (Claremont: Claremont Graduate University, 1998).

or improve citizens' quality of life in one way or another. [3] Though this may be an ongoing and even common phenomenon in urban America, Austin like an increasing number of other cities has decided to approach these challenges from a sustainability perspective.

The sustainability project in Austin was in part a spin-off from the City of Austin's Green Building Project (GBP) which initiated the Sustainable Building Guidelines. Directed by Roger Duncan and Laurence Doxsey from the city's planning and conservation department, Austin's Sustainable Community Initiative enjoys strong support from GBP, other local governmental departments, and elected officials who are beholden to community members' political preferences. In general there are six major focuses of the SP in Austin: (1) examining long-term trends, for example, water use rates over seven decades; (2) equity; (3) stewardship of the natural environment; (4) economic, human, and biological diversity; (5) community planning, for example, resource use and transportation; and, (6) recognition of social, environmental, and economic interdependence. An annual report is produced that discusses Austin's progress toward sustainability goals and recommendations about what and how future challenges can be addressed. Austin has a proudly acknowledged pioneering Local Agenda 21 program as described by the International Commission on Local Environmental Initiatives (ICLEI) in 1997. Of special note in Austin is the fairly recently implemented Capital Improvement Planning (CIP) Sustainability Matrix and energy directives.

CIP Sustainability Matrix

According to city officials, the CIP Sustainability Matrix provides a perspective on capital improvement projects that adds a great deal to traditional planning approaches by purposefully focusing on integral aspects of sustainability, such as environmental integrity, social equity, and economic security. The intent of employing the multivariate matrix is not to perpetuate sheer growth, but to foster a long-term viable and vibrant community by checking growth systematically using sustainability criteria. Since January 1, 1998 every land use project the City of Austin has considered has been run through the CIP Matrix.

The Matrix is made up of 14 categories that are numerically weighted depending on the impact capital projects can have on (1) Public health; (2) Maintenance; (3) Socioeconomic factors; (4) Neighborhood; (5) Social justice; (6) Alternative funding; (7) Coordination with other projects; (8) Land use; (9) Environment; (10) Air; (11) Water; (12) Energy; (13) Biology; and (14) Other Environmental factors. When a capital improvement project and the requisite alternatives are proposed, the relevant city departments rank or weight each category from zero to ten with zero representing a negative impact and ten a very positive impact. The results are summed to get a sustainability index or ranking of the project. These numbers are used by the City of Austin to compare project alternatives and help decide whether or not a project should, for example, be forwarded to the voters for a decision on fiscal (bond) support or modified so as to bring it more in line with Austin's Sustainable Community Initiative. The process is fairly straightforward and could easily be emulated by other cities. In fact, the City of

Austin has made the hard and digital copies of the sustainability matrix materials available to the public.[4]

Energy Directives

Sustainable energy is one of the hallmarks of community sustainability.[5] In recognition of this, Austin has been making consistent progress over the years toward less environmentally intensive energy sources. In April 1999, the City of Austin's municipal energy supplier, Austin Energy, dedicated its fourth solar power facility. The electricity goes directly into the Austin Energy power grid. The City of Austin also provides an opportunity for community members to make their energy use more environmentally sustainable while investing in efforts aimed at lowering the cost of producing solar power relative to more polluting energy sources. Participating community members share the cost of the four solar power systems in Austin with a small donation of $3.50. Revenues from "green power" supporters are matched dollar-for-dollar by the city's utility and used in an effort to lower the price ratio of green power to fossil and other environmentally costly power sources. Plans recently unveiled could make Austin Energy the largest green power provider of any major nonhydro utility in Texas. The green power initiative calls for the annual expenditure of $1 million or two percent of actual net income from the previous year, whichever is greater, to purchase up to 100 megawatts of power generated from renewable sources such as solar, wind, or methane gas from landfills. The city estimates that this could provide enough energy to power approximately 30,000 homes. Other efforts in this area include Austin's commitment as a member of the Department of Energy's Climate Challenge to reduce gasoline powered vehicles use by converting nearly 90 percent of all administrative vehicles to alternative energy fuels.

Though Austin is facing some of the largest increases in population that it has ever had, it also has purposively taken up sustainability to help meet the challenges that continuous growth can perpetuate. In a state where over 90 percent of the land is privately owned, Austin's Sustainable Community Initiative shows how community- based public efforts can reap worthwhile ecological, social, political, and economic returns.

Olympia, WA: Innovative Indicators and an Economic Approach

Migration to the Pacific Northwest has been booming since the 1980s as millions of people flocked from the polluted and heavily populated metropolitan areas farther south to clean air, smaller communities, more affordable housing, more trees and wildlife, and stable decent-paying jobs. As the 1990s reached their midpoint, many of the once semirural towns in the Pacific Northwest began to sprawl out in some cases to meet the edges of metropolitan suburbia. In places like Seattle and Portland, the magnitude and concern over sustainability issues is widely known. Both cities have fairly progressive policies in place to deal with growth and sustainability. But in the smaller towns, there have also been some interesting developments.

