Today's landowners, citizens, and natural resource professionals are increasingly concerned about issues surrounding resource sustainability. Charged with addressing societal concerns through education, Cooperative Extension is uniquely capable of meeting educational needs related to natural resource sustainability. In this research, we examined the program inputs, activities, and participation in Natural Resource Extension Education programs to examine awareness and commitment to sustainability. The data come from multiple sources and collection methods and include document analysis, interviews with key federal Extension administrators, a national survey of state Natural Resource Extension Administrators, detailed comparative case studies of Natural Resource Extension programs in Alabama and Oregon, and a budget and planning document analysis. While we found unified philosophical support for natural resources sustainability education at the county, state, and national levels, this support was not reflected in the actual commitment as measured by funding, staffing, programming, and program participation. The philosophical commitment to sustainability is but one of a constellation of factors that work together to influence the actual commitment to sustainability in Extension. Without the accompanying financial commitment and leadership, philosophical
commitment in terms of attitudes will do little to help achieve sustainability in Natural Resource Extension. Major challenges to addressing sustainability through education were identified as 1) the historical orientation of Extension toward agriculture, 2) the lack of staffing, and 3) the lack of funding. The analysis presented here can aid other educators as they explore sustainability through educational programming.
Sustainability, Awareness, and Commitment:
Examining Natural Resource Extension Programs in the United States

by

Shorna Renell Broussard

A Dissertation submitted
to
Oregon State University

In Partial Fulfillment of
the requirements for the
degree of
Doctor of Philosophy

Presented September 25, 2000
Commencement June 2001
Acknowledgements

I would like to thank my advisor John Bliss for his support and guidance during my graduate study. I was fortunate to have an advisor that put a premium on communication, interaction, and collaboration. These skills will be invaluable to me as I begin my career as a faculty member and advisor. I would like to thank Bill Lunch for the direction he gave me with regard to interest group politics and natural resource policy. I would like to thank my committee members Denise Lach, Ed Jensen, Scott Reed, and Bill Lunch for providing the intellectual oversight to my PhD work. My oral preliminary and written examinations were really a turning point for me in my research and the questions that you asked as a committee led me to synthesize information and examine sustainability in ways I hadn’t done before. In addition, I thank Mark Dubois and Conner Bailey at Auburn University for helping me shape this research early on.

I especially thank Steve Jones and Scott Reed for giving me access to Extension programs in Alabama and Oregon. I have learned much from examining your leadership and the ways in which you have both approached sustainability education in your respective states. I am also indebted to the extension faculty in Alabama and Oregon for sharing their experiences with me. Without their perspectives, this research would not have been possible.

Lydia Newton of Oregon State’s Survey Research Center was instrumental in survey design and implementation and Department of statistics student Byung Park provided invaluable assistance with data analysis. I also thank Brooks Stanfield and Christina Kakoyannis for their editorial help in reviewing and refining earlier drafts of this dissertation.
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I give a heartfelt thanks to my family, especially to my Mother Carolyn Broussard and my Aunts Vickie Jones and Joan Jones, who have given me the strength, encouragement, and support to keep going when I didn’t think it could be done. Over the years they have taught me patience and instilled in me the perseverance to believe and know that all things are possible. For this, I am forever indebted and appreciative.
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<thead>
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<th>Acronym</th>
<th>Description</th>
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<tr>
<td>ALFA</td>
<td>Alabama Farmers Federation</td>
</tr>
<tr>
<td>ACES</td>
<td>Alabama Cooperative Extension System</td>
</tr>
<tr>
<td>CES</td>
<td>Cooperative Extension System</td>
</tr>
<tr>
<td>CSREES</td>
<td>Cooperative State Research, Education, and Extension Service</td>
</tr>
<tr>
<td>ECOP</td>
<td>Extension Committee on Policy</td>
</tr>
<tr>
<td>NASULGC</td>
<td>National Association of State Universities and Land-Grant Colleges</td>
</tr>
<tr>
<td>OSUES</td>
<td>Oregon State University Extension Service</td>
</tr>
<tr>
<td>USDA</td>
<td>United States Department of Agriculture</td>
</tr>
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</table>
Sustainability, Awareness, and Commitment:
Examining Natural Resource Extension Programs
in the United States

CHAPTER 1

INTRODUCTION
Introduction

Extension is the largest education system of its kind in the world and has a long history of providing educational resources to agriculture, communities, families, and youth across the nation. Most Americans are aware of extension (Christenson et al. 1995) and some view extension as a useful and credible source of information above other sources (Wright and Shindler 1999). Since the U.S. public is increasingly concerned with topics related to communities, environment (Schneider and Smallidge 2000), and natural resources (National Research Council 1996), we now see a growing need for increased Cooperative Extension work in the area of sustainable natural resource management. Projects around the country provide evidence that the concept of sustainable development is central to the work of many communities and citizen organizations (President's Council on Sustainable Development 1997; Ponderosa Pine Forest Partnership; The Nature Conservancy 1996). Since Extension Forestry and Natural Resource programs address sustainability concerns through problem-solving grassroots education and research and technology dissemination, they are poised to do work in this arena. In addition, Extension educators' attitudes and vision for natural resource sustainability are fundamental to building a strong Extension program in this area. Yet it is first necessary to assess the awareness and perspectives of Extension educators before programs can be developed. Researchers have examined attitudes and perspectives toward sustainability and sustainable agriculture in Extension (Francis et al. 1988; Korschning and Malia 1991; Minarovic and Mueller 2000), Land-Grant Universities (Lyson 1998), or from the perspective of clientele (Guy and Rogers 1999).
However, no study has examined sustainability from the aspect of Natural Resources Extension Educators and Programs.

Overall Objective

The overall research objective was to evaluate experiences, opportunities, and constraints within Cooperative Extension at the state, county, and national levels for addressing sustainability through education.

Individual Research Objectives

1. Provide a theoretical and methodological framework for study to frame research methodology and inform interview questions.

2. Determine the awareness of and commitment to sustainable development at the federal, state, and local levels in Natural Resource Extension.

3. Examine two state extension systems (Alabama and Oregon) in detail to determine their awareness of and commitment to and applications of sustainable development concepts in Natural Resource Extension programs.
Organization of Dissertation

I organized this dissertation in manuscript format but provide background information in the first four chapters. Chapter two is a background on land-grant universities and extension. Chapter three is a literature review on sustainable development, Cooperative Extension, and program evaluation. Chapter four outlines research design and methodology. The next two chapters are manuscripts. Chapter five is a manuscript about sustainability and Extension education and presents the results from a broad view of the entire research project. Chapter six is a manuscript comparing the Oregon and Alabama Natural Resource programs and their experiences with sustainability. This article focuses on the Oregon and Alabama case studies and goes in depth with regard to specific programs and applications of sustainability in extension. The final chapter ties together both manuscripts and the entire research process and findings and provides conclusions recommendations.
CHAPTER 2

BACKGROUND: LAND-GRANT UNIVERSITIES AND COOPERATIVE EXTENSION
Background on Land-Grant Universities

To understand the Cooperative Extension System (CES), it is first necessary to look at the land-grant universities where the state extension partner is located. The Morrill Act of 1862 provided a means of federal support to create higher learning institutions called land-grant institutions. The term land-grant originated from the initial granting of 30,000 acres of public land for each Senator and Representative under apportionment based on the 1860 census. States invested the proceeds from the sale of these lands in a perpetual endowment fund that provides support for colleges of agriculture and mechanical arts.

The federal government’s motivation behind creating land-grant universities was to provide the working class with educational opportunities. Prior to land-grant universities, higher education was usually reserved for the affluent social elites. Institutions of higher learning at this time emphasized the classical studies of philosophy, theology, law, and medicine in place of the more applied disciplines of agriculture and engineering (Meyer 1993). So in addition to access, the federal government created land-grant universities to address the largely rural societal needs for agricultural education. In 1862, 50% of Americans lived on farms and about 60% of the labor force worked on farms (National Research Council 1995).

The second Morrill Act, passed in 1890 authorized separate land-grant institutions for Blacks in each of the 16 southern states (AL, AR, DE, FL, GA, KY, LA, MD, MO, NC, OK, SC, TN, VA, WV, TX). The addition of Tuskegee University, a private university, brought the total to 18. In 1994, the Elementary and Secondary...
Education Reauthorization Act (The Equity in Educational Land-Grant Status provision) designated 29 Native American colleges as land-grant universities. These three types of land-grant universities are commonly referred to as 1862's, 1890's, and 1994's, according the year of establishment. There are a total of 105 land-grant universities, plus Tuskegee University, located throughout the United States, its territories, and the District of Columbia.

The Historically Black Colleges and Universities

The 2nd Morrill Act of 1890 prohibited land-grant schools from receiving federal funds if, in admitting students, they discriminated on the basis of race or color. The act also provided that states could receive funds in spite of discriminatory admissions practices if they proposed an equitable division of the funds between a land-grant school for white students and one for black students. As a result, sixteen states formed separate but equal land-grants for Blacks to address discriminatory admission practices.

Unlike 1862 institutions, Legislation does not require federal funds to be matched by the state for 1890 land-grants as is mandated by the authorizing legislation for their 1862 counterparts (National Research Council 1996) (Table 2-1). Therefore, federal funds provide the funding base and remain a vital component of 1890 land-grants (National Research Council 1996).
### TABLE 2-1 State appropriations for research and Extension at all 1890 land grant universities, 1993-94. State appropriations for 1862 land-grant universities offered for comparison (1890 institutions are in italics)

<table>
<thead>
<tr>
<th>State</th>
<th>Institution</th>
<th>Appropriations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>Auburn University</td>
<td>9,402,500</td>
</tr>
<tr>
<td></td>
<td>Alabama A&amp;M University</td>
<td>404,700</td>
</tr>
<tr>
<td></td>
<td>Tuskegee University</td>
<td>0</td>
</tr>
<tr>
<td>Arkansas</td>
<td>University of Arkansas-Fayetteville</td>
<td>34,812,600</td>
</tr>
<tr>
<td></td>
<td>University of Arkansas-Pine Bluff</td>
<td>0</td>
</tr>
<tr>
<td>Delaware</td>
<td>University of Delaware</td>
<td>7,658,900</td>
</tr>
<tr>
<td></td>
<td>Delaware State University</td>
<td>103,700</td>
</tr>
<tr>
<td>Florida</td>
<td>University of Florida</td>
<td>83,682,100</td>
</tr>
<tr>
<td></td>
<td>Florida A&amp;M University</td>
<td>250,000</td>
</tr>
<tr>
<td>Georgia</td>
<td>University of Georgia</td>
<td>62,000,900</td>
</tr>
<tr>
<td></td>
<td>Fort Valley State College</td>
<td>382,000</td>
</tr>
<tr>
<td>Kentucky</td>
<td>University of Kentucky</td>
<td>37,201,500</td>
</tr>
<tr>
<td></td>
<td>Kentucky State University</td>
<td>1,094,600</td>
</tr>
<tr>
<td>Louisiana</td>
<td>Louisiana State University System</td>
<td>44,862,400</td>
</tr>
<tr>
<td></td>
<td>Southern University and A&amp;M College at Baton Rouge</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Mississippi</td>
<td>Mississippi State University</td>
<td>29,239,900</td>
</tr>
<tr>
<td></td>
<td>Alcorn State University</td>
<td>897,100</td>
</tr>
<tr>
<td>Missouri</td>
<td>University of Missouri</td>
<td>31,930,500</td>
</tr>
<tr>
<td></td>
<td>Lincoln University</td>
<td>0</td>
</tr>
<tr>
<td>North Carolina</td>
<td>North Carolina State University</td>
<td>65,951,000</td>
</tr>
<tr>
<td></td>
<td>North Carolina A&amp;T State University</td>
<td>500,000</td>
</tr>
<tr>
<td>Oklahoma</td>
<td>Oklahoma State University</td>
<td>33,049,800</td>
</tr>
<tr>
<td></td>
<td>Langston University</td>
<td>258,700</td>
</tr>
<tr>
<td>South Carolina</td>
<td>Clemson University</td>
<td>36,018,400</td>
</tr>
<tr>
<td></td>
<td>South Carolina State University</td>
<td>0</td>
</tr>
<tr>
<td>Tennessee</td>
<td>University of Tennessee-Knoxville</td>
<td>35,103,900</td>
</tr>
<tr>
<td></td>
<td>Tennessee State University</td>
<td>165,100</td>
</tr>
<tr>
<td>Texas</td>
<td>Texas A&amp;M University</td>
<td>91,909,600</td>
</tr>
<tr>
<td></td>
<td>Prairie View A&amp;M University</td>
<td>312,400</td>
</tr>
<tr>
<td>Virginia</td>
<td>Virginia Polytechnic Institute and State University</td>
<td>43,308,100</td>
</tr>
<tr>
<td></td>
<td>Virginia State University</td>
<td>613,700</td>
</tr>
</tbody>
</table>

*Note. Chronicle of Higher Education, December 1995*
Background on the Cooperative Extension System

Although the land-grant universities provided affordable and accessible educational opportunities for people of the United States, the land-grant system was hampered by the lack of sound research recommendations to support teaching. With this idea in mind, Congress passed the Hatch Act in 1887. With this Act, Congress set the stage for Extension work by requiring Agricultural Experiment Stations to publish reports of research results and distribute the information to benefit farmers. The purpose of the Agricultural Experiment Stations, according to the provisions of the Hatch Act, was to conduct research, investigations, and experiments bearing directly on and contributing to the establishment and maintenance of a permanent and effective agricultural industry in the United States. To further expand the outreach of research findings at land-grant universities, the Cooperative Extension System (CES) was set up with the passage of the Smith-Lever Act in 1914 (Figure 2-1). Extension's original purpose was to provide practical knowledge and instruction about practices in agriculture, home economics, and rural energy. The outreach function completed the tripartite mission of land-grant universities: teaching, research, and Extension.
Figure 2-1  Summary of Federal Legislation Affecting Extension.

- **1862**: Morrill Act → Authorized creation of land-grant universities
- **1887**: Hatch Act → Established agricultural experiment stations for scientific research
- **1890**: 2nd Morrill Act → Expanded the 1862 system of land-grant universities to include historically black institutions
- **1914**: Smith-Lever Act → Created the Cooperative Extension System
- **1978**: Renewable Resources Extension Act → Provided for expanded extension education program in renewable resources
- **1994**: Elementary and Secondary Education Reauthorization Act → Designation of 29 Native American colleges as land-grant universities
The Cooperative State Research, Education, and Extension Service (CSREES) is the USDA agency that administers the funds and acts as the federal partner of the CES. Approximately 70% of the CES funding originates from the state and local sources with the remaining coming from the federal partner, CSREES (Table 2-2).


<table>
<thead>
<tr>
<th>Source</th>
<th>Dollars ($)</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>333,000,000</td>
<td>24</td>
</tr>
<tr>
<td>State</td>
<td>652,000,000</td>
<td>47</td>
</tr>
<tr>
<td>Federal</td>
<td>401,000,000</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td>1,386,000,000</td>
<td>100</td>
</tr>
</tbody>
</table>


As with the research and teaching functions of the land-grant, Extension activities are also supported by federal funding from the USDA and account for 44% of the total federal Extension budget (Table 2-3). The “integrated activities” line in Table 2-3 describes those activities funded by CSREES that integrate both research and Extension work.
TABLE 2-3  USDA-CSREES Federal Funding to Land-Grant Universities, FY 2000 Appropriations.

<table>
<thead>
<tr>
<th>Program Area</th>
<th>Total ($)</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Activities</td>
<td>39,541,000</td>
<td>6%</td>
</tr>
<tr>
<td>Research and Education Activities</td>
<td>486,481,000</td>
<td>50%</td>
</tr>
<tr>
<td>Extension Activities</td>
<td>428,236,000</td>
<td>44%</td>
</tr>
<tr>
<td>CSREES Total</td>
<td>972,395,000</td>
<td>100%</td>
</tr>
</tbody>
</table>

**Note.** USDA summary of Congressional appropriations for CSREES integrated, research, education, and extension programs.

**Base Programs**

As times have changed and people's needs have shifted away from basic rural and agricultural needs, extension and land-grant universities have broadened their programs. The mission of the CES is “to achieve significant and equitable improvements in domestic and global economic, environmental, and social conditions by advancing creative and integrated research, education, and extension programs in food, agricultural, and related sciences in partnership with both the public and private sectors” (United States Department of Agriculture 1997, p. 7-43). CES determines programming in three ways: base programs, national initiatives, and advisory councils. Seven base programs are the fundamental areas in which educational programs are conducted:

- 4-H and Youth Development
- Agriculture
- Community Resources and Economic Development
• Family Development and Resource Management
• Leadership and Volunteer Development
• Natural Resources and Environmental Management
• Nutrition, Diet and Health

CSREES (federal Extension agency) distributes federal funding for these base programs to the states through a formula funding process provided under sections 3b, 3c, and 3d of the Smith-Lever Act. The formula is based mainly on a state's share of the U.S. farm and rural population (National Research Council 1996). The base programs are permanent, but Extension policy-making bodies periodically review their status. The amount of Extension staff per base program area is listed below (Table 2-4). The largest percentages of Extension staff are in the Agriculture and 4-H program areas. The Natural Resources and Environmental Management Base Program area, which is the focus of this study, comprises 11% of Extension staff (Table 2-4).
TABLE 2-4  Nationwide distribution of Extension personnel among base program areas.

<table>
<thead>
<tr>
<th>Base Program Area</th>
<th>Percent of Total Extension Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>34</td>
</tr>
<tr>
<td>4-H and Youth Development</td>
<td>18</td>
</tr>
<tr>
<td>Community Resources and Economic Development</td>
<td>12</td>
</tr>
<tr>
<td>Natural Resources and Environmental Management</td>
<td>11</td>
</tr>
<tr>
<td>Nutrition, Diet, and Health</td>
<td>10</td>
</tr>
<tr>
<td>Leadership and Volunteer Development</td>
<td>8</td>
</tr>
<tr>
<td>Family Development and Resource Management</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
</tr>
</tbody>
</table>


National Initiatives

National Initiatives are a second way that Extension programming is guided. National Initiatives, based on emergent national issues, are to be given a programming emphasis by the states. However, no formula or other funding is attached to them, unlike base programs. National Initiatives have a lifespan of 3 to 5 years. The current National Initiatives are listed below.
National Initiatives and Base Programs represent the major topics covered in Extension education today. The CES policymaking body, the National Association of State Universities and Land Grant Colleges, or NASULGC, governs the process of determining Base Programs and National Initiatives. NASULGC has a Board on Agriculture, which houses several of the policymaking committees, including ECOP, the Extension Committee on Policy.

ECOP is an elected committee that provides nationwide program and organizational leadership in Extension policy. Structurally, ECOP works through the NASULGC, in concert with the USDA-CSREES, to initiate strategic planning and identify nationwide issues that lead to program and budget priorities. ECOP also represents the states and territories in legislative matters before Congress and develops and maintains linkages and supportive relationships with other national organizations and associations. ECOP is also involved with communicating the budget and policy needs of Extension to USDA, Congress, and other federal agencies. Extension Administrators from the states and the Administrator of CSREES are among those who serve on these policymaking committees. USDA-CSREES represents the perspective of the federal partner, and ECOP represents the perspective of the state/territory partners.
Advisory Councils

State and local advisory councils provide grassroots input into Extension programming. Every county is required to have local extension advisory boards that are representative of people in the county. Advisory Boards provide input on local issues and priorities and how to address them through educational programming. The local extension staff use these priorities to guide the direction of their educational programs. Some states also have State Extension Advisory Boards that provide a statewide perspective on issues and priorities.

Natural Resources Extension

The Renewable Resources Extension Act (RREA), passed in 1978, authorized federal funding for forestry and other renewable resource Extension work. Prior to this, forestry programs were carried out under the umbrella of agriculture programs. Similar to other Extension funding mechanisms, USDA distributes RREA funds to the states on a formula basis. The formula is based on state characteristics: population, urban population, acres of non-industrial forestland, acres of rangeland, employment in wood-using industries, net timber growth, and timber removals from forestland land area. While the RREA was authorized at $15 million in 1978, it was not funded until 1982 and has never been funded at originally authorized levels (Table 2-5). RREA funds are mainly used as seed money that is then leveraged by other funding sources. This leveraging is necessary because the amount of RREA funding per state is so small ($0-$90,000).
Forestry Extension professionals, about 350 total, account for less than three percent of the total Extension personnel (Reed et al. 1996). Of all the states, Oregon has the largest Forestry Extension program, employing 28 Extension Foresters at the state and county level. In comparison, Alabama has about nine Extension Foresters, and some states have fewer than that.


<table>
<thead>
<tr>
<th>Year (FY)</th>
<th>Dollars ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>2,000,000</td>
</tr>
<tr>
<td>1983</td>
<td>2,000,000</td>
</tr>
<tr>
<td>1984</td>
<td>2,000,000</td>
</tr>
<tr>
<td>1985</td>
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<tr>
<td>1999</td>
<td>3,192,000</td>
</tr>
<tr>
<td>2000</td>
<td>3,192,000</td>
</tr>
</tbody>
</table>

Total: 52,464,000,000

*Note:* USDA (1986); (Nelson 2000)
CHAPTER 3

LITERATURE REVIEW
Chapter Overview

I've organized the literature analysis around the major topics of this research: extension, sustainability, and program evaluation. The analysis was an ongoing part of the research and guided my methodology, analysis, and conclusions. This chapter begins with the major works in the area of sustainability— from sustainable development theory to sustainable forestry to sustainable development policy. I follow up with an analysis of the program evaluation literature and its applications to this study.

Sustainable Development

I will trace the evolution of sustainable development from its foundations to current times. I conclude with an analysis of the applications of sustainable development to forestry and other policy areas.

Foundations of the Sustainability Concept

Religious beliefs and traditions have shaped thinking about the man-nature relationship from man's domination of nature to indigenous beliefs of living in harmony with nature (Mebratu 1998; Kinsley 1996; Genesis 1:28). Malthus (1766-1834) was the first economist to foresee environmental limits to growth caused by resource scarcity (Oser and Blanchfield 1975). This departure from classic economic theory introduced the concept of environmental limits. Similarly, liberation political
economists looked at the issues of scale and natural resource depletion (Roszak 1989). This tradition embraced communal, handicraft, tribal, guild, and village lifestyles that E.F. Schumacher's described in his internationally acclaimed classic writing *Small is Beautiful* (1973). Schumacher's concern about the exhaustion of the planet's resources gave impetus to a new generation of environmental thought looking at the economic, ecological, and social aspects of a given system (Schumacher 1973). Similarly, British physicist Amory Lovins brought the idea of a sustainable energy economy into consciousness with his 1971 book titled *World Energy Strategies: Facts, Issues, and Options* (Lovins 1971). Lovins discussed the need for long-term decision-making and the called for more knowledge about biological systems with regard to energy management. He asserted that energy issues were not just technical or economic, but social and ethical as well, thus requiring inter-disciplinary decision-making. Lovins argued that planning needed to take place on a long-term basis, accounting for future descendants. Like Schumacher and Malthus, Lovins introduced alternative ways of thinking about resource management.

**The United Nations: Paving the Way for Sustainability**

The 1972 United Nations Conference on Human Environment in Stockholm was a major step forward in the development of sustainability. Conference organizers were successful in illuminating the need to address environment and development concerns concurrently (Mebratu 1998). The first major breakthrough in conceptual insight came from the International Union for the Conservation of Nature (Tryzna
In 1980, the IUCN formulated the World Conservation Strategy, which integrated environment and development concerns under an umbrella concept of conservation. The term sustainable development appeared in the strategy's subtitle, "Living Resource Conservation for Sustainable Development" (International Union for the Conservation of Nature 1980).

The IUCN strategy introduced the concept of sustainable development into international dialogue and the next event brought widespread recognition. Formed in 1983 and chaired by Norwegian Prime Minister Gro Harlem Brundtland, the World Commission on Environment and Development formulated a global agenda for change. The final report Our Common Future, commonly called the Brundtland Report, was presented to the United Nations General Assembly in 1987 (World Commission on Environment and Development 1987). The Brundtland Report represented sustainability's political coming of age (Kirby et al. 1995). The Brundtland report defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, p. 8). Underlining the strong linkages between poverty alleviation, environmental improvement, and social equity through sustainable economic growth, the definition is something to which everyone can agree, like motherhood and apple pie (Pearce et al. 1989).

The next major event following Our Common Future was the United Nations Conference on Environmental and Development (UNCED). The UNCED was held in Rio de Janeiro in 1992 and is more commonly known as the Earth Summit. The Earth Summit was held in response to global deforestation and climate change issues.
In addition, there was concern for localized problems of clearcutting in parts of the US, Soviet Union, and Canada. While there was some controversy over approaches to forest management, all countries involved agreed to a broad agenda to address environmental and developmental issues. The Earth Summit produced two international agreements, two statements of principles and a major action agenda on world wide sustainable development:

- **The Rio Declaration on Environment and Development**: Identifies 27 principles define the rights and responsibilities of nations as they pursue human development and well-being.

- **Agenda 21**: A blueprint on how to make development socially, economically, and environmentally sustainable.

- **A Statement of Principles on Forests**: Principles to guide the management, conservation, and sustainable development of all types of forests, which are essential to economic development and the maintenance of all forms of life.

- **Convention On Climate Change**: Goal is to stabilize greenhouse gases in the atmosphere at levels that will not dangerously upset the global climate system. This will require a reduction in our emissions of such gases as carbon dioxide, a by-product of the use of burning fuels for energy.

- **Convention on Biological Diversity**: Requires that countries adopt ways and means to conserve the variety of living species, and ensure that the benefits from using biological diversity are equitably shared.

In response to Agenda 21, two processes for the development of criteria and indicators of sustainability were established: the Helsinki and Montreal processes. The Montreal process was for non-European temperate forests while the Helsinki process was for European nations. The governments of Canada, Chile, China, Japan,
Mexico, New Zealand, the Republic of Korea, the Russian Federation, and the US were all part of the Montreal process. These countries represent a significant portion of the world's temperate and boreal forests. The Montreal process resulted in the Santiago Declaration. The declaration contains a consensus list of indicators agreed to by all involved countries. The Santiago Declaration includes seven criteria for sustainable management, also known as Criterion 7 (Sedjo et al. 1999). The seven criteria are biodiversity conservation, ecosystem productivity, ecosystem health and vitality, soil and water conservation, global carbon cycles, multiple socioeconomic benefits, and institutional frameworks. Criterion 7 is intended for use at the national level and are not site-specific but rather represent a framework of common understanding of sustainable forestry. The criteria serve the purpose of describing sustainability and providing a referential standard for policymakers.

National Level Policies and Legislation

The Santiago Declaration Criteria and Indicators described earlier represent one of eight different intergovernmental processes to create national level criteria and indicators to evaluate progress toward sustainability. Non-regulatory guidelines such as Best Management Practices are another example of voluntary commitment towards sustainability practices. Governments such as British Columbia, Sweden, and Finland have incorporated sustainable forest management into their national forest legislation (Hansen and Juslin 1999).
In 1993, President Clinton created the President’s Council on Sustainable Development. The Council was charged with recommending a national action strategy for sustainable development. Their mission was to develop and implement bold, new approaches to integrate economic, social, and environmental policies in a sustainable manner. The Council concluded that to achieve sustainability the U.S. must move from conflict to collaboration and adopt stewardship and individual responsibility as tenets to live by (President’s Council on Sustainable Development 1996). The National Sustainable Development Extension Network was created out of the Council’s activities and builds upon existing federal extension services to respond to community needs related to sustainability (President’s Council on Sustainable Development 1997).

Social, Economic, and Environmental Aspects of Sustainability

The concepts of equity, fairness, systems, and future generations are all prominent in definitions of sustainable development. Sustainable development acknowledges that if we ignore our effects on others in an interdependent world, we do so at our own peril. Since disparity exists in access to resources one of the greatest challenges in decision-making is how to protect the rights of the voiceless. Future generations have no ability to speak on their own behalf or to protect their interests in decision-making processes. If development is to be sustainable, it must consider their interests. The central features of socially sustainable development are participation (Lele 1991; Cerena 1993; Harcharik 1993; Serageldin 1993; Berke and Beatley 1995; Ferguson

Ecological sustainability is governed by numerous principles. Natural resources must be used in ways that do not create ecological debts by overexploiting the carrying and productive capacity of the Earth (Pronk and Haq 1992). A minimum necessary condition for sustainability is the maintenance of the total natural capital stock at or above the current level (Costanza 1991). The 1980 World Conservation Strategy of the International Union for the Conservation of Nature, the United Nations Environment Program, and the World Wildlife Fund concludes for example, that sustainability requires maintenance of essential ecological processes and life-support systems; preservation of genetic diversity; and sustainable utilization of species and resources (IUCN 1980).

Part of sustainability is also focusing on a system rather than exclusively on its components (Roling and Jiggins 1994; Pirages 1996; Viederman 1996; Francis et al. 1988). Systems-thinking posits that there is only one Earth, composed of a multitude of subsystems all interacting with each other. Science has begun to shift in this epistemological direction. Ecological economics is a trans-disciplinary field that investigates the relationship between ecosystems and economic systems (Costanza 1995). Economists in this field focus on long-term forecasting and a systems approach to decision-making—core components of the sustainability philosophy.
Similarly, natural capitalism, fostered by Hawken et al. (1999) point out the interdependency between the economy and natural resources which act to sustain it.

Issues Underlying Sustainability

While the concept of sustainability has gained great political currency, some critics deride it as a mere “buzzword,” lacking a strong theoretical foundation (Simon 1989; Lele 1991; Sargent and Bass 1992; Jacobs 1994). Uniform definition and substance are necessary to achieve goals of sustainability and avoid conceptual weakness and ambiguity (Simon 1989; Jacobs 1994). The next progression in achieving sustainable development is the development of appropriate methodologies and techniques for translating sophisticated theoretical understanding into practice (Simon 1989; Alperovitz 1996; de Graaf et al. 1996). The underlying political, economic, and social systems in society can, in some ways, be an impediment to achieving sustainability goals (Adams and Thomas 1993; Bliss and Walkingstick 1998; McCool and Stankey 1998). For example, some argue that forms of economic, social, and political subordination present in this and other countries will continue to exclude marginalized groups (on the basis of “skin color, religion, culture, ethnicity, or any alternative conception of otherness”) from the sustainability debate (Agyeman and Evans 1996, p. 72). Similarly, ecofeminism posits that the social domination of women is inherently connected with man’s domination over nature and the subsequent dualism has led to unsustainable development (Mellor 1996). Thus using the term sustainability conveys ideological, political, moral, and scientific views and can involve
controversial topics such as limits to growth, social inequality, and economic diversification. This can lead sustainability into controversy and diffusion due to conflicting definitions and interpretations of its meaning (Prugh et al. 2000).

Applications of Sustainability in Forestry

The concept of sustainability has manifested itself in many ways within the forestry profession. Results of public opinion research show that the public identifies more with the term “sustainable forestry” than with “multiple use, sustained yield, new forestry, ecosystem management, or stewardship” (Wallinger 1995). Forest industry based sustainability standards, forest certification on private lands, and forest certification on public lands all represent concerted efforts to apply concepts of sustainability to forest landscapes (Hansen and Punches 1997). Sustainable forestry is a departure from the sustained yield concept of forest management that dominated the profession in the past (Cortner and Moote 1999). The Multiple-Use Sustained Yield Act of 1960 was intended to broaden the purposes for which national forests had previously been administered. Sustained yield sounds at first like a laudable goal: no more is taken out than can be replenished. However, as the concept has been applied it often has been translated to taking the maximum supply a system can withstand (Cortner and Moote 1999). Multiple-use was focused on output of goods and services as objectives rather than stewardship of the ecosystem. Fish and wildlife were viewed as game, not as species that contribute to the biological diversity of forests. Conventional forestry operating in this paradigm tended to evaluate success by how
many trees are cut and grown rather than by ensuring that all parts of the forest ecosystem were maintained (Drengson and Taylor 1997). This created an illusion of healthy forests, where in reality some were in serious decline.

By the late 1980's, the focus of forest resource management began to shift from sustained yield to sustainability (Cortner and Moote 1999). The sustainability paradigm recognizes the importance of ecosystem level functions in forest management. It involves a holistic understanding of the interconnections among all components in nature. The traditional view of resource management saw forests as a collection of resources to be manipulated and harvested whereas sustainability respects forests' complexity and is not as anthropocentric.

While consensus has not been reached on definitions of sustainable forestry, achieving it has been the goal of most governments and agencies involved in natural resource management (Sedjo et al. 1999). However, there are some that believe current forest practices are sustainable and require no alterations (Williams 1988; Kuusela 1994). One key aspect of sustainable forestry is the move beyond sustained yield toward an ecosystem approach that recognizes the importance of protecting and maintaining forest functions (Drengson and Taylor 1997).

Credentialing of forest practices is an example of how sustainability has influenced forest management. Certification involves examining on-the-ground practices against sustainability standards and possibly certifying products from those forests through the use of eco-labeling. Certification can be conducted internally by a first-party, externally by a second-party, or by a neutral third-party (Hansen and Juslin 1999). The Forest Stewardship Council (FSC) is one example of a certification group that
accredits third-party certifiers and develops standards for sustainable forestry (Forest Stewardship Council 1997). While the FSC has developed a set of 10 principles and criteria for forest management and accompanying regional guidelines, they are still debated and are not widely agreed upon by those in forestry (Hansen and Punches 1998). The American Forest and Paper Association created the Sustainable Forestry Initiative (SFI) with guidelines, objectives, and performance measures to address sustainability in their management practices. The SFI represents a substantial effort because AF & PA members manage approximately 90% of industrial forestlands in the United States. In addition to performance-based standards such as SFI and FSC, there are procedural standards also (Hansen and Juslin 1999). Procedural standards define a system and procedures through which forests are managed. The International Standards Organization (ISO) uses this type of environmental management system where companies have management systems designed to ensure environmental performance, but they set their own environmental performance levels (Hansen and Punches 1998).

The method of certification has spilled over onto public land as well. Two states in the U.S. (Minnesota and Pennsylvania) have piloted third party certification on 1.8 million acres of public lands and other states are considering the same option (Hansen and Punches 1998). Another activity involving public land is the Roundtable on Forests. Presently, the USDA Forest Service is the leading agency that has convened a national dialogue known as the Roundtable on Sustainable Forests. The Roundtable involves multiple stakeholders and includes goals of developing and encouraging the use of a common set of national level, ecological, social and economic measures, and
protocols for implementing the criteria and indicators (Reed 1999). It also is working to establish a collaborative national arrangement for data collection and reporting of the criteria and indicators and strives to guide the development of a national report on sustainable forest management by the year 2000.

**Evaluation Research in Education**

Evaluation research is the use of research methods to measure the worth or performance of a program in terms of certain stipulated criteria (Poister 1978). There are different theoretical approaches to evaluation and authors identify the numerous types of educational evaluation models (Stake 1975; House 1978; Patton 1978; Stufflebeam and Webster 1980; Lincoln and Guba 1981). Patton (1978) also identifies some alternatives to the pure or ideal approaches to evaluational inquiry. Deviations can combine models or utilize variations in them. In addition, Patton describes a somewhat model-free approach to evaluation that employs various investigative techniques through qualitative methods such as case studies.

The responsive approach to evaluation personalizes the evaluation process (Robert Stake 1975). It requires being responsive to those in the program being evaluated through face-to-face contact and meaningful discussion. Lincoln and Guba (1981) similarly describe the primary emphases of responsive evaluation and including program document analysis, program observation, and rich description along with getting information from a variety of viewpoints. There are several variations of the responsive model. One variation, the transaction model, is based on the importance
of understanding people and programs in a natural context by inductive analyses conducted with the program and its participants. The focus of the transaction model is on the processes themselves or transactions.

The illuminative model, a variation of the transaction model, takes into account the wider contexts in which educational programs function. This model is primarily concerned with description and interpretation than measurement and prediction (Parlett and Hamilton 1976). The methodology commonly associated with transaction evaluation is the case study. The transaction model is based on the same assumptions that qualitative research is based on—understanding people and programs in a context. The focus of the model is on naturally occurring phenomena, with no attempt to introduce external controls or manipulation. The transaction approach to evaluation values the understanding that comes from an inductive analysis of open-ended, detailed, descriptive, and quotational data gathered through direct contact with a program (Patton 1990).

System analysis utilizes three major categories of program variables: process measures, linking variables, and effectiveness measures. Impact indicators indicate whether the program is actually producing impacts. This can involve primary or subsequent impacts. Linking variables represent the intermediate results that are necessary in order to complete the program chain of events. Process variable include resources, program operation variables, and outputs. The program operational values include environmental factors.

Warner and Christenson (Christenson and Warner 1982; Warner and Christenson 1984) used systems analysis to conduct their national assessment of the Cooperative
Extension Service. The authors examined the inputs, operations, and outputs in Extension in the context of its socio-political environment. Warner and Christenson provide a comprehensive model that has eight components for evaluating the CES. They evaluated the extent of public awareness of the CES and its four major program areas (agriculture, home economics, community development, and 4-H), determined the clientele (both users and nonusers) of CES, the accessibility of CES programs to general public, and identified levels of satisfactions within the existing programs while outlining priorities and policy issues for the future. This approach to program evaluation shaped the research methods in this study. Evaluating programs by their components is a common theme in the evaluation literature in both education and public policy (Bennett 1975; Summers 1977; Bennett 1979; Christenson and Warner. 1982; Warner and Christenson 1984; Mayeske 1994; Bennett 1995; Swanson et al. 1997). They all generally contain some combination of the areas listed below program inputs, program activities, participation, reactions, individual change, organizational change, and national change.
CHAPTER 4

METHODOLOGY
This chapter details the procedures used to examine the awareness of and commitment to sustainability education at various levels of the Cooperative Extension System. I will present the research objectives, an overview of the research methods, study sample, study measures, and a detailed description of the procedures used to conduct the national survey, case studies, and key informant interviews.

**Overall Objective**

The overall research objective was to evaluate the experiences, opportunities, and constraints within Cooperative Extension at the state, county, and national levels for addressing sustainability through education.

**Individual Research Objectives**

1. Provide a theoretical and methodological framework for research methodology and to inform interview questions.
2. Determine the awareness of and commitment to sustainable development education at the federal and state levels in extension.
3. Examine two state extension systems (Alabama and Oregon) in detail to determine their awareness of and commitment to applications of sustainable development concepts in Extension Education.
Overview of Methods

I used a mixed methodology (quantitative and qualitative) approach to answer the research questions presented above. Table 4-1 summarizes the research design for all facets of the study. The methodologies employed include a national survey of state Natural Resource Extension Administrators, case studies of Alabama and Oregon Natural Resource Extension Programs, and key informant interviews with federal Extension Administrators. The overall methodology involved data triangulation, theory triangulation, and methodological triangulation. I used both qualitative and quantitative methodologies drawing upon sustainable development, extension, education, and evaluation theory as a framework for carrying out the study. Data came from several sources: interview data, extension planning and reporting documents, and a national survey. This study triangulated findings from these data sources to gain a broad yet grounded perspective about sustainable development in extension.
TABLE 4-1  Overview of research design and methodology for study.

<table>
<thead>
<tr>
<th>Research Method</th>
<th>Federal</th>
<th>State</th>
<th>Alabama</th>
<th>Oregon</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Key Informant Interviews</td>
<td>Descriptive National Survey</td>
<td>Case Study</td>
<td>Case Study</td>
</tr>
<tr>
<td>Sample</td>
<td>USDA Administrators and National Program Leaders</td>
<td>Natural Resource Extension Administrators at 105 Land-Grant Universities</td>
<td>Natural Resource Extension Personnel at county and state levels</td>
<td>Natural Resource Extension Personnel at county and state levels</td>
</tr>
<tr>
<td>Data</td>
<td>10 Interview Transcriptions and Reporting Documents</td>
<td>101 Completed surveys</td>
<td>29 Interview Transcriptions and Extension Planning and Reporting Documents</td>
<td>29 Interview Transcriptions and Extension Planning and Reporting Documents</td>
</tr>
</tbody>
</table>

Study Sample

The focus for this study was the Cooperative Extension System (CES). Of the seven base programs areas in Extension presented in Chapter 2, this study centered on extension educational programming in the Natural Resource and Environmental Management base program area. The CES is a partnership between the 105 land-grant universities and the United States Department of Agriculture. Commonly referred to as the federal extension partner, the Cooperative State Research, Education, and Extension Service (CSREES) is one of four agencies in USDA’s Research, Education, and Economics Mission Area. This study focused on the Extension component of CSREES and those National Program Leaders and Administrators who guide Natural
Resource Extension programming from the federal level in Washington, DC. The state Extension partners—land grant universities—were the other focal area in this research. In examining state Extension programs, we drew our sample from those dealing with natural resource and sustainability issues at the county and state levels: County Extension Agents, Extension Specialists, and Program Leaders and Administrators.

Study Measures

We assessed awareness and commitment to sustainable development in terms of three components: inputs, activities, and participation (Figure 4-1). This followed a systems analysis research tradition in both educational evaluation and public policy where programs are evaluated according to their components (Bennett 1975; Summers 1977; Bennett 1979; Christenson and Warner 1982; Warner and Christenson 1984; Mayeske 1994; Bennett 1995; Swanson et al. 1997). Common program components used in evaluation include inputs, activities, participation, reactions, individual change, organizational change, community change, and national change.
Figure 4-1  Three-stage model of program evaluation for sustainability education in Extension.

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Activities</th>
<th>Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision</td>
<td>Programs</td>
<td>· Clientele access to Extension</td>
</tr>
<tr>
<td>Budget</td>
<td>· Publications</td>
<td>services</td>
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<tr>
<td>Facilities</td>
<td>· Workshops</td>
<td>· Type of participation</td>
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<td>Staff Skills</td>
<td></td>
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<tr>
<td>Philosophy</td>
<td></td>
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<tr>
<td>Knowledge</td>
<td></td>
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<tr>
<td>Attitudes</td>
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</tbody>
</table>

Environmental Context: Political and Organizational

(Adapted from Warner and Christenson 1984; Deschler 1997)

In this study, I examined extension program inputs, program activities, and stakeholder participation (Table 4-2). Program inputs are the resources that go into educational programming in extension: staff, dollars, and vision. Educational programs include the actual programs that are conducted through cooperative extension. Participation describes the interaction between extension and their clientele in programs and program planning. The broad component areas of program inputs, educational activities, and participation served as a guide in document analysis and as topics for the interviews. Awareness indicators refer to extension program inputs and commitment indicators refer to extension program activities and participation. Inputs, activities, and participation all take place in the context of the organization and
political environment, thus contextual factors were taken into account in the research design.

TABLE 4-2 Indicators of awareness and commitment to sustainability education as measured by Extension program inputs, activities, and participation.

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Activities</th>
<th>Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
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<tr>
<td></td>
<td>sustainability philosophy</td>
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<td></td>
<td>perceived relevance of sustainability</td>
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<td></td>
<td>definition of sustainability</td>
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<tr>
<td>Commitment</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>budget allocation to extension education related to natural resource sustainability</td>
<td>presence of sustainability concepts in subject matter of extension programs</td>
</tr>
<tr>
<td></td>
<td>staffing in extension education areas related to natural resource sustainability</td>
<td>integration of sustainability concepts into extension programs</td>
</tr>
<tr>
<td></td>
<td>priority level of educational programs related to natural resource sustainability</td>
<td>extension programs addressing the social, economic, and social aspects of sustainability</td>
</tr>
</tbody>
</table>

* awareness indicators refer to extension inputs; commitment indicators refer to Extension program activities and participation.
National Survey of Natural Resource Extension Administrators

I administered a national survey of Natural Resource Extension Administrators with the objective of evaluating how sustainability was being interpreted and implemented in Natural Resource Extension at the state extension level. I followed the Total Design Method in survey design and implementation (Salant and Dillman 1994). The Survey Research Center (SRC) at Oregon State University was employed to aid in survey design and administration and the Statistical Consulting Service was employed to aid in survey analysis.

One of my first tasks was to identify all the Natural Resources Extension program administrators around the country. I obtained names and addresses of all Natural Resource Extension Administrators from four sources: the USDA-CSREES list of Agriculture and Natural Resource Program Leaders, the 1999 Forestry Communications Guide, the Cooperative Extension Personnel in Forest Management and Wood Products 1998-1999 Directory, and the Federal Information Exchange list of Tribal Colleges. Both 1994 Tribal land-grant colleges and 1890 Historically Black Colleges and Universities with land-grant status were included in the survey census. Programs are directed and administered by what Extension terms “Program Leaders.” Some Agriculture and Natural Resource Program Leaders go by the title of “Natural Resource and Environmental Management Base Program Coordinator.” Since the administrative titles vary from state to state, I merged four mailing lists to include all of the following titles related to Natural Resource Extension program administration: State Natural Resource and Environmental Management Coordinator, State Program
Leader for Forest Management, State Program Leader for Wood Products Marketing, Agriculture and Natural Resource Program Leader, State Program Leader for Natural Resources at an 1890 Institution, and Extension Agent at a Tribal College (1994 Land-Grant). I mailed the survey to a census of all Natural Resource Extension Administrators at all land-grant universities in the United States, its territories, and the District of Columbia. Because of the small number of Natural Resource Extension Administrators nationwide, I was able to conduct a census, rather than sample from the population.

Research Questions: Survey

The specific questions that I designed the survey to answer and are listed below.

1. How do those who administer Natural Resources Extension define sustainability?

2. What are the priority and funding levels of programs addressing sustainability in Natural Resource Extension?
   i. Social (priority and funding)
   ii. Environmental (priority and funding)
   iii. Economic (priority and funding)

3. Does the use of the term sustainability affect credibility of natural resource extension programs?

4. What are natural resource extension administrators perceptions of clientele demand for attitudes about sustainability and sustainability education?

5. Is sustainability as a topic controversial?

6. What is CSREES’s (federal extension partner) role in sustainability programming?

7. Are there any regional differences in attitudes/opinions about sustainability?

8. Where is the demand coming from for programs addressing sustainability?
9. What is the relationship, if any, between

- academic background,
- age,
- gender,
- race,
- or years in extension, and attitudes and opinions about sustainability

The questionnaire (Appendix A) was composed of three sections. The first section contained attitudinal questions about the concept of sustainability. I opened the survey with the following statement to give the respondents a general working definition of sustainability to serve as the context for the attitudinal questions.

The following set of questions [Section I] refers to the concept and application of sustainability. Perhaps the most widely used definition comes from the Brundtland Report: “to meet the needs of the present without compromising the ability of future generations to meet their own needs.” The inter-dependence of social, economic, and ecological systems is a central concept of sustainability.

The second section in the questionnaire had questions pertaining to Natural Resource Extension programming priority and funding levels. The final section contained demographic questions about the respondents’ background and experience. The majority of questions on the survey were Likert scale or multiple-choice. The survey also included one open-ended question and three fill-in-the-blank questions. Respondents were asked the same questions about sustainability and programming in different forms so that I could triangulate the answers.
Mailing Procedure

I administered the survey over a five-week period beginning with an advance notice letter alerting potential respondents that they were to receive a survey within a week. The survey and cover letter arrived approximately seven days after the advance notice letter. I mailed a reminder postcard seven days after the cover letter and survey were mailed. A final cover letter and survey were mailed to all those individuals who had not responded by February 16, 2000. We received a total of 118 completed surveys by May 15, 2000. The mailing procedure used was as follows.

4. Feb. 16, 2000: Mailed cover letter and survey to those that hadn’t responded yet

Non-response

I also addressed non-response bias in this national survey. The two types of non-response are unit non-response and item non-response (Jolliffe 1986). Unit non-response occurs when a completed questionnaire is not returned from a member of the chosen sample. Item non-response occurs when only part of the questionnaire is incomplete. In this survey we classified unit non-response into three categories: 1) non-respondents, 2) refused, and 3) undeliverable (Table 4-3).
TABLE 4-3  Summary statistics for national survey.

<table>
<thead>
<tr>
<th></th>
<th>Year of Authorizing Legislation for Land-Grant Status</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1862</td>
<td>1890(^b)</td>
<td>1994(^c)</td>
<td>Total</td>
</tr>
<tr>
<td>Land-Grant Universities(^a)</td>
<td>58</td>
<td>18</td>
<td>30</td>
<td>106</td>
</tr>
<tr>
<td>Surveys Mailed</td>
<td>128</td>
<td>24</td>
<td>33</td>
<td>185</td>
</tr>
<tr>
<td>Surveys Completed</td>
<td>101</td>
<td>7</td>
<td>9</td>
<td>118(^d)</td>
</tr>
<tr>
<td>Non-respondents</td>
<td>23</td>
<td>17</td>
<td>23</td>
<td>62</td>
</tr>
<tr>
<td>Refused Surveys</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Undeliverable Surveys</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Response Rate</td>
<td>80%</td>
<td>29%</td>
<td>27%</td>
<td>65%</td>
</tr>
</tbody>
</table>

\(^a\) Number of land-grant institutions in the United States, its territories, and the District of Columbia.
\(^b\) Historically Black Colleges and Universities
\(^c\) Tribal Colleges
\(^d\) Type of land-grant unknown for one survey (tracking number defaced).

In Chapter 2, I detailed the three types of Land Grant institutions: 1862's, 1890's (Historically Black Colleges & University), and 1994's (Tribal Colleges). Because of high level of unit non-response of the 1890's and 1994's, I did not combine all three institutions together in the analysis. Both the vast majority of the data (101 of 116 completed surveys) and the high response rate (80%) came from 1862 land-grant institutions (Table 4-3). Therefore, I focused the analysis solely on the 1862 land-grant institutions because there was little information to confidently draw conclusions about the other two types of land-grant institutions as well as low power to detect differences.

The other type of non-response I had to address was item non-response. This is the term used to indicate that a response to a particular question is missing for a
sample member who had responded to the survey (Jolliffe 1986). Item non-response would usually be detected during data entry and might occur in several places on a questionnaire. One way of dealing with item non-response is to contact the respondent again to obtain responses to the questions where no response was recorded, but this procedure is relatively costly and could undermine confidence in the survey. The two main methods of dealing with item non-response are deletion and imputation (Jolliffe 1986). The two main types of deletion are listwise deletion and pairwise deletion. Listwise deletion omits any incomplete survey from analysis while pairwise deletion omits only those items that do not have responses to both questions where calculations are based on more than two variables. Because listwise deletion completely ignores any information on incomplete questionnaires, I employed pairwise deletion in our analysis to deal with item non-response. On question five of the survey, where respondents were asked to respond to a paired question, I employed pairwise deletion where the respondent provided the answer to only one question in the pair. Imputation is another method of dealing with item non-response and it involves estimating missing or unusable responses. Because of the low numbers of item non-response, usually fewer than ten per question, I did not feel the need to employ this estimation procedure on the unpaired survey questions.
Case Studies of Alabama and Oregon Extension

I conducted comparative case studies of the Alabama Cooperative Extension System (ACES) and the Oregon State University Extension Service (OSUES). The case study is a comprehensive research strategy which (Yin 1994, p.13):

1. Investigates a contemporary phenomenon within its real life context, especially when the boundaries between the phenomenon and context are not clearly evident.

2. Examines contextual conditions because they are pertinent to the study (alternatively, an experiment divorces a phenomenon from its context so that attention can be focused on a few variables, i.e. the context is controlled by lab environment).

Case study inquiry relies on multiple sources of evidence, with data converging in a triangulating fashion. Case study inquiry involves collecting information from a diverse range of individuals and settings using a variety of methods (Denzin 1970). The data sources for the Alabama and Oregon case studies were interviews with Extension personnel working in the areas of forestry and natural resources at the county and state levels.

The rationale behind selecting Alabama and Oregon was two-fold. The two states provided an opportunity to examine extension work in two regions with distinctly different political, environmental, and organizational contexts. Oregon and Alabama vary in the size, scope, and organization of their respective Extension programs and offer a good basis for comparison. For example, Oregon has the largest Extension Forestry program in the nation while Alabama’s Extension Forestry program has only a handful of specialists and no County Extension Foresters. Secondly, the states also have different natural resource contexts. Secondly, the states also have different
natural resource contexts. While Alabama’s forests are mostly privately owned, Oregon’s forests are predominantly publicly owned (Table 4-4). Forests occupy 45% of Oregon’s total land area contrasting with the 68% in Alabama. The forest products payroll in Oregon stands slightly higher at $1.72 billion compared to Alabama’s $1.54 billion.

TABLE 4-4. Acres of forestland, percent of forestland, percent in private ownership, and percent in public ownership for Oregon and Alabama.

<table>
<thead>
<tr>
<th></th>
<th>Acres Forestland</th>
<th>Percent of Total Land</th>
<th>Public Ownership</th>
<th>Private Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon</td>
<td>28 million</td>
<td>46%</td>
<td>61%</td>
<td>39%</td>
</tr>
<tr>
<td>Alabama</td>
<td>22 million</td>
<td>68%</td>
<td>95%</td>
<td>5%</td>
</tr>
</tbody>
</table>

*Note.* Oregon Department of Forestry (1999); Alabama Forestry Commission (2000)

The sample frame for the Alabama and Oregon case studies was a subset of Extension personnel working in the areas of Forestry and Natural Resources. Within that population, purposeful and dissimilarity sampling were employed to choose the most information-rich, diverse cases. The goal was to conduct interviews with agents, administrators, and specialists working in in natural resource program areas in ACES in Alabama and the OSUES in Oregon.

In Alabama, a sample of agents, specialists, and county extension coordinators was taken from the Forestry and Natural Resource Extension Team Projects. Since 1997, the Alabama Cooperative Extension System has used Extension Team Projects
as a basis for program planning. Extension Team Projects (ETP) are a web-based program planning system where agents and specialists allocate their FTE (Full-Time Equivalent) among programs posted on the ETP website by Extension Specialists. I used ETP’s to identify those county agents that were dedicating a majority of their time (FTE) to Forestry and Natural Resource projects. I ranked the 67 counties in Alabama according to the number of days allocated toward Natural Resource Extension Team Projects in decreasing order. I interviewed county extension personnel with primary natural resource responsibilities in the top ten counties in the ranking. I also interviewed county Extension personnel in those counties that were near key natural resources such as forests and water resources.

In Oregon, I interviewed county extension agents in the forestry and natural resources program area. In addition, I used snowball sampling to interview any agents or specialists identified as key informants either by researchers or interviewees. At the state level, I interviewed extension specialists in natural resource areas and top-level administrators such as directors and program leaders in ACES and OSUES.

Based on a review of the literature with regard to sustainable development and sustainable forestry, I compiled a typology of sustainability components to examine Extension Education programs (Box 4-A). These social, economic, and environmental components of sustainability served as core areas around which I asked interviewees questions about extension educational programming. Broad topics included, but were not limited to, clientele participation, sustainable development, natural resource issues, extension issues, and job responsibilities and programming over time.
Box 4-A  Typology of components of social, economic, and environmental aspects of sustainability.

<table>
<thead>
<tr>
<th>Social</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>opportunities</td>
</tr>
<tr>
<td>Empowerment</td>
<td>(degree of power sharing)</td>
</tr>
<tr>
<td>Local Involvement</td>
<td>(local communities)</td>
</tr>
<tr>
<td>Education</td>
<td>(collective learning; topics)</td>
</tr>
<tr>
<td>Collaboration</td>
<td>(what groups)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Economic</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversified local economy</td>
<td>(beyond reliance on single commodity; value-added)</td>
</tr>
<tr>
<td>Economic Viability</td>
<td>(adaptability)</td>
</tr>
<tr>
<td>Poverty</td>
<td>(satisfy basic needs; reduce poverty)</td>
</tr>
<tr>
<td>Health</td>
<td></td>
</tr>
<tr>
<td>Education/Literacy</td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td></td>
</tr>
<tr>
<td>Optimization not maximization</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity Conservation</td>
<td></td>
</tr>
<tr>
<td>Ecosystem Health and Vitality</td>
<td></td>
</tr>
<tr>
<td>Geographic Scale</td>
<td></td>
</tr>
<tr>
<td>Time Scale (long-term objectives and management plans)</td>
<td></td>
</tr>
</tbody>
</table>

In total, I conducted semi-structured interviews with 29 Natural Resource Extension personnel in the Alabama Cooperative Extension System and 29 Natural Resource Extension personnel in the Oregon State University Extension Service at the county, state specialist, and administrative levels (Table 4-5).
TABLE 4-5  Number and program area of Extension personnel interviewed in the Alabama Cooperative Extension System and the Oregon State University Extension Service.

<table>
<thead>
<tr>
<th></th>
<th>Alabama</th>
<th>Oregon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture and Natural Resources a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>County agent/Co. Chair/Co. Coor.</td>
<td>19</td>
<td>-</td>
</tr>
<tr>
<td>Extension Specialist</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Program Leader/Administrator</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Forestry and Wildlife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>County agent</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>Extension Specialist</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Program Leader/Administrator</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Water Quality and Sea-Grant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>County agent</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Extension Specialist</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Program Leader/Administrator</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Horticulture and Agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>County agent</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Extension Specialist</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Program Leader/Administrator</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>County agent</td>
<td>-</td>
<td>2 b</td>
</tr>
<tr>
<td>Extension Specialist</td>
<td>-</td>
<td>1 c</td>
</tr>
<tr>
<td>Program Leader/Administrator</td>
<td>-</td>
<td>2 d</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>29</td>
</tr>
</tbody>
</table>

a Agents in the Alabama Cooperative Extension System classified themselves as Agriculture and Natural Resources agents; this terminology was not used in Oregon where forestry/natural resources and agriculture were classified jointly.

b One County Agent on sabbatical as Sustainable Forestry Partnership Associate Director and one 4-H county agent
c Sustainable Living Extension Specialist
d Associate Director and Director of Extension
The individuals in the sample were interviewed using a combination of the standardized open-ended interview and the interview guide approaches. These approaches allowed some flexibility for discussion while ensuring that certain questions were asked of every interviewee. I conducted the interviews with the participants using an interview guide (Appendix C). The interviews were conducted in the respective interviewees' offices with only the researcher(s) and the interviewee present. The interviews were tape recorded and subsequently transcribed.

The interviewees had the informed consent procedures explained to them as outlined in the Oregon State and Auburn Universities' human subject research guidelines. The interviewees also signed an informed consent form, which was filed along with the interview transcript and original tape. Confidentiality of interview subjects was ensured throughout the research project by not associating the interviewees name with any comments made during the interview. All interview materials (informed consent, transcription, and tape) were kept in a confidential file. After transcribing the interview tapes, I imported the text of the interview into a qualitative data analysis program, ATLAS Ti, to manage and aid in the analysis of all the interview transcripts.

I used grounded theory procedures to analyze the interview transcriptions. Grounded theory was an ideal social research approach for examining sustainability in two Natural Resource Extension programs because it is best-suited for examining explanations about phenomena around which little information is known. Grounded theory uses a methodical set of procedures to inductively derive explanations about a social phenomenon. The analytical procedure involved open coding, axial coding and
selective coding (Glaser 1967; Strauss and Corbin 1990). Open coding was the initial step I used to analyze the data. I began by reading the transcripts and describing concepts, properties, and dimensions. The next step was axial coding. This is where I made connections between categories and examined contextual conditions. In the final analytical procedure, selective coding, I integrated the Axial Coding statements into core thematic categories. The outcomes of the selective coding resulted in a set of core categories, which I present in the results in Chapters 5 and 6.

Key Informant Interviews with USDA Extension Administrators

To determine the awareness of and commitment to sustainable development at the federal level in extension (USDA CSREES), I identified and interviewed ten key administrators who guide extension programming at the federal level. I employed purposeful sampling techniques to select information-rich cases to study. This involved identifying and interviewing those key employees at the federal level of Extension that were involved with forestry and natural resources, sustainability, or both. At the federal Extension level, there is a Natural Resources and Environment organizational unit. Those employees working specifically with forestry and sustainability issues were selected. In addition, the USDA Director of Small Farms and Sustainable Development and the CSREES Administrator were interviewed. I employed the same informed consent, confidentiality, and analysis procedures outlined in the section of this Chapter titled “Case Studies of Alabama and Oregon Extension.”
Summary of Methods

With the objective of examining the awareness of and commitment to sustainable development in Natural Resource Extension, I utilized both qualitative and quantitative methodology in research design. I conducted case studies of Alabama and Oregon Natural Resource Extension programs, employing qualitative methodology to provide in-depth information from two contrasting cases. The national survey of Natural Resource Extension Administrators that I administered provided a broader perspective from state extension partners across the United States. Key informant interviews with federal level Extension Administrators revealed the experience from the federal Extension partner. By using various methods, I was able to triangulate findings to provide a comprehensive view of sustainability and Extension Education today.
CHAPTER 5

SUSTAINABILITY, AWARENESS, AND COMMITMENT: EXAMINING NATURAL RESOURCE EXTENSION PROGRAMS IN THE UNITED STATES

Shorna R. Broussard and John C. Bliss

In Preparation for Society and Natural Resources
Abstract

Cooperative Extension is a prominent and influential educational system uniquely capable of addressing public educational needs related to natural resource sustainability. In this research, we examined the Cooperative Extension System's awareness of and commitment to sustainability by evaluating how Natural Resource Extension education programs incorporate and implement sustainability at the county, state, and federal levels. The data come from multiple sources and collection methods and include document analysis, interviews with key federal Extension administrators, a national survey of state Natural Resource Extension Administrators, and detailed comparative case studies of Natural Resource Extension programs in Alabama and Oregon.

Introduction

Extension is the largest education system of its kind in the world and has a long history of providing educational resources to the agriculture, communities, families, and youth across the nation. Most Americans are aware of Extension (Christenson et al. 1995), and some view Extension as a useful and credible source of information above other sources (Wright and Schindler 1999). Since the U.S. public is increasingly concerned with topics related to communities, environment (Schneider and Smallidge 2000), and natural resources (National Research Council 1996), we now see a growing need for increased Cooperative Extension work in the area of sustainable natural resource management. Projects around the country provide evidence that the concept
of sustainable development is central to the work of many communities and citizen organizations (The Nature Conservancy 1996; President’s Council on Sustainable Development 1997; Ponderosa Pine Forest Partnership 1999). Since Extension Forestry and Natural Resource programs are charged with addressing societal concerns through education, they are poised to do work in this arena.

Researchers have examined attitudes and perspectives toward sustainability and sustainable agriculture in Extension (Francis et al. 1988; Korsching and Malia 1991; Minarovic and Mueller 2000), Land-Grant Universities (Lyson 1998), and from the perspective of clientele (Guy and Rogers 1999). However, no study has examined sustainability from the aspect of Natural Resources Extension Educators and Programs. Extension educators’ attitudes and vision for natural resource sustainability are fundamental to building a strong Extension program in this area. Yet it is first necessary to assess the awareness and perspectives of Extension educators before programs can be developed.

Our overall goal in this research was to determine the awareness of and commitment to sustainable development concepts among extension personnel at the local, state, and federal levels. The first research objective was to examine two state extension systems (Alabama and Oregon) in detail to determine their awareness of and commitment to applications of sustainable development concepts. Our second research objective was to determine the awareness of and commitment to sustainable development concepts nationally. A third research objective was to determine the awareness and commitment to sustainable development at the USDA level in Extension. We begin this article with background on the concept of sustainable
development and Cooperative Extension. Following that, we present the research methodology and conceptual framework for the study followed by findings from the case studies, national survey, interviews, and document analysis. We conclude with a discussion of the results.

Sustainable Development as a Concept

Sustainable development, characterized by the union of economic growth, environmental protection, and social equity, is at the forefront of national and international policy and research agendas. In the U.S., The Executive Office, federal agencies, and natural resource scientists are increasingly recognizing the concept of sustainability as it relates to management of natural resources. One event, described as sustainable development's political coming of age, was the report of the United Nations World Commission on Environment and Development (Kirby et al. 1995). Formed in 1983 and chaired by Norwegian Prime Minister Gro Harlem Brundtland, the World Commission on Environment and Development formulated a global agenda for change and began to relate development with the environment.

Development has four key components: peace and security, human rights, economic development, and supportive national governance (World Commission on Environment and Development 1987; Dernbach 1999). The World Commission on Environment and Development found that each of the four basic development components required environmental protection. Thus, they defined sustainable development in terms of environmental protection, social development, and economic
development. The final report *Our Common Future*, commonly called the Brundtland Report, was presented to the United Nations General Assembly in 1987. The Brundtland report defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (World Commission on Environment and Development 1987, p.8).

The next major event following *Our Common Future* was the United Nations Conference on Environment and Development (UNCED). The UNCED was held in Rio de Janeiro in 1992 and is more commonly known as the Earth Summit. The Earth Summit was held in response to global deforestation and climate change issues. All countries involved agreed to a broad agenda to address environmental and developmental issues. The Earth Summit produced two international agreements, two statements of principles and a major action agenda on world wide sustainable development. The Rio Declaration was a set of adopted principles and Agenda 21 was a plan of action to realize sustainable development.

In response to Agenda 21, two processes for the development of criteria and indicators of sustainability were established: the Helsinki and Montreal processes. The Montreal process was for non-European temperate forests while the Helsinki process was for European nations. The governments of Canada, Chile, China, Japan, Mexico, New Zealand, the Republic of Korea, the Russian Federation, and the U.S. were all part of the Montreal process. These countries represent a significant portion of the world’s temperate and boreal forests. The Montreal process resulted in the Santiago Declaration. The declaration contains a consensus list of indicators agreed to by all involved countries. The Santiago Declaration includes seven criteria for
sustainable management, also known as Criterion 7 (Sedjo et al. 1999). The seven criteria are biodiversity conservation, ecosystem productivity, ecosystem health and vitality, soil and water conservation, global carbon cycles, multiple socioeconomic benefits, and institutional frameworks. Criterion 7 is intended for use at the national level and are not site-specific but rather represent a framework of common understanding of sustainable forestry. The criteria serve the purpose of describing sustainability and providing a referential standard for policymakers.

The concepts of equity, fairness, systems, and future generations are all prominent in definitions of sustainable development. Sustainable development acknowledges that if we ignore our effects on others in an interdependent world, we do so at our own peril. Since disparity exists in access to resources one of the greatest challenges in decision-making is how to protect the rights of the voiceless. Future generations have no ability to speak on their own behalf or to protect their interests in decision-making processes. If development is to be sustainable, it must consider their interests. The central features of socially sustainable development are participation (Lele 1991; Cerena 1993; Harcharik 1993; Serageldin 1993; Berke and Beatley 1995; Ferguson 1996; Weaver et al. 1997; Gregerson et al. 1998) through empowerment (Cerena 1993; Hill 1998; Berke and Beatley 1995), local involvement (Lele 1991; Harcharik 1995; Martinson 1998), education (Armitage 1995), and collaboration (Griss 1993; Berke and Beatley 1998; Hill 1998; Martinson 1998).

Ecological sustainability is governed by numerous principles. Natural resources must be used in ways that do not create ecological debts by overexploiting the carrying and productive capacity of the Earth (Pronk and Haq 1992). A minimum necessary
condition for sustainability is the maintenance of the total natural capital stock at or above the current level (Costanza 1991). The 1980 World Conservation Strategy of the International Union for the Conservation of Nature, the United Nations Environment Program, and the World Wildlife Fund concludes, for example, that sustainability requires maintenance of essential ecological processes and life-support systems; preservation of genetic diversity; and sustainable utilization of species and resources (IUCN 1980). This three-part prescription seems to consist of different facets of the same thing; preservation of genetic diversity and sustainable use are essential to maintain essential ecological processes and life support systems.

Part of sustainability is also focusing on a system rather than exclusively on its components (Roling and Jiggins 1994; Pirages 1996; Viederman 1996; Francis et al. 1988). Systems-thinking posits that there is only one Earth, composed of a multitude of subsystems all interacting with each other. Science has begun to shift in this epistemological direction. Ecological economics is a trans-disciplinary field that investigates the relationship between ecosystems and economic systems (Costanza 1995). Economists in this field focus on long-term forecasting and a systems approach to decision-making—core components of the sustainability philosophy. Similarly, natural capitalism, fostered by Hawken et al. (1999) point out the interdependency between the economy and natural resources which act to sustain it.

Some believe that part of the arguments surrounding defining sustainable development is about whose values should take precedence in the definition (Redclift 1988; Norgard 1988). Achieving and utilizing sustainability requires examining the underlying political, economic, and social systems and ideological underpinnings of
society (Adams and Thomas 1993; Bliss and Walkingstick 1998; McCool and Stankey 1998). For example, Agyeman and Evans (1996, p. 72) argue that forms of economic, social, and political subordination present in this and other countries will continue to exclude marginalized groups (on the basis of "skin color, religion, culture, ethnicity, or any alternative conception of otherness") from the sustainability debate (1996). Similarly, ecofeminism posits that the social domination of women is inherently connected with man's domination over nature and the subsequent dualism has led to unsustainable development (Mellor 1996). Thus using the term sustainability conveys ideological, political, moral, and scientific views and can involve controversial topics such as limits to growth, social inequality, and economic diversification. This can lead sustainability into controversy and diffusion due to conflicting definitions and interpretations of its meaning (Prugh et al. 2000).

The Cooperative Extension System

The Cooperative Extension System is an educational partnership between the nation's 105 land-grant colleges and universities, the United States Department of Agriculture (USDA), and local governments. USDA-CSREES (Cooperative State, Research, Education, and Extension Service) administers federal funding, provides programmatic leadership for extension, and serves as the federal partner of the Cooperative Extension System. Land-grant universities are the state partners and county governments represent the local partners. Seventy-one percent of Cooperative
Extension System funding originates from state and local sources (National Research Council 1995), thus we targeted our data collection at these levels (Table 5-1).

**TABLE 5-1** Sources of support for Extension activities at 1862 and 1890 land grant universities.

<table>
<thead>
<tr>
<th>Source</th>
<th>Dollars ($)</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>333,000,000</td>
<td>24</td>
</tr>
<tr>
<td>State</td>
<td>652,000,000</td>
<td>47</td>
</tr>
<tr>
<td>Federal</td>
<td>401,000,000</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td>1,386,000,000</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note.* From National Research Council (1995), *Colleges of Agriculture at the Land Grant Universities.*

The Cooperative Extension System has seven base programs that serve as the core of Extension programming: agriculture; community resources and economic development; family development and resource management; 4-H and youth development; leadership and volunteer development; natural resources and environmental management; and nutrition, diet, and health (USDA 1995). Forestry and natural resource program areas, which were the focus of our research, are classified under the Natural Resources and Environmental Management (NREM) base program.

USDA, one of the largest agencies of federal government, recognized the importance of sustainability in 1996 when it made a commitment to integrate the goals and concepts of sustainability throughout its agencies, policies, and programs (USDA 1996). Secretary of Agriculture Dan Glickman stated in a 1996 memorandum, "USDA is committed to working toward the economic, environmental, and social..."
sustainability of diverse food, fiber, agriculture, forest, and range systems... USDA will integrate these goals into its policies and programs, particularly through interagency collaboration, partnerships, and outreach.” USDA has an operating budget of $60 billion (USDA 1997b), exceeded only by Defense, Social Security Administration, Treasury, and Health and Human Services. In 1996, a staff of one was hired to, “lead and coordinate cross-mission area work in sustainable development and represent the Department in both domestic and international arenas on issues relating to sustainable development” (USDA 1996). On October 7, 1998, the responsibilities of the Department-wide Director of Sustainable Development were reduced when additional responsibilities were added for running the USDA Small Farms program (USDA 1998). USDA has made a philosophical commitment to integrate sustainable development concepts across all USDA agencies and programs. What is less apparent is how that philosophical commitment translates into on-the-ground implementation.

**Program Evaluation Framework**

Studies done in educational evaluation and public policy provide a framework where programs are evaluated according to the conditions that are present in clientele, extension programs, and extension educators (Bennett 1975; Summers 1977; Bennett 1979; Christenson and Warner. 1982; Warner and Christenson 1984; Mayeske 1994; Bennett 1995; Swanson et al. 1997). Common program components used in evaluation include inputs, activities, participation, reactions, individual change, organizational change, community change, and national change. We assessed
awareness and commitment to sustainable development using three of these components: inputs, activities, and participation (Figure 5-1). Program impact and evaluation can be viewed from the aspect of the educator or the participant. We focused on Extension Educators, with the understanding that inputs, activities, and participation are necessary conditions that must be met before any primary changes can occur in program participants. For example, personnel must be in place and program dollars allocated in order to develop a particular curriculum or educational program in which clientele could then participate.
Environmental Context: Political and Organizational

(Adapted from Warner and Christenson 1984; Deschler 1997)

Program inputs, activities, and participation are components of a three-stage model we used to evaluate sustainability in Extension Education (Figure 5-1). Program inputs are the resources—staff, dollars, and vision—that go into educational programming in Extension. Activities include the educational programs that are conducted through Cooperative Extension. Participation describes the interaction between extension and their clientele in programs and program planning. Inputs, activities, and participation can be viewed as the foundation of educational programming and the necessary conditions that must occur before any changes associated with participants occur. Program inputs, program activities, and program participation served as the basis for indicators we used to measure the degree of
awareness and commitment to sustainability in Natural Resource Extension Education programs (Table 5-2).

The data sources include answers to questions about the associated indicators of awareness and commitment from Natural Resource Extension Administrators in the national survey, interview transcriptions from Natural Resource Extension personnel interviewed as part of the Alabama and Oregon case studies and USDA key informant interviews, and budget and personnel data from the document analysis.
### Working Definition of Sustainability

In order to establish a framework for examining sustainability in Natural Resource Extension programs, we used the sustainable development and sustainable forestry literature to compile a typology of sustainability (Box 5-A). This typology was based...
on the definition of sustainable development from the Brundtland Report “to meet the needs of the present without compromising the ability of future generations to meet their own needs” and the basic idea that sustainable development is based on the fundamental concepts of social equity, economic well-being, and environmental health (World Commission on Environment and Development 1987, p. 8). We used this typology to provide the parameters for the term “natural resource sustainability” which we refer to throughout this study. We employed this classification and applied it in the realm of Extension Education. Thus, our indicators presented earlier for awareness and commitment specifically applied to the aspects of program inputs, program activities, and program participation that related directly to our typology of sustainability. It was necessary for us to establish a working definition of sustainability, grounded in the literature, to serve as a benchmark for examining awareness of and commitment to sustainability in Extension Education work in the United States.
Box 5-A Typology of social, economic, and environmental aspects of sustainability.

<table>
<thead>
<tr>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation (opportunities)</td>
</tr>
<tr>
<td>Empowerment (degree of power sharing)</td>
</tr>
<tr>
<td>Local Involvement (local communities)</td>
</tr>
<tr>
<td>Education (collective learning; topics)</td>
</tr>
<tr>
<td>Collaboration (what groups)</td>
</tr>
<tr>
<td>Future Generations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Economic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversified local economy (beyond reliance on single commodity; value-added)</td>
</tr>
<tr>
<td>Economic Viability (adaptability)</td>
</tr>
<tr>
<td>Poverty (satisfy basic needs; reduce poverty)</td>
</tr>
<tr>
<td>Health</td>
</tr>
<tr>
<td>Education/Literacy</td>
</tr>
<tr>
<td>Population</td>
</tr>
<tr>
<td>Optimization not maximization</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity Conservation</td>
</tr>
<tr>
<td>Ecosystem Health and Vitality</td>
</tr>
<tr>
<td>Geographic Scale</td>
</tr>
<tr>
<td>Time Scale (long-term objectives and management plans)</td>
</tr>
</tbody>
</table>

Research Methodology

We used a combination of quantitative and qualitative research techniques to examine the awareness of and commitment to sustainable development within the Cooperative Extension System at the county, state, and national levels. We conducted a national survey of state Natural Resource Extension Administrators, case studies of Alabama and Oregon Natural Resource Extension programs, interviews with key USDA administrators, and analyzed Extension planning and reporting documents (Table 5-3).
TABLE 5-3 Research design and methodology for evaluating awareness and commitment to sustainability in Natural Resource Extension programs.

<table>
<thead>
<tr>
<th>Research Method</th>
<th>Federal</th>
<th>State</th>
<th>Alabama</th>
<th>Oregon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Informant Interviews</td>
<td>Descriptive National Survey</td>
<td>Case Study</td>
<td>Case Study</td>
<td></td>
</tr>
<tr>
<td>USDA Administrators and National Program Leaders</td>
<td>Natural Resource Extension Administrators at all 105 Land-Grants Universities</td>
<td>Natural Resource Extension Personnel at county and state levels</td>
<td>Natural Resource Extension Personnel at county and state levels</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Data</th>
<th>Federal</th>
<th>State</th>
<th>Alabama</th>
<th>Oregon</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Interview Transcriptions and Reporting Documents</td>
<td>101 Completed surveys</td>
<td>29 Interview Transcriptions and Extension Planning and Reporting Documents</td>
<td>29 Interview Transcriptions and Extension Planning and Reporting Documents</td>
<td></td>
</tr>
</tbody>
</table>

Case Studies

The objective of the Oregon and Alabama case studies was to examine two state Extension programs in detail to determine their awareness and commitment to sustainable development concepts and applications. Each institution served as an individual case. We used qualitative methodology, inductively exploring individuals' experiences and meaning to build toward general patterns about the relationship between extension education and sustainability (Patton 1990; Strauss and Corbin 1990; Henderson 1991; Bogdan and Bilken 1998). The case study is a comprehensive research strategy that "investigates a contemporary phenomena within its real life
context” (Yin 1994, p. 13). Case study inquiry relies on multiple sources of evidence, with data converging in a triangulating fashion. This involved collecting information from a diverse range of individuals and settings using a variety of methods (Denzin 1998).

The rationale behind selecting Alabama and Oregon for the case studies was two-fold. The two states provided an opportunity to examine Extension work in two regions with distinctly different political, environmental, and organizational contexts. Oregon and Alabama vary in the size, scope, and organization of their respective Extension programs and offer a good basis for comparison. For example, Oregon has the largest Extension Forestry program in the nation while Alabama’s Extension Forestry program has only a handful of specialists and no County Extension Foresters. Secondly, the states also have different natural resource contexts. While Alabama’s forests are mostly privately owned, Oregon’s forests are predominantly publicly owned (Table 5-4). Forests occupy 45% of Oregon’s total land area contrasting with the 68% in Alabama. The forest products payroll in Oregon stands slightly higher at $1.72 billion compared to Alabama’s $1.54 billion.
The data sources for the Alabama and Oregon case studies came from interviews with extension personnel working in the areas of forestry and natural resources at the county and campus levels. We also examined Extension planning and reporting documents. We conducted semi-structured interviews with 58 Natural Resource Extension personnel in the Alabama Cooperative Extension System and the Oregon State University Extension Service (Table 5-5). We analyzed the interview transcriptions following grounded theory procedures recommended by Strauss and Corbin (1990). A detailed analysis of case comparisons is presented in a forthcoming manuscript (Broussard and Bliss, forthcoming).

### Table 5-4

<table>
<thead>
<tr>
<th></th>
<th>Acres of Forestland</th>
<th>Percent of Total Land</th>
<th>Public Ownership</th>
<th>Private Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon</td>
<td>28 million</td>
<td>46%</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>Alabama</td>
<td>22 million</td>
<td>68%</td>
<td>95%</td>
<td>5%</td>
</tr>
</tbody>
</table>

*Note.* Oregon Department of Forestry (1999); Alabama Forestry Commission (2000)

### Table 5-5

<table>
<thead>
<tr>
<th></th>
<th>Oregon State University Extension Service</th>
<th>Alabama Cooperative Extension System</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension Specialists</td>
<td>9</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>County Agents</td>
<td>17</td>
<td>19</td>
<td>36</td>
</tr>
<tr>
<td>Administrators</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>29</td>
<td>58</td>
</tr>
</tbody>
</table>
National Survey

We administered a national survey of Natural Resource Extension Administrators with the objective of evaluating how sustainability was being interpreted and implemented in Natural Resource Extension at the state Extension level. We followed the Total Design Method in survey design and implementation (Salant and Dillman 1994). The case studies conducted in Oregon and Alabama informed the survey and provided a basis for design. We mailed the survey to a census of all Natural Resource Extension Administrators at all land-grant universities in the United States, its territories, and the District of Columbia. Because of the small number of Natural Resource Extension Administrators nationwide, we were able to conduct a census, rather than sample from the population. We received completed surveys from 101 of 128 possible respondents for an 80% response rate.1

The questionnaire (Appendix A) was composed of three sections. The first section contained attitudinal questions about the concept of sustainability. We opened the survey with the following statement to give the respondents a general working definition of sustainability to serve as the context for the attitudinal questions.

The following set of questions [Section I] refers to the concept and application of sustainability. Perhaps the most widely used definition comes from the Brundtland Report: “to meet the needs of the present without

1 There are three distinct types of Land-Grant Institutions: 1862’s, 1890’s (Historically Black Colleges & University), and 1994’s (Tribal Colleges). Because of high level of unit non-response of the 1890’s (71%) and 1994’s (63%) we did not combine all three institutions together for reporting or analysis. For example, out of the 118 completed surveys we received, 101 of them were returned by 1862 Land-Grant Universities.
compromising the ability of future generations to meet their own needs.” The inter-dependence of social, economic, and ecological systems is a central concept of sustainability.

The second section in the questionnaire had questions pertaining to Natural Resource Extension Programming priority and funding levels. The final section contained demographic questions about the respondents’ background and experience. The majority of questions on the survey were Likert scale or multiple-choice. The survey also included one open-ended question and three fill-in-the-blank questions. Respondents were asked the same questions about sustainability and programming in different forms so that we could triangulate the answers.

Results

We summarize the results of the national survey, case studies, key informant interviews, and document analysis in the following section. The results will be presented in the context of the awareness and commitment framework outlined earlier; awareness and commitment indicators are in the form of program inputs, program activities, and program participation. We will discuss the data from all sources for each section, alternating between the evidence from the survey, interviews, and documents. All names used in this article are pseudonyms, but the states and position titles reflect those of the actual interviewees.
Extension Attitudes and Awareness

We examined Extension's awareness of and attitudes about the concept of sustainability. We found that a majority of Natural Resources Extension Administrators around the country were familiar with sustainability, believed in it, embraced it, and felt that sustainability concepts guided their extension work (Table 5-6). Most did not see sustainability as just another buzzword and considered themselves proponents of sustainability.


**TABLE 5-6** Natural Resource Extension Administrators’ attitudes toward sustainability

<table>
<thead>
<tr>
<th>Description</th>
<th>(n)</th>
<th>% Agree or Somewhat Agree</th>
<th>% Disagree or Somewhat Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe in the concepts of sustainability.</td>
<td>101</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>I consider myself a proponent of sustainability.</td>
<td>101</td>
<td>98</td>
<td>2</td>
</tr>
<tr>
<td>Concepts of sustainability guide my individual work in extension.</td>
<td>100</td>
<td>94</td>
<td>6</td>
</tr>
<tr>
<td>I fully embrace the concepts of sustainability and use the term.</td>
<td>101</td>
<td>93</td>
<td>7</td>
</tr>
<tr>
<td>Sustainability is little more than a buzzword.</td>
<td>101</td>
<td>19</td>
<td>81</td>
</tr>
<tr>
<td>I am not familiar enough with the concepts of sustainability to have an opinion.</td>
<td>101</td>
<td>3</td>
<td>97</td>
</tr>
<tr>
<td>I reject the concept of sustainability and subscribe to a different way of thinking.</td>
<td>101</td>
<td>0</td>
<td>100</td>
</tr>
</tbody>
</table>

*Note:* From National Survey

One of our research objectives was to examine Extension’s attitudes toward sustainability. On the national survey, respondents were asked to briefly describe their philosophy of sustainability. Fifty-seven percent of the survey respondents addressed all three aspects of sustainability (economic, environment, social) in their answers to this open-ended question. Others addressed just the environmental aspect (9.5%), just the economic aspect (1.6%), just the social aspect (1.6%), or some combination of any two of the aspects (14.3%). Case study interviewees and survey respondents similarly
focused their personal philosophies and definitions on the more tangible aspects of environmental quality and economic development (Table 5-7). Vickie Wright, an Alabama County Agent described her philosophy, “I would define sustainability as taking care of your natural resources. Wise use of the land. You have to use the land but you also want it to be around for future generations. I probably don’t say it in those terms, but every time I teach the wildlife judging classes I hope that those kids learn a little bit more about their surroundings. The next time they think about throwing litter out on the road or leaving the water on when they are brushing their teeth, I hope that these clubs help them to make some important decisions.” Wright’s philosophy involved the environmental aspects of “taking care of” and conserving natural resources and the social aspect of empowering youth through education to be better decision-makers and thinking about the future.

**TABLE 5-7** Aspects of sustainability identified in Alabama, Oregon, and USDA Extension personnel’s definitions of sustainability (n=68)

<table>
<thead>
<tr>
<th>Aspects</th>
<th>Number</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Sustainability</td>
<td>68</td>
<td>1.0</td>
</tr>
<tr>
<td>Community Well-Being/Quality of Life</td>
<td>52</td>
<td>0.8</td>
</tr>
<tr>
<td>Economic Sustainability</td>
<td>50</td>
<td>0.7</td>
</tr>
<tr>
<td>Water Quality</td>
<td>24</td>
<td>0.4</td>
</tr>
<tr>
<td>Soil Quality</td>
<td>14</td>
<td>0.2</td>
</tr>
<tr>
<td>Recreation</td>
<td>4</td>
<td>0.006</td>
</tr>
<tr>
<td>Endangered Species</td>
<td>1</td>
<td>0.0014</td>
</tr>
</tbody>
</table>

A national survey of agricultural scientists at land-grant universities revealed that they perceive agricultural sustainability as most closely tied to environmental quality
and less tied to economic and social aspects of sustainability (Lyson 1998). The results of our national survey similarly revealed a closer tie to the environmental aspect of sustainability. In addition, Lyson found discipline related diversity in attitudes toward sustainability. In fact, 84% of academics in forestry reported that environment was an important goal above all other dimensions of sustainability, while the social dimension of sustainability was the most important goal above all others for social scientists and economists. The results of our study along with the work of Lyson and others (deGraaf et al. 1996) demonstrate the need for inter-disciplinary, collaborative work in order to achieve a balance of all aspects of sustainability.

Most respondents discussed the integrated nature of sustainable development in the interviews. They viewed sustainability not as a separate program, but more of a component to integrate in existing programs. In a discussion of Extension’s capabilities to implement sustainability in programming, Terry Jones, a National Program Leader in Extension, discussed integration as a key aspect of implementation: “It’s not as if sustainability is a program in itself. Sustainability is really putting together some pieces that already exist. It will probably never be an initiative in itself. It is something that needs to be integrated into a lot of different aspects.” Derek Fleming similarly reflected on this aspect of integration when asked if he draws upon sustainability concepts in his work. An Oregon County Agent for 6 years and a forest landowner, Fleming said, “sustainability... it’s almost like it is so obvious to the agent or to the individual instructing a particular subject area that maybe sometimes it goes unspoken. So if you look on the list of workshops that come out from the agents, you won’t see many that will say ‘sustainability of Oregon’s forests for example,’ but it
comes out in the context of the workshop.” For example, Fleming is part of a team of Extension Foresters who conduct Master Woodland Manager (MWM) training for private woodland owners. The curriculum consists of modules on forest management planning, forest inventory, forest measurements, forest ecology, forest protection, silviculture, fish and wildlife, reforestation, watersheds, logging and access, marketing, and business management. Concepts of environmental and economic sustainability are present in many aspects of the MWM training, yet the term “sustainability” is not used.

While attitudes were generally favorable in support of sustainability as a concept, both national survey and case study respondents felt that there were some terminology issues. An Oregon Extension Specialist for 25 years, Christopher St Clair talked about the problems inherent with terminology: “We have to prove by what we do that we are talking about sustainability. It is a little like family values. I mean everybody would say they are in favor of family values if you don’t put any particular political connotation onto that. Yet I certainly would not write an Extension publication extolling family values because it would immediately get misinterpreted.” Natural Resource Extension Administrators indicated their perceptions about terminology in the survey (Table 5-8).
TABLE 5-8  Natural Resource Extension Administrators' attitudes about "sustainability" as a term

<table>
<thead>
<tr>
<th></th>
<th>(n)</th>
<th>% Agree or Somewhat Agree</th>
<th>% Disagree or Somewhat Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some clientele are suspicious of the term sustainability</td>
<td>101</td>
<td>84.2</td>
<td>11.9</td>
</tr>
<tr>
<td>The concepts of sustainability are useful, but the term is too</td>
<td>101</td>
<td>59.4</td>
<td>40.6</td>
</tr>
<tr>
<td>politically loaded.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainability is too politically controversial to be useful in</td>
<td>101</td>
<td>16.8</td>
<td>82.1</td>
</tr>
<tr>
<td>my work</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Natural Resource Extension Administrators perceived a strong concern from clientele about sustainability ideals, especially environmental and quality of life issues. Adam Cooper, an Extension Specialist in Oregon, described the reaction of the public to sustainability concerns, "I think this whole concept of sustainability of the land and the water resource becomes very significant. We are seeing more and more concern and interest." Cooper expressed his perception of sustainability concerns, "Until Extension faces the issue of natural resource sustainability, if you will, they are in for a bad time because that's what I think people want right now—and I don't think you can exist too long if you don't give people at least partly, what they want." One Alabama extension agent detailed a needs assessment in his county, "We did a pre-program survey of people and there were more than 90% of those survey participants that said they wanted to participate in educational activities that would tell them more about environmental quality and stewardship."
We found that survey respondents felt that their attitudes about sustainability were different from what they perceived as clientele attitudes toward sustainability (Table 5-9). For example, 62% of Natural Resource Extension Administrators believe that clientele see sustainability as just a new buzzword, yet only 19% of the Administrators expressed that view. While nearly seventy percent of survey respondents did not feel that clientele are turned off by sustainability, 58% believed that there are some people who are skeptical and 84% believed that some people are suspicious. Moreover, survey respondents expressed the view that clientele see sustainability as a politically charged (70%) buzzword (62%). Natural Resource Extension Administrators themselves felt that sustainability, while useful, is also a loaded term (Table 5-8). Christopher St. Clair explained: “As a word, it [sustainability] needs to be avoided. I am not likely to use the word sustainability on any publication I write because I think it is a loaded word.”

### Table 5-9  Assessment of clientele perceptions about sustainability by Natural Resource Extension Administrators

<table>
<thead>
<tr>
<th>Perception</th>
<th>(n)</th>
<th>Yes (%)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodland owners identify more with the term stewardship</td>
<td>97</td>
<td>85</td>
<td>16</td>
</tr>
<tr>
<td>The term is politically charged</td>
<td>97</td>
<td>70</td>
<td>30</td>
</tr>
<tr>
<td>It’s a new buzzword</td>
<td>98</td>
<td>62</td>
<td>38</td>
</tr>
<tr>
<td>People are skeptical of sustainability</td>
<td>95</td>
<td>58</td>
<td>42</td>
</tr>
<tr>
<td>Extension might be viewed as having an advocacy position</td>
<td>96</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>The term resonates with the urban public</td>
<td>96</td>
<td>44</td>
<td>54</td>
</tr>
<tr>
<td>Resonates with rural public</td>
<td>93</td>
<td>42</td>
<td>58</td>
</tr>
<tr>
<td>It turns people off</td>
<td>94</td>
<td>28</td>
<td>67</td>
</tr>
</tbody>
</table>

Source: National Survey
Herb Rosland, a county agent in rural Alabama discussed his view, “Just to use the broad term sustainability, I think it would be more confusing to the clientele and the people you are trying to help.” Extension specialist St. Clair described his perception of how the term “sustainability” has become abused and overused such that he focuses on the concepts of sustainability without referring to it by name in his programs and conversations with clientele: “I certainly use the term and the concept [sustainability], but it has become such a potentially charged buzzword, I would rather approach the same material from a different angle.”

A USDA Extension Administrator explained how, “Sustainability is still a four letter word among many colleagues and clientele who remember LISA [Low Input Sustainable Agriculture].” The Sustainable Agriculture Research and Education program, initially called LISA, is a program administered by the U.S. Department of Agriculture to help increase sustainable agriculture knowledge and practice. Some equated sustainable agriculture and reduced chemical inputs with low farm output or a return to the low yields and poor farmers that characterized the 19th century. Alexander Kemp, an Oregon Extension Specialist explained how the traditional agriculture community at his university and the agricultural chemical companies were “up in arms” over LISA. Kemp stated, “There are certainly people within the system that think sustainable agriculture is just a bunch of hot air.” Part of this view is linked to the perception that sustainability, absent of clarification, can mean many things. Kemp, explained the boundless nature of sustainability and why it makes some people uncomfortable:
It's a very difficult paradigm because it has no hard edges. It's so mushy. Anytime you start pushing on it, it just kind of gives—it's spongy. People don't like things that are soft. They like things with nice crisp edges. So when you are really talking about a paradigm rather than something that is a clear set of practices and do's and don'ts, it's a little mushy. People say, 'well this is what we've been doing all along; everything we are doing is sustainable.'

Extension and their clientele appear to be aware and conversant about sustainability topics. However, there was a distinction between sustainability concepts, which Extension found useful, and the terminology, which has been described as “loaded” and “fuzzy.” Survey respondents also perceived that woodland owners identify more with the term stewardship than with the term sustainability. While sustainability is a broader concept with specific parameters, stewardship of natural resources is a subset of sustainability ideals. Egan (1999) found that foresters in the Northeastern United States are influenced more by traditional forestry concepts versus more contemporary concepts such as sustainable forestry and ecosystem management, especially in the private sector. Researchers have also found that attempts to encourage management strategies emphasizing economic incentives and harvesting over forest stewardship have received limited success with non-industrial private forest owners (Bliss 1989; Burke 1989; Rosen and Kaiser 1988; Snyder and Broderick 1992). Bourke and Luloff (1994) found that woodland owners expressed a genuine concern for stewardship values for their forest and their attitudes do not differ greatly from the general public. Since stewardship is an important component of sustainability, education surrounding those topics is essential for both woodland owners and users of the forest resource, including the general public.
Extension's Commitment

What is important about the attitude results is not only the strong support in favor of the concept of sustainability, but the manner in which those attitudes do or do not reflect actual policies and programs in Natural Resources Extension. To investigate this relationship, we examined the actual commitment towards sustainability concepts in programming. To evaluate the commitment level in extension we looked at program inputs (staff, dollars, vision), educational activities (programs), and stakeholder participation (interaction and opportunities for interaction between extension and clientele).

Program Inputs: Budgets and Staffing

To investigate one aspect of Extension's contribution to Natural Resource Extension programming, we looked at staffing and budgets. Understanding that personnel and budgets are necessary conditions to developing Extension programs related to natural resource sustainability, we examined the distribution of extension personnel across the seven base programs in Extension. We specifically looked at those program areas related to our research goal of investigating natural resources sustainability in extension education focusing on the amount of personnel working in the program areas of natural resources, forestry, and sustainable agriculture. Since there is not a “sustainability” program area in Extension, we did not view staffing and budgets dedicated to Natural Resources Extension as a direct measure of Extension’s financial commitment to sustainable natural resource education. Rather, we used it as
a baseline to begin to look at the commitment to natural resources education generally, with the understanding that not all personnel are working on sustainability issues, but likely a subset of them are.

Thirty-four percent of all Extension personnel nationwide deliver educational programming under the agriculture base program (Table 5-10). Some agriculture faculty are working on issues related to sustainability such as the environment, water quality, soil quality, waste management, and air quality (Brown 1999). Nationwide, in 1997, 713 Extension personnel were classified under the auspices of sustainable agriculture, 752 were classified under water quality, and 255 were classified under the Renewable Resources Extension Act (Hewitt 2000). In 1997 figures, this Extension contingent working in the area of natural resources accounts for 12% of total extension personnel. A subset of the Natural Resource and Environmental Management base program, there are about 350 Forestry Extension professionals nationwide that account for less than three percent of Extension personnel nationwide (Reed et al. 1996).
TABLE 5-10  Allocation of Extension staff (agents, specialists, administrators) among base programs

<table>
<thead>
<tr>
<th>Base Program Area</th>
<th>Number of Full-Time Equivalents</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>5452.7</td>
<td>34.1</td>
</tr>
<tr>
<td>-Includes Sustainable Agriculture</td>
<td>713¹</td>
<td>4.9</td>
</tr>
<tr>
<td>4-H and Youth Development</td>
<td>2907.2</td>
<td>18.2</td>
</tr>
<tr>
<td>Community Resources and Economic Development</td>
<td>1853.6</td>
<td>11.6</td>
</tr>
<tr>
<td>Natural Resources and Environmental Management</td>
<td>1721.0</td>
<td>10.8</td>
</tr>
<tr>
<td>-Includes Forestry</td>
<td>350.0ᵇ</td>
<td>2.2</td>
</tr>
<tr>
<td>Nutrition, Diet, and Health</td>
<td>1525.90</td>
<td>9.6</td>
</tr>
<tr>
<td>Leadership and Volunteer Development</td>
<td>1301.4</td>
<td>8.1</td>
</tr>
<tr>
<td>Family Development and Resource Management</td>
<td>931.2</td>
<td>5.8</td>
</tr>
<tr>
<td>Other</td>
<td>279.2</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15,972.2</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>


¹ Number of Cooperative Extension personnel classified as Sustainable Agriculture, 1997

² From Reed et al. (1996)

Oregon has the largest Forestry Extension Program in the nation and their financial commitment to Forestry and Natural Resources is substantial. Oregon Extension commits nearly one million more dollars annually to Natural Resource Extension education than Alabama (Table 5-11). This is a large commitment.
considering Oregon's population (3.3 million) is about two-thirds of Alabama's (4.4 million). However, examining those figures in the context of the entire extension system reveals a pattern common to both Alabama and Oregon: agriculture remains the program area that claims large percentages of extension funds in both states (Table 5-11).

### TABLE 5-11 Expenditures by Program Area, Oregon State University Extension Service (FY 98) and Alabama Cooperative Extension System (FY 99)

<table>
<thead>
<tr>
<th>Program Area</th>
<th>Oregon Dollars</th>
<th>Percent</th>
<th>Alabama Dollars</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>12,341,831</td>
<td>49</td>
<td>15,816,432</td>
<td>34</td>
</tr>
<tr>
<td>Home Economics/Family</td>
<td>3,856,822</td>
<td>15</td>
<td>16,016,640</td>
<td>34</td>
</tr>
<tr>
<td>4-H/Youth Development</td>
<td>5,656,672</td>
<td>22</td>
<td>6,653,424</td>
<td>14</td>
</tr>
<tr>
<td>Urban Programs</td>
<td>n/a</td>
<td>n/a</td>
<td>3,650,304</td>
<td>8</td>
</tr>
<tr>
<td>Forestry &amp; Natural Resources</td>
<td>3,599,699</td>
<td>14</td>
<td>2,779,632</td>
<td>6</td>
</tr>
<tr>
<td>Community Resource Dev.</td>
<td>n/a</td>
<td>n/a</td>
<td>1,643,568</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>25,712,148</td>
<td>100</td>
<td>46,560,000</td>
<td>100</td>
</tr>
</tbody>
</table>


The dominance of the agriculture in extension staffing has several implications. Agriculture has long been criticized in Extension for focusing on production. Part of natural resources sustainability is broadening the focus beyond production and recognizing social and environmental values. Meyer (1997) noted that land grant
universities must incorporate a wider definition of agriculture, beyond just agricultural production, to encompass environmental management of all lands. McDowell (1991) asserted that the budget for Extension has been disproportionately committed to the agriculture community and the benefit farmers and ranchers. Most land grant university administrators, consultants, and researchers that were part of a recent study said environmental issues will be the driving force for land grant Colleges of Agriculture and 94% stated that environmental interests should be the clientele (Meyer 1995). Yet analysis of budget and staffing documents, does not reveal that this change has taken place. This provides evidence that a balance needs to be found between dollar and staffing allocations among program areas in Extension. If we use staffing as a way to begin to measure of commitment to natural resource sustainability education, then the commitment to Forestry and Natural Resources is still smaller when compared to other program areas, particularly in Alabama.

Without staff trained in other program areas, it will be difficult to conduct broader programming that addresses sustainability concepts. The traditional program areas of Agriculture and Home Economics also carry with them a set of skills and expertise which some say need to be broadened. At a 1992 Rural Sociological Society meeting held at Penn State University, the former Dean of Agriculture and Director of Extension in Nevada explained his viewpoint (Ladewig 1993).

When I went to Nevada, about 90% of the people in the field in Extension work had degrees in animal science, agronomy, or home economics. It's probably 15% today. We have hired very few home economists, animal scientists, or agronomists because we had plenty.

We are desperately in need of more social scientists in Extension nationally... we have tripled our social scientists in the past few years. I
think that is very positive. Why? You are trained differently; you think
differently. One of the things that we used to do in our state was
require a background in agriculture or home economics for every
Extension job. We took that out of our job description eight years ago,
and it has made a difference.

The above comments illustrate the difference that academic training can make in
broadening the scope of Extension education to become more holistic. Seeking out
different backgrounds, outside of agriculture, is viewed by some as a necessity to
moving Extension ahead.

Educational Programming in Natural Resources Extension

We measured institutional commitment to sustainability by examining the
characteristics of programs conducted by agents and specialists in Natural Resources
Extension. On the survey, we gave respondents a list of 26 program components
related to social, economic, and environmental aspects of sustainability. For each
program related to sustainability, respondents were asked to rate program priority and
funding on a scale of 1 to 5, with 1 being low priority/no funding and 5 being high
priority/adequate funding. We performed paired t-tests to compare the means of the
priority and funding variables on each of the 26 program components (Table 5-12).

In all cases but one, the mean for program funding was significantly lower than the
mean for program priority on those same components. The top five sustainability-
related programs listed as highest priority were watershed health, best management
practices, small landowner workshops, wildlife management, and forest management
planning (Table 5-12). Small woodland owners are the major audiences for extension
faculty at both the county and state levels (Reed et al. 1996). Therefore, the high
priority levels placed on working with small landowners reflect current trends and
practices in Forestry Extension. However, the emphasis on water resources education
is a more recent focal point of Extension Education. New York Natural Resource
Extension educators similarly ranked water resources education above other program
areas in terms of importance (Schneider and Smallidge 2000).
TABLE 5-12  Relationship between funding and priority levels for 26 natural resource program components, as indicated by Natural Resources Extension Administrators

<table>
<thead>
<tr>
<th>Component</th>
<th>n</th>
<th>Priority (mean)</th>
<th>Funding (mean)</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watershed health</td>
<td>91</td>
<td>4.20</td>
<td>3.20</td>
<td>8.40</td>
<td>.000</td>
</tr>
<tr>
<td>Best management practices</td>
<td>91</td>
<td>4.19</td>
<td>3.12</td>
<td>10.08</td>
<td>.000</td>
</tr>
<tr>
<td>Small landowner workshops</td>
<td>92</td>
<td>4.05</td>
<td>3.30</td>
<td>6.89</td>
<td>.000</td>
</tr>
<tr>
<td>Wildlife management</td>
<td>92</td>
<td>3.88</td>
<td>3.01</td>
<td>7.86</td>
<td>.000</td>
</tr>
<tr>
<td>Forest management planning</td>
<td>92</td>
<td>3.61</td>
<td>2.84</td>
<td>6.92</td>
<td>.000</td>
</tr>
<tr>
<td>Community well-being</td>
<td>91</td>
<td>3.60</td>
<td>2.71</td>
<td>7.79</td>
<td>.000</td>
</tr>
<tr>
<td>Sustainable forestry</td>
<td>91</td>
<td>3.57</td>
<td>2.89</td>
<td>5.89</td>
<td>.000</td>
</tr>
<tr>
<td>Forest profitability</td>
<td>89</td>
<td>3.51</td>
<td>2.67</td>
<td>8.31</td>
<td>.000</td>
</tr>
<tr>
<td>Watershed planning</td>
<td>91</td>
<td>3.48</td>
<td>2.87</td>
<td>5.58</td>
<td>.000</td>
</tr>
<tr>
<td>Urban forestry</td>
<td>90</td>
<td>3.44</td>
<td>2.87</td>
<td>4.72</td>
<td>.000</td>
</tr>
<tr>
<td>Forest regeneration</td>
<td>86</td>
<td>3.41</td>
<td>2.94</td>
<td>3.02</td>
<td>.003</td>
</tr>
<tr>
<td>Forest health</td>
<td>91</td>
<td>3.40</td>
<td>2.73</td>
<td>5.83</td>
<td>.000</td>
</tr>
<tr>
<td>Public issues education</td>
<td>90</td>
<td>3.40</td>
<td>2.53</td>
<td>7.19</td>
<td>.000</td>
</tr>
<tr>
<td>Production forestry</td>
<td>92</td>
<td>3.34</td>
<td>2.91</td>
<td>3.51</td>
<td>.001</td>
</tr>
<tr>
<td>Economic diversification</td>
<td>90</td>
<td>3.28</td>
<td>2.68</td>
<td>4.36</td>
<td>.000</td>
</tr>
<tr>
<td>Forest products marketing</td>
<td>91</td>
<td>3.27</td>
<td>2.55</td>
<td>6.91</td>
<td>.000</td>
</tr>
<tr>
<td>Public forestry education</td>
<td>89</td>
<td>3.24</td>
<td>2.60</td>
<td>6.09</td>
<td>.000</td>
</tr>
<tr>
<td>Timber harvesting</td>
<td>91</td>
<td>3.19</td>
<td>2.56</td>
<td>6.53</td>
<td>.000</td>
</tr>
<tr>
<td>Ecological health</td>
<td>91</td>
<td>3.18</td>
<td>2.45</td>
<td>6.09</td>
<td>.000</td>
</tr>
<tr>
<td>Youth forestry education</td>
<td>92</td>
<td>3.18</td>
<td>2.58</td>
<td>5.52</td>
<td>.000</td>
</tr>
<tr>
<td>Empowerment of local communities</td>
<td>91</td>
<td>3.14</td>
<td>2.37</td>
<td>6.96</td>
<td>.000</td>
</tr>
<tr>
<td>Ecosystem management</td>
<td>89</td>
<td>3.10</td>
<td>2.52</td>
<td>4.94</td>
<td>.000</td>
</tr>
<tr>
<td>Collaborative learning</td>
<td>90</td>
<td>2.90</td>
<td>2.22</td>
<td>6.63</td>
<td>.000</td>
</tr>
<tr>
<td>Biodiversity conservation</td>
<td>90</td>
<td>2.88</td>
<td>2.33</td>
<td>4.48</td>
<td>.000</td>
</tr>
<tr>
<td>Public participation in forestry</td>
<td>91</td>
<td>2.69</td>
<td>2.15</td>
<td>5.36</td>
<td>.000</td>
</tr>
<tr>
<td>Forest roads</td>
<td>91</td>
<td>2.32</td>
<td>2.22</td>
<td>.731</td>
<td>.467</td>
</tr>
</tbody>
</table>

The results in table 5-12 also revealed an interesting finding about how Natural Resource Extension Administrators view sustainability and its components. Respondents ranked “Best Management Practices” as high educational priority, yet
forest roads and biodiversity were ranked as low priority—biodiversity and forest roads are all part of the Best Management Practice framework. In addition, respondents ranked wildlife management as a top-five educational priority, yet biodiversity conservation and ecosystem management came out in the bottom of the ranking. Lyson (1998) similarly found those agriculture faculty who subscribe to sustainability as an important goal do not necessarily subscribe to all the underlying dimensions (social, economic, environmental). In addition, he found that sustainability is not simply an aggregate of the three components, such that those that felt the environmental sustainability was an important goal didn’t necessarily believe that agricultural sustainability was an important goal. Our results mirror those found by Lyson (1998) in that a wide range of views are represented among those Natural Resource Extension Administrators that support the concept sustainability.

Stakeholder Participation

The last component in our three-stage program evaluation model is stakeholder participation. Our Common Future describes participation as improving the degree and quality of participation of previously disempowered groups. As applied to Extension, this involves examining clientele participation in Extension programming and planning. We examined the extent to which non-traditional clientele—clientele that haven’t traditionally been engaged—are involved in Extension. Non-traditional clientele have been described as minorities, small landowners, environmental groups,

While most survey respondents felt that both local communities and environmental groups were engaged in the extension planning process (Table 5-13), this was not the sentiment expressed in the interviews. Susan Fosse, a highly ranked USDA Extension Administrator said, “They[environmental groups] have never felt that there has been [pause]... well the industry has always had a place to go in the Department. But environmental NGOs, small farmers, sustainability people, none of these people have ever felt that they had anyone at USDA who would listen to them.” An Oregon Agent agreed, “We don’t really work with any environmental organizations per se and haven’t had a lot of correspondence with any environmental organizations even though we would love to.” An Oregon Sustainable Agriculture Extension Specialist cautioned, “We are extraordinarily careful in working with these non-profit environmental groups because they’ve got their own agendas and it is not necessarily our agenda.” That sentiment was echoed at the county level. When asked if environmental groups participate in extension programs one agent responded, “Not really, they have their own agenda, their own programs.”
Not all expressed this apprehension toward environmental groups and other non-traditional clientele. An urban Alabama Extension Agent, George Barish described how he fosters relationships with environmental groups in the area. “We [extension] try to pride ourselves in bringing unbiased scientific research based information to the table. Most of these groups are not afraid of that because some of the time— but not always— [it] bolsters their argument. So they are receptive to getting Extension’s help. So we have a good working relationship with environmental groups. The programs we have here like forestry are attended by environmental groups. They read about us in the paper. Every week we usually have 2 or 3 articles pertaining to forestry, or stormwater, or erosion, or sedimentation, or related topics. I make individual contacts— so the environmental groups hear about us and know we [extension] are here.”

Minorities represent another group in the category of non-traditional Extension clientele. Over twenty years ago, Hightower (1973, p. 118) asserted that the Extension
Service's record of working with minorities was probably the "worst in government."

In 1999, USDA made history by awarding Black farmers the largest racial
discrimination settlement in federal history for allegedly denying Black farmers
technical and financial assistance that was afforded to others (Fletcher 1999). Thus
USDA, and Extension as one its agencies, has some credibility and trust issues with
African-Americans. The work of Walton (1999) demonstrated this challenge. Walton
assembled a list of Alabama citizen groups organized around sustainability topics and
examined their relationship with the state Extension system. One such group was the
Federation of Southern Cooperatives, a non-profit group whose work focuses on land
retention and development for family farms in the South, especially those owned by
African Americans. When Walton asked whether their group had any contact with the
Alabama Cooperative Extension System (ACES) a senior officer in the Federation
responded as follows.

We have worked with some local agents of ACES in Greene, Sumter
and surrounding counties, but we have never had a real institutional
relationship, based on mutual trust and recognition, with the ACES and
Auburn University. We have received a small amount of help recently
on our forestry program and outreach to small woodlot owners. In fact,
we have the general impression that Auburn would prefer if all small
family-sized farmers, especially Black farmers, were to disappear, as soon
as possible!

In Alabama, there are over one hundred citizen groups concerned with natural
resource and environmental quality in the state. The majority of the organizations are
structured around water resources, forestry, wilderness, and wildlife issues (Bailey et al.
2000)—areas in which Natural Resources Extension personnel have expertise. This
result becomes even more significant in light of our finding that Natural Resource Extension Administrators view environmental groups as having the highest demand for educational programs related to sustainability.

We found a lack of racial and gender diversity among Natural Resource Extension Administrators around the country (Table 5-14). Aspects of culture and ethnicity (Bliss and Martin 1989; Hansis 1996; Jostad et al 1996; Rikoon 1996; Salazar and Moulds 1996; Endter-Wada and Levine 1996) and gender (Steger and Witt 1989; Mellor 1996; Bauer 2000) have been found to influence decisions about natural resource use and management. This has implications for sustainability education, since diverse backgrounds can help a discipline better prepare for the variety of issues and problems that it faces (Brandt and Ahearn 1993). For example, women have been socialized to be more compassionate, nurturing, and protective than men (Macoby and Jacklin 1974; Weitzman 1984), which some believe leads to a stronger environmental ethic (Milbrath 1984). Others argue that forms of economic, social, and political subordination present in this and other countries will continue to exclude marginalized groups (on the basis of “skin color, religion, culture, ethnicity, or any alternative conception of otherness” p. 72) from the sustainability debate (Agyeman and Evans 1996). Similarly, ecofeminism posits that the social domination of women is inherently connected with man’s domination over nature and the subsequent dualism has led to unsustainable development (Mellor 1996). Without the perspectives of women and various cultures and ethnicities, the discourse around sustainability and sustainability education will be void of the very participation that the tenets of sustainable development advocate.
TABLE 5-14  Descriptive characteristics for national survey respondents

<table>
<thead>
<tr>
<th>Position*</th>
<th>(n)</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension Specialist</td>
<td>152</td>
<td>50</td>
<td>33</td>
</tr>
<tr>
<td>Forestry or Wood Products Program Leader</td>
<td>35</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>NREM Base Program Coordinator</td>
<td>29</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Ag and Natural Resources Program Leader</td>
<td>27</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Department Head</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Extension Director</td>
<td>4</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Other Admin</td>
<td>4</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Highest Education Level</td>
<td>101</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Bachelor</td>
<td>29.7</td>
<td>30.7</td>
<td></td>
</tr>
<tr>
<td>Masters</td>
<td>69.3</td>
<td>69.3</td>
<td></td>
</tr>
<tr>
<td>Doctorate</td>
<td>1</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Discipline of Highest Degree</td>
<td>101</td>
<td>32</td>
<td>31.7</td>
</tr>
<tr>
<td>Agriculture b</td>
<td>52</td>
<td>51.5</td>
<td></td>
</tr>
<tr>
<td>Natural Resources c</td>
<td>17</td>
<td>16.8</td>
<td></td>
</tr>
<tr>
<td>Other d</td>
<td>100</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Age</td>
<td>21</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>26-35</td>
<td>52</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>46-55</td>
<td>24</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>56-65+</td>
<td>97</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td>101</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>White, European-American</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Asian-American</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Middle Eastern</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>African-American</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>101</td>
<td>91</td>
<td>90.1</td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
<td>9.9</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>152</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* respondents often reported holding multiple positions, hence the double-counting (i.e. Extension Specialist and Forestry Program Leader)

b ag sciences, ag economics, ag education
c forestry, wildlife, fisheries, environment
d engineering, liberal arts, business
Thus, non-traditional clientele groups have educational needs that are not being served and the participation aspect of sustainability outlined in our framework falls short of being met.

Challenges to Incorporating Sustainability in Natural Resource Extension Programs

We have presented the results with regard to awareness of and commitment to sustainability in Extension Education and now move on to a discussion of challenges. Major impediments to incorporating sustainability in Natural Resource Extension programming were lack of staff, lack of funds, and the historical focus of Extension on narrow interests.

Funding and Staffing

In the national survey, we asked Natural Resources Extension Administrators about the challenges to implementing sustainability in Natural Resource Extension programs. All of the challenges presented to respondents were at least modest, if not big challenges to overcome (Table 5-15). Over half of the respondents identified budgets and staffing as “big challenges.” In fact, 72% of respondents characterized lack of staff to conduct expanded programming as a big challenge. A little over half of Natural Resource Extension Administrators leaders saw lack of awareness and interest by clientele (58%), Extension (51%), and the general public (54%) as modest challenges, revealing that respondents perceive a general awareness about sustainability
from both the public and extension. Forty-nine to fifty-three percent of respondents perceived “lack of clarity” and “difficulty defining” as modest challenges to implementing sustainability in Natural Resource Extension programming. In addition, 46% of respondents viewed lack of Federal Extension partner (CSREES) leadership in the area of sustainability as a modest challenge.

**TABLE 5-15** Perceived challenges to implementing sustainability in natural resource extension programs as identified by Natural Resource Extension Administrators in national survey

<table>
<thead>
<tr>
<th></th>
<th>(n)</th>
<th>Big Challenge (%)</th>
<th>Modest Challenge (%)</th>
<th>Not A Challenge (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Budget/Staffing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of staff to conduct expanded programming</td>
<td>95</td>
<td>71.9</td>
<td>24.0</td>
<td>4.2</td>
</tr>
<tr>
<td>Lack of funding</td>
<td>95</td>
<td>56.8</td>
<td>38.9</td>
<td>4.2</td>
</tr>
<tr>
<td>Lack of time</td>
<td>96</td>
<td>56.3</td>
<td>41.7</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Confusion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of clarity around what sustainability means</td>
<td>96</td>
<td>19.8</td>
<td>53.1</td>
<td>27.1</td>
</tr>
<tr>
<td>Difficulty defining sustainability</td>
<td>96</td>
<td>13.5</td>
<td>49.0</td>
<td>37.5</td>
</tr>
<tr>
<td><strong>Awareness/Interest</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of interest by general public</td>
<td>96</td>
<td>31.3</td>
<td>54.2</td>
<td>14.6</td>
</tr>
<tr>
<td>Lack of awareness by extension constituencies</td>
<td>95</td>
<td>28.4</td>
<td>57.9</td>
<td>13.7</td>
</tr>
<tr>
<td>Lack of awareness by extension faculty</td>
<td>95</td>
<td>14.7</td>
<td>50.5</td>
<td>34.7</td>
</tr>
<tr>
<td><strong>Leadership from CSREES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of federal partner (CSREES) leadership</td>
<td>95</td>
<td>15.8</td>
<td>46.3</td>
<td>37.9</td>
</tr>
</tbody>
</table>

Lack of time, staff, and funding were also identified as major obstacles by interviewees, particularly Alabama (Table 5-16). This was one of the major contrasts in the Alabama and Oregon case studies. Lack of staff was identified as a major challenge by over 70% of Natural Resources Extension personnel in Alabama compared to only 55% in Oregon.
TABLE 5-16  Challenges to implementing sustainability in natural resource extension programs as identified by interviewees (n=68)

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Staff</td>
<td>46</td>
</tr>
<tr>
<td>Lack of Funding</td>
<td>33</td>
</tr>
<tr>
<td>Lack of Time</td>
<td>40</td>
</tr>
<tr>
<td>Lack of Information/Training</td>
<td>24</td>
</tr>
<tr>
<td>Lack of Administrative Support</td>
<td>20</td>
</tr>
</tbody>
</table>

One Alabama County Extension Coordinator discussed time constraints with doing work, "I spend a lot of time on natural resources, but most of that is spent after work because I don’t have time to do it during work." While natural resources education was important to this County Coordinator, he was relegated to doing this after hours because it exceeded the amount of time he could spend on it during the normal work hours due to his other responsibilities in non-natural resource areas. Langley Hughes, an Alabama Extension Agent, discussed some of the hardships he has endured due to time constraints on the job and even touches on his perceptions of other agents’ experiences with lack of time.

My wife used to say I was never at home. I’ve heard several other agents wives’ say it too—that they spend too much time on the job. It’s easy to do when you are expected to do a lot and there are always opportunities to do so much more. You have to say no a lot. It is rare that anything ever goes away once it is started. They [Extension] don’t usually take any programs away. They are always just adding more. No job is perfect, but I like extension work. I like what I do.

The time constraints described by Alabama county agents are related to the extensive downsizing that has happened in the Extension System there. Buddy
Timberlake, an administrator in the state said, "Ten years ago we had over 400 agents; today we have 226. We don't have as many to go around." The downsizing has led to a consolidation of positions accompanied by broader job responsibilities for remaining agents. Listening to Walter Rawlins describe his job responsibilities typifies the description offered by many ANR (Agriculture and Natural Resource) agents in Alabama: "I have responsibilities in areas of animal and dairy science, forestry, aquaculture, small ruminants, water quality. Those are the basic ones but I have nine different categories that I work in." Rawlins laughed, "We could talk three hours about that." However, the personnel issue is a serious matter and is correlated to the funding constraints that precipitated the downsizing.

Alabama County agent Bob Balanchine is a leader in conducting forestry education programs in his state and this subject area was clearly a high priority for him in his county. However, Balanchine reluctantly admitted, "I am not willing to say that Extension needs to jump into a lot more forestry type programs because of resources. I mean we don't have the resources to spend a whole lot more time into anything when we are downsizing. There is no area where we can do a lot more than we have in the past."

Program funding levels were also identified as a challenge from survey respondents. When we asked Natural Resource Extension Administrators to rank program priority and funding for 26 program components related to sustainability, in all cases but one the mean for program funding was significantly lower than the mean for program priority on those same components. Is the statement that Extension does not have enough time or money truth or a coalesced response from a
bureaucracy attempting to justify continued relevance and budget share? The expressed lack of time and money to conduct expanded programming is partially explained by downsizing that has occurred.

The document analysis revealed that Extension in both Oregon and Alabama has undergone significant restructuring and downsizing in the past. Between 1998 and 2000, the Alabama Cooperative Extension system eliminated or reconfigured over 80 positions (9 administrators, 13 specialists, 47 field-based educators, and 11 support staff) (ACES Prioritization and Redirection Plan 1999c). In 1998, the Alabama Cooperative Extension System was faced with a budget shortfall of over $1 million due to a 7.5% across the board cut to higher education in 1995-1996 (Jones 1998). Oregon extension similarly reorganized in 1995, resulting in similar position reconfiguration and elimination.

A look at the federal Extension partner similarly revealed a lack of financial support to Natural Resources Education, which is the starting point for education addressing natural resource sustainability. Extension (CSREES) was one of the weakest USDA agencies in terms of funding about three decades ago (Hightower 1973) and only comprised 1% of total program level spending for USDA agencies for the 1999 fiscal year (USDA 2001 Budget Summary). As the federal dollar contribution to the Cooperative Extension System has been shrinking, states have been forced to take on a larger financial responsibility for funding Natural Resources Extension Education. Between 1970 and 1992, federal funding for Cooperative Extension services decreased from 42% to 29% of total funding, with the remainder being made up by county and funds (Figure 5-2).
Figure 5-2  Sources of Funds for Cooperative Extension Work, 1970 and 1992


The Renewable Resources Extension Act (RREA), which is the federal funding mechanism for Natural Resources Extension has received weak financial support since its inception, requiring the states to leverage their allocations to build successful programs. RREA’s first appropriation was $2 million in 1982. It is barely over $3 million 18 years later. In addition, RREA was absent from the President’s budget up
until 1994, requiring yearly efforts to get the funds put back in at the Congressional committee level. The combined total of all appropriations for RREA since it was passed in 1978 is $53 million (USDA 1986; Nelson 2000). That figure is less than the annual amount USDA spends on grain and stockyard inspection alone (USDA Budget Summary 2001). Brown (1999) noted how the words “natural resources” were absent from the 1997 CSREES strategic plan (Brown 1999). In 1999, a highly-ranked USDA Extension Administrator explained experiences with RREA and the budget process:

A few years back in 1997, the Congress cleaned up and they were sweeping up all these small programs and they said let’s get rid of all these small programs and create a couple of big ones... and one of the small ones that they wanted to eliminate was RREA; so we are sitting here and the budget numbers come by and I remember... my face went white and then red— they had zeroed out RREA!... and they did this without any participation or contribution from program level or at my level and I am a [high-ranking administrator]! I was pissed and made no bones about it and it was one of the few times I engaged in a screaming match with the leadership of this agency, I pretty much told them that this will not stand... RREA went, just like that [snaps finger].

Another Extension Administrator, Adam Andrews, asserted, “I think our Administration primarily looks at natural resources as something that they sort of have to do because there is enough interest out there that they would get a lot of concern and complaints if they didn’t [do it]-but they don’t want to make a large investment. The Department’s [USDA] basic objective is agriculture and agricultural production.” Andrew’s perseverance is apparent, “I always continue to fight and try to get more funds for natural resources but it is very difficult primarily when most of your Administration is ag discipline oriented and have agriculture background.” The document analysis revealed that out of the 86 State Extension Service Directors and
Administrators around the country, only 3 come from a forestry and wildlife academic discipline, while 49 have an academic background in agriculture (Table 5-17).
TABLE 5-17  Academic disciplines of State Extension Service Directors and Administrators

<table>
<thead>
<tr>
<th>Academic Discipline</th>
<th>(n)</th>
<th>Percent of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ag Economics</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Plant/Soil Science/Agronomy</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Ag Education</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Horticulture/Crop Science</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Animal Science</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Ag Engineering</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Entomology</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Vet Medicine</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Range Management</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Rural Sociology</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>47</td>
<td>56</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extension/Adult/Vocational Education</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Education/Extension Administration</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>20</td>
<td>24</td>
</tr>
<tr>
<td>Family and Home Economics Total</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Subtotal</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Forestry and Wildlife</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silviculture</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Wildlife Biology</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Forest Ecology</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Speech Communications</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Dentistry/Biology</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Resource Development</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Management/Finance</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sociology</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>84</td>
<td>100</td>
</tr>
</tbody>
</table>

Agriculture is the mainstay of both the CSREES and USDA budgets. One Extension Administrator exclaimed that, “support from CSREES in natural resources is a joke.” As states and counties have been providing an increasingly greater percentage of extension funding, it is likely that leadership will likely come from this level with regard to programming. The handful of Natural Resource National Program Leaders in Washington are in a state of continually fighting for resources for the Natural Resource and Environmental Management Program Area. It is difficult for these Program Leaders to be visionary when the budgetary legs of their programs are unstable. Despite these difficulties, there has been innovation from National Program Leaders in addressing the social, environmental, and economic aspects of sustainability including 1) funding for a Sustainable Forestry Partnership Coordinator, 2) funding for a national project on quality of life, 3) establishing a distribution system for sustainable agriculture information targeted to small farmers.

The case studies revealed Natural Resource Extension programs in both Alabama and Oregon are incorporating sustainability concepts. A perusal of the Journal of Extension similarly reveals that Extension Educators around the country are beginning to think about Extension Education from a more holistic perspective. However, the innovations in the case studies appeared to occur without USDA funding. In the words of an Extension Administrator, “CSREES doesn’t appear to have a coherent, holistic vision for the Natural Resources Program [which] severely inhibits programming.” Most natural resource extension programs that fully incorporated the social, environmental, and economic aspects of sustainability in Oregon and Alabama required outside funding to implement. One state-level administrator in Natural
Resources Extension offered a perspective about support for sustainability, "Like most new concepts, without an infusion of new funds it's difficult to turn the ship around and begin programming in the new areas. To some degree, the push on sustainability is something like that."

**Historical Focus on Agriculture**

While not identified as a major challenge by Extension personnel in Oregon, Alabama Extension workers felt that the state's historical orientation of Extension toward agriculture interests was an impediment to conducting programming in natural resources and related areas of sustainability. Our document analysis involved a historical check of extension planning and reporting documents, revealing the well-documented and long-standing need for increased extension work in the area of the environment and natural resources.² Yet the same recommendations and concerns surface repeatedly, suggesting they have not yet fully addressed by extension. Why is that? The answer lies in the Extension constituency and bureaucracy.

As a bureaucracy, the United States Department of Agriculture and its agencies have two main sources of power: expertise and constituency support (Rourke 1984; Clarke and Mc Cool 1996; Wood and Waterman 1994). These sources of power are at the heart of a bureaucracy's survival. For example, the now defunct Office of Economic Opportunity was, in part, eliminated for want of strong constituency and

political support (Clarke and McCool 1996). USDA was founded upon dependence on clientele (Lowi 1969). Citizen groups enjoy receiving the benefits that bureaucracies provide, become dependent on them, and are reluctant to give them up. Indeed, Extension has a rural and farm clientele base that has provided tremendous support. A 1995 national survey of the general public found that wealthy, educated, whites who live on farms are more likely than their less educated, poorer, urban counterparts to have used extension services or have participated in its programs, neatly delineating the traditional extension constituency (Christenson et al. 1995).

In the face of citizen mistrust of government agencies (Weiss 1980), there is risk involved with working with non-traditional clientele, because the consistency and efficacy of their political support is not known. In addition, limited constituencies such as disadvantaged socioeconomic groups can offer an agency little support (Clarke and McCool 1996). In fact, women and minorities ranked 32nd in a survey of the forty most influential interests in the United States, while insurance interests such as ALFA (Alabama Farmers Federation) ranked 7th and farm organizations such as the Farm Bureau ranked 13th (Thomas and Hrebenar 1996). Seven states, Alabama, Florida, Louisiana, New Mexico, Nevada, South Carolina, and West Virginia demonstrated the highest degree of interest group dominance in state politics (Thomas and Hrebenar 1996). Furthermore, the Alabama Farmers Federation ranked among the most effective interest groups in the state of Alabama (Hrebenar and Thomas 1992).

Thus, the fact that some farmers and cattlemen say that Extension is straying too far from its mission and traditional role as “teacher to the countryside” (GAO 1981, p. 15) has great meaning coming from such an influential segment of society. In 1998,
the ACES Task Force on Extension Agriculture, chaired by a member of the Alabama Farmers Federation, issued a stinging conclusion that “the Extension System in Alabama is NOT effectively serving the state’s large or small commercial agriculture community today” (ACES 1998, p 2). An Alabama Forestry Extension Specialist explained the power of special interests in Alabama, “There were some ag entities in the state who have always been very influential and pretty much been used to having the ear of the Extension Director and being able to strong-arm and have things run the way they wanted it run.” One Alabama county agent explained how the role of Extension has changed to the dismay of traditional Extension clientele who have come to depend on the organization.

I know that in the past, the county agent was well known in the community, especially in the rural areas. Their job was agriculture. There wasn’t teen pregnancy and whatever other issue we work with. So the farmers were used to that, and very dependent on that for information... when farmers come in they expect somebody to be here. They expect somebody to be here with an answer and they get bent out of shape. You can’t tell them, ‘well I’m working on this program today and I don’t have time to see clients one after another. I don’t have time to work on your dying soybeans.’ It causes problems sometimes because they’re still thinking in the old days when our main job was agriculture.

Despite the declining relative importance of agriculture in the census and the economy, agricultural interests still possess political power because of their long-term symbiotic relationship with government and the importance of agricultural commodities (Hrebenar 1997). Forest landowners outnumber farmers 5:1, yet agriculture has political power and influence well beyond its numbers. The political institutions that support extension make it difficult to garner input and participation
by diverse groups in extension education programs. Increasing services to non-traditional clientele involve, to some degree, reduced educational services to traditional clientele groups. This makes it a particularly difficult position for Extension because loss of support from traditional audiences, could translate into decreased political support and subsequent funding.

**Discussion and Recommendations**

We conducted a study to research Extension's awareness of and commitment to education about natural resources sustainability using a framework which examined sustainability in Extension program inputs, program activities, and program participation. While we found unified philosophical support for natural resources sustainability education at the county, state, and national levels, this support was not reflected in the actual commitment as measured by funding, staffing, and programming. Natural Resource Extension Administrators around the nation viewed educational programming on sustainability topics such as watershed management as top priority, but the funding for programs was not consistent with the priority level. Also, while they supported sustainability concepts, less than half of Natural Resource Extension Administrators defined sustainability in terms of all three major components: economic, social, and environmental. Major challenges identified were lack of staff, time, and the historical focus of Extension on narrowly defined agricultural interests.
Based on our evaluation of Extension’s awareness level, inputs, and participation, we conclude that the following outcomes are necessary for Extension to address natural resource sustainability through its educational programs:

1) recognition that sustainability encompasses environmental, economic, and social aspects that must all be addressed in natural resources extension education

2) financial commitment from USDA Extension leadership to natural resources education in extension

3) redirection of extension resources away from production agriculture and toward natural resources and sustainable agriculture programming and staffing

4) engagement of non-traditional clientele in extension programs and program planning

With two million farmers in the United States (USDA 1994) and 10 million forest landowners (Birch 1996), dedicating only 3 percent of Extension staff to forestry extension work does not represent a substantial commitment to the tenets of natural resource sustainability education. If the philosophical commitment to sustainability is to become a reality for extension, limited resources must be retargeted. One way of shifting resources is through re-training and professional development with existing employees. We found that education for sustainability was a priority for Natural Resource Extension Administrators around the country and we will likely see more
emphasis from the states in this area. Leadership and support from Extension Administrators were key components to conducting innovative natural resource education. Natural Resource Extension provides a framework to build upon and expand current work with non-traditional audiences such as small farmers and forest owners, environmental groups, and urban residents, but current efforts are piecemeal. Engaging these groups in extension can yield new and bold leadership and collaboration in areas such as resource management, community revitalization, and environmental sustainability. Since the U.S. public is increasingly concerned with topics related to communities, environment (Schneider and Smallidge 2000), and natural resources (National Research Council 1996), Extension’s response to these concerns at the federal, state, and county levels will define the future of this educational partnership and whether it will become a source of education for all Americans.
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CHAPTER 6

AWARENESS AND COMMITMENT TO SUSTAINABILITY:
CASE STUDIES OF
NATURAL RESOURCE EXTENSION PROGRAMS
IN ALABAMA AND OREGON

Shorna R. Broussard and John C. Bliss

In Preparation for Journal of Forestry
Abstract

Today's landowners, citizens, and natural resource professionals are increasingly concerned about issues surrounding resource sustainability. Charged with addressing societal concerns through education, Cooperative Extension is uniquely capable of meeting educational needs related to natural resource sustainability. In this research, we examined the program inputs, activities, and participation in two states' Natural Resource Extension Education programs to examine awareness and commitment to sustainability. The data come from comparative case studies of Natural Resource Extension programs in Alabama and Oregon. While both states demonstrated a philosophical commitment to the tenets of sustainability, our analysis revealed that it was the combination of attitude, political support, leadership, funding, and staffing that makes the commitment a reality for Extension. Common to both states were attitudes toward sustainability, lack of participation by non-traditional clientele, dominance of the agriculture program area, and a concern from clientele about sustainability issues. Major challenges unique to Alabama were the historical orientation of Extension toward agricultural interest groups, lack of staffing, and lack of funding, and the aftermath of a court-ordered desegregation of 1862 and 1890 Extension programs. The analysis we present here can aid other educators as they explore sustainability through educational programming.
Introduction

Natural Resource Extension programs play a significant role in educating the public, private landowners, as well as professionals about various aspects of forestry and natural resources. As a major educational institution in the United States, Extension has the potential to contribute much to the national dialogue around natural resource sustainability. Researchers have examined attitudes and perspectives toward sustainability and sustainable agriculture in Extension (Francis et al. 1988; Korsching and Malia 1991; Minarovic and Mueller 2000), Land-Grant Universities (Lyson 1998), or from the perspective of clientele (Guy and Rogers 1999). However, no study has examined sustainability from the aspect of Natural Resources Extension Educators and Programs. Extension educators’ attitudes and vision for natural resource sustainability are fundamental to building a strong Extension program in this area, yet it is first necessary to assess the awareness and perspectives of Extension educators before programs can be developed. Since Extension Forestry and Natural Resource programs address societal concerns through education, they are poised to do work in this arena.

Our overall goal in this research was to examine two state Extension systems (Alabama and Oregon) to determine their awareness of and commitment to sustainability in their educational programs. In this article, we provide a background on sustainability and educational evaluation. We then describe the methodology we used in this research along with a description of Cooperative Extension. Afterwards we present the results and conclude with a discussion of challenges and conclusions.
Background on Sustainable Development

Sustainability is an expression of an ethic involving the current generation’s responsibility to future generations. The sustainability concept provides a framework for efficient resource use, environmental protection, and development that strengthens local economies and communities. The idea of sustainability is an adaptable framework through which growth and development options are viewed as decisions are made.

One important event described as sustainable development’s political coming of age was the report of the United Nations World Commission on Environment and Development (Kirby et al. 1995). Formed in 1983 and chaired by Norwegian Prime Minister Gro Harlem Brundtland, the World Commission on Environment and Development formulated a global agenda for change and began to relate development with the environment. The term development has specific meaning in the international community and has four key components: peace and security, human rights, economic development, and supportive national governance (World Commission on Environment and Development 1987; Dernbach 1999). Because the World Commission on Environment and Development found that environmental protection was key to each of the four basic development components, they defined sustainable development in terms of environmental protection, social development, and economic development. The final report, Our Common Future, commonly called the Brundtland Report, was presented to the United Nations General Assembly in
1987. The Brundtland report defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (World Commission on Environment and Development 1987, p.8). The report characterizes sustainability as a way of understanding the connections between economic, environmental, and social issues.

The concepts of equity, fairness, and attention to future generations are all prominent in definitions describing the social aspect of sustainable development. Providing both current and future citizen’s access to decision-making is a key social component of sustainability. Because disparity exists in access to resources, one of the greatest needs is protecting the rights of the voiceless, such as future generations, who have no ability to speak on their own behalf. Protecting the interests of all stakeholders in decision-making processes can be achieved by providing opportunities for stakeholder participation (Cerena 1993; Serageldin 1993; Harcharik 1993; Berke and Beatley 1995; Ferguson 1996; Lele 1991; Weaver 1997; Gregerson et al. 1998), empowerment (Cerena 1993; Hill 1998; Berke and Beatley 1995), local involvement (Harcharik 1995; Martinson 1998; Lele 1991), education (Armitage 1995), and collaboration (Martinson 1998; Berke and Beatley 1998; Hill 1998; Griss 1993).

Another aspect of sustainability is a focus on a system rather than exclusively on its components (Roling and Jiggins 1994; Pirages 1996; Viederman 1996; Francis et al. 1988). Systems thinking posits that there is only one Earth, composed of a multitude of subsystems all interacting with each other. Science has begun to shift in this epistemological direction. Ecological economics is an inter-disciplinary field that investigates the relationship between ecosystems and economic systems (Costanza
Economists in this field focus on long-term forecasting and a systems approach to decision-making—core components of the sustainability philosophy. Similarly, natural capitalism, fostered by Hawken et al. (1999), points out the interdependency between the economy and natural resources which act to sustain it.

The ecological aspect of sustainability is governed by numerous principles. Natural resources must be used in ways that do not create ecological debts by overexploiting the carrying and productive capacity of the Earth (Pronk and Haq 1992). A minimum necessary condition for sustainability is the maintenance of the total natural capital stock at or above the current level (Costanza 1991). The 1980 World Conservation Strategy of the International Union for the Conservation of Nature, the United Nations Environment Program, and the World Wildlife Fund conclude, for example, that sustainability requires maintenance of essential ecological processes and life-support systems; preservation of genetic diversity; and sustainable utilization of species and resources (IUCN 1980). This three-part prescription consists of different facets of one concept—that the preservation of genetic diversity and sustainable use are essential to maintain essential ecological processes and life support systems. Sustainable development acknowledges that if we ignore our effects on others in an interdependent world, we do so at our own peril.

There is some controversy surrounding sustainability, mainly related to arguments about whose values should take precedence in defining it (Redclift 1988; Norgard 1988). Achieving and utilizing sustainability requires examining the underlying political, economic, and social systems and ideological underpinnings of society (Adams and Thomas 1993; Bliss and Walkingstick 1998; McCool and Stankey 1998).
For example, Agyeman and Evans (1996, p. 72) argue that forms of economic, social, and political subordination present in this and other countries will continue to exclude marginalized groups (on the basis of “skin color, religion, culture, ethnicity, or any alternative conception of otherness”) from the sustainability debate. Similarly, ecofeminism posits that the social domination of women is inherently connected with man’s domination over nature and the subsequent dualism has led to unsustainable development (Mellor 1996). Thus, using the term “sustainability” conveys ideological, political, moral, and scientific views and can involve controversial topics such as limits to growth, social inequality, and economic diversification. These conflicting definitions and interpretations have led to some controversy over the notion of sustainability (Prugh et al. 2000).

Educational Evaluation

Studies done in educational evaluation and public policy provide a framework in which programs are evaluated according to the conditions that are present in clientele, programs, or educators (Bennett 1975; Summers 1977; Bennett 1979; Christenson and Warner. 1982; Warner and Christenson 1984; Mayeske 1994; Bennett 1995; Swanson et al. 1997). Hierarchical program components used in evaluation include inputs, activities, participation, reactions, individual change, organizational change, community change, and national change. In this study, we focused on Extension educators and assessed awareness and commitment to sustainable development in terms of three of these components: inputs, activities, and participation (Figure 6-1). Inputs, activities,
and participation are necessary conditions that must be met before any primary changes can occur in program participants. For example, personnel must be in place and program dollars allocated in order to develop a particular curriculum or educational program in which clientele could then participate. We selected the three program components based on our research objective of examining awareness and commitment.

Figure 6-1. Three-stage model of program evaluation for sustainability education in Extension.

<table>
<thead>
<tr>
<th>Inputs</th>
<th>Activities</th>
<th>Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vision</td>
<td>Programs</td>
<td>· Clientele access to Extension services</td>
</tr>
<tr>
<td>Budget</td>
<td>· Publications</td>
<td>· Type of participation</td>
</tr>
<tr>
<td>Facilities</td>
<td>· Workshops</td>
<td></td>
</tr>
<tr>
<td>Staff Skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitudes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Environmental Context: Political and Organizational

(Adapted from Warner and Christenson 1984; Deschler 1997)

Program inputs are the resources that go into educational programming in Extension: staff, dollars, and vision. Activities include the educational programs that are conducted through Cooperative Extension. Participation describes the interaction between Extension and their clientele in programs and program planning. Inputs,
activities, and participation can be viewed as the foundation of educational
programming and the necessary conditions that must occur before any changes
associated with participants. Program inputs, program activities, and program
participation served as the basis for indicators we used to measure the degree of
awareness and commitment to sustainability in Natural Resource Extension Education
programs (Table 6-1). The data sources include answers to questions about the
associated indicators of awareness and commitment from Natural Resource Extension
personnel in Oregon and Alabama and budget and planning data from the document
analysis.
TABLE 6-1  Indicators of awareness and commitment to sustainability education as measured by Extension program inputs, activities, and participation

<table>
<thead>
<tr>
<th>Awareness</th>
<th>Inputs</th>
<th>Activities</th>
<th>Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>awareness</td>
<td>sustainability philosophy</td>
<td>presence of sustainability concepts in subject matter of extension programs</td>
<td>clientele access to Extension programs and services</td>
</tr>
<tr>
<td>perceived relevance of sustainability</td>
<td></td>
<td>integration of sustainability concepts into extension programs</td>
<td>engagement of clientele in extension program planning</td>
</tr>
<tr>
<td>definition of sustainability</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commitment</th>
<th>Inputs</th>
<th>Activities</th>
<th>Participation</th>
</tr>
</thead>
<tbody>
<tr>
<td>budget allocation to extension education related to natural resource sustainability</td>
<td>presence of sustainability</td>
<td>clientele access to Extension programs and services</td>
<td></td>
</tr>
<tr>
<td>staffing in extension education areas related to natural resource sustainability</td>
<td>integration of sustainability concepts into extension programs</td>
<td>engagement of clientele in extension program planning</td>
<td></td>
</tr>
<tr>
<td>priority level of educational programs related to natural resource sustainability</td>
<td>extension programs addressing the social, economic, and social aspects of sustainability</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* awareness indicators refer to Extension inputs; commitment indicators refer to Extension program activities and participation

Working Definition of Sustainability

It was necessary for us to establish a working definition of sustainability, grounded in the literature, to serve as a benchmark for examining awareness of and commitment to sustainability in Extension Education work in the case studies. In order to establish
a framework for examining sustainability in Natural Resource Extension programs, we used sustainable development and sustainable forestry literature to compile common components (Box 6-A). These components were based on the definition of sustainable development from the Brundtland Report described earlier that is based on the fundamental concepts of social equity, economic well-being, and environmental health. We used the components to provide the parameters for the term “natural resource sustainability” which we refer to throughout this study. Thus, the awareness and commitment indicators specifically apply to the aspects of program inputs, program activities, and program participation that relate directly to the components of sustainability.
Box 6-A. Components of the social, economic, and environmental aspects of sustainability.

<table>
<thead>
<tr>
<th>Social</th>
<th>Participation (opportunities)</th>
<th>Empowerment (degree of power sharing)</th>
<th>Local Involvement (local communities)</th>
<th>Education (collective learning; topics)</th>
<th>Collaboration (what groups)</th>
<th>Future Generations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>Diversified local economy (beyond reliance on single commodity; value-added)</td>
<td>Economic Viability (adaptability)</td>
<td>Poverty (satisfy basic needs; reduce poverty)</td>
<td>Health</td>
<td>Education/Literacy</td>
<td>Population</td>
</tr>
<tr>
<td>Environmental</td>
<td>Biodiversity Conservation</td>
<td>Ecosystem Health and Vitality</td>
<td>Geographic Scale</td>
<td>Time Scale (long-term objectives and management plans)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Research Methodology: Case Studies

The objective of the Oregon and Alabama case studies was to examine two state extension systems in detail to determine their awareness and commitment to sustainable development concepts and application. Each institution served as an individual case. The case study is a comprehensive research strategy that "investigates a contemporary phenomena within its real life context" (Yin 1994, p. 13). Case study inquiry relies on multiple sources of evidence, with data converging in a triangulating
fashion. This involves collecting information from a diverse range of individuals and settings using a variety of methods (Denzin 1998). In this study, we collected information from a diverse range of individuals, positions, and locations and used both interviews and document analysis.

The rationale behind selecting Alabama and Oregon was two-fold. The two states provided an opportunity to examine Extension work in two regions with distinctly different political, environmental, and organizational contexts. Oregon and Alabama vary in the size, scope, and organization of their respective Extension programs and offer a good basis for comparison. For example, Oregon has the largest Extension Forestry program in the nation. Alabama's Forestry Extension program is more typical of other states: only a handful of campus-based extension specialists and no county extension foresters (Table 6-2).

TABLE 6-2 Budgeted full-time equivalents (FTE) for the Oregon State University Extension Service and the Alabama Cooperative Extension System.

<table>
<thead>
<tr>
<th>Number of County Extension Agents</th>
<th>Oregon Extension</th>
<th>Alabama Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>189.03</td>
<td>254</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Campus Extension Specialists/Administrators</th>
<th>Oregon Extension</th>
<th>Alabama Extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Agriculture/Agricultural Sciences</td>
<td>77.23 a</td>
<td>50</td>
</tr>
<tr>
<td>College/School of Forestry</td>
<td>9.13</td>
<td>5.5 b</td>
</tr>
<tr>
<td>College of Home Economics/ Human Sciences</td>
<td>5.65</td>
<td>7</td>
</tr>
<tr>
<td>Other Specialists (Liberal Arts, Business, etc.)</td>
<td>14.15</td>
<td>20</td>
</tr>
<tr>
<td>Total Extension Agents, Specialists, Administrators</td>
<td>312.91</td>
<td>336.5</td>
</tr>
</tbody>
</table>

a Includes Department of Fisheries and Wildlife (3.24 FTE)
b School of Forestry and Wildlife Sciences
The Oregon State University Extension Service employs approximately 313 people and the Alabama Cooperative Extension System about 337. Alabama has about 250 county extension staff and 80 campus-based extension specialists, while Oregon has about 190 county extension staff and 120 campus-based specialists. Secondly, the states also have different natural resource contexts. While Alabama’s forests are mostly privately owned, Oregon’s forests are predominantly publicly owned (Table 6-3). Forests occupy 45% of Oregon’s total land area contrasting with the 68% in Alabama. The forest products payroll in Oregon stands slightly higher at $1.72 billion compared to Alabama’s $1.54 billion.

TABLE 6-3   Acres of forestland, percent of forestland, percent in private ownership, and percent in public ownership for Oregon and Alabama.

<table>
<thead>
<tr>
<th></th>
<th>Acres of Forestland</th>
<th>Percent of Total Land</th>
<th>Public Ownership</th>
<th>Private Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon</td>
<td>28 million</td>
<td>46%</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>Alabama</td>
<td>22 million</td>
<td>68%</td>
<td>95%</td>
<td>5%</td>
</tr>
</tbody>
</table>

*Note. Oregon Department of Forestry (1999); Alabama Forestry Commission (2000)*

The data sources for Alabama and Oregon case studies came from interviews with Extension personnel working in the areas of forestry and natural resources at the county and campus levels. We also examined Extension planning and reporting documents. We conducted semi-structured interviews with 29 Natural Resource Extension personnel in the Alabama Cooperative Extension System and 29 Natural Resource Extension personnel in the Oregon Cooperative Extension System.
Resource Extension personnel in the Oregon State University Extension Service (Table 6-4). The individuals were interviewed using a combination of the standardized open-ended interview and interview guide approaches. These approaches allowed some flexibility for discussion while ensuring that certain questions were asked of every interviewee. The interviews were conducted in the respective