Facing a population doubling rate of about 25 years, Thurston County, which is at the south end of Puget Sound in Washington, began a sustainable community project in 1991 when a small group of community members in Olympia gathered to discuss

sustainability.[6] With the City of Olympia's support, more Olympians joined the meetings, and the gatherings soon became known as the Sustainable Community Roundtable. The Roundtable initiated the Sustainable South Sound project which defines a sustainable community as one which respects its own diversity, values complexity, and accepts responsibility for future generations. In 1993 the City of Olympia adopted the philosophy that a sustainable community persists over generations and is far-seeing enough, flexible enough, and wise enough to maintain its natural, economic, social, and political support system. Nearly every year since 1993, Olympia has published the *State of the Community* report, which tracks progress or lack thereof on the economy, population, youth and education, and the environment. Moving beyond Olympia, the project brings together private and public concerns throughout Thurston County. Olympia's efforts have been nationally and internationally recognized through the dissemination of their annual report, presentations, and workshops in such places as Louisville, Kentucky, and Vancouver, British Columbia.

Overall, Olympia has had much success in its efforts aimed at moving toward a sustainable community. For instance, they have launched a Green Jobs program to retrofit residential and commercial buildings with water and energy saving devices in cost-effective resource savings ways. The recently released *State of the Community* report provides an excellent example of an indicators project that combined traditional concerns with a more ecologically oriented approach to sustainability. Olympia employs a range of indicators to measure such things as ecological health, in terms of energy conservation and water quality, economic health, and social equity. Economic health is measured in terms that transcend the pecuniary growth paradigm by using meaningful work and economic security as guides to assessing the economic aspects of sustainability. More specifically, several of the indicators employed in Olympia are used to track employment by the top five employers, the number of jobs in value-added manufacturing (an important indicator in resource-based economies), age trends in population, the distribution of wealth, participation in adult education, and acres of closed shellfish beds. Olympia is also in the process of developing neighborhood plans for sustainability, modeled after Seattle's neighborhood sustainability project. Two highlights of the Olympia's sustainable community initiative are the adopting of a ground-breaking sustainability indicator and the restructuring of the local economy.

Ecological Footprint Analysis

Sustainable South Sound uses one of the most recent and innovative sustainability indicators yet to be developed, Ecological Footprint Analysis (EFA). EFA was developed by William Rees and Mathis Wackernagel as an indicator of the combined ecological effects of consumption, waste and population at prevailing levels of technology. An ecological footprint measures how much of Nature we use to sustain ourselves as compared to how much is available. [7]

Footprint analysis starts with two basic observations. First, all consumption is a function of the use of arable and pasture land, energy, raw or natural materials, water, and waste discharges. Second, the amount of ecologically productive resources provided by nature that make consumption possible are constrained by time and are ultimately fi-

nite. The footprint area is determined by calculating the area of ecologically productive land in acres, using local, regional or average global yields per acre, to assimilate the waste and produce the food, housing, and other things a population consumes annually. This area can be compared to such things as the land area at local or regional productivity levels a population occupies or the total amount of ecologically productive land available in the world on a per capita basis, about five acres annually. The results can be displayed in numerical terms or visually using Geographic Information Systems. An easy first step that an SP can take in measuring part of its footprint is to determine how many acres of trees it takes to sequester the additional tons of carbon dioxide emissions introduced into the carbon cycle annually from transportation and energy use.[8]

With a footprint that is about ten times bigger than its land area, the community of Olympia, is now taking seriously such questions as: Can we in South Sound reduce our footprint to even half the national average and set an example for others to follow? What would it take to reduce our footprint? What can households and businesses do? How can elected officials use the footprint as a tool to guide the community towards a smaller footprint?

Olympia has undertaken several notable actions which could lead to reductions in its footprint and that could be emulated by other communities striving for sustainability. First, establishment of a local land trust that preserves ecologically productive land by helping preserve habitat and open space while mitigating the impact of fossil fuel consumption. Second, initiation of new bicycle priorities throughout the city and region, reducing carbon emissions and improving people's health. Third, the offer of tax exemptions for high density development, reducing the sprawl of permanently built-up space and utilizing existing built-up land more efficiently. Fourth, the production of a series of forums on the costs of projected growth to facilitate dialogue and awareness about the implications of growth and concerns of community members in an open forum. Fifth, the establishment of building materials exchange website that allows for the trade of unused or recycled building materials throughout a three-county area.

Economic Restructuring

The local currency exchange system (LES) in Olympia is one of hundreds of similar such systems that have been around in the United States since 1991 when Ithaca Hours in Ithaca, New York, was first established. How does the LES in Olympia work? When someone volunteers to take part in the Sound Exchange, a certain amount of hours, currently four, are distributed as a sign-up bonus for $10.00. Each Sound Hour is worth approximately $10.00, the suggested livable hourly wage. Participants' names, contact information, and a listing of what they would be willing to exchange for Sound Hours are made available through the community at annual special events in printed form on a community webpage on the Internet.[9] One of the primary benefits of the LES has been a shift of consumption or market shares to local people and businesses in Olympia, especially the Farmers Market and Co-op, thereby potentially reducing the community's environmental impact associated with transporting, packaging, advertising, and other less direct environmental and social costs that can be hidden or externalized with imported products. In Olympia there are over 500 com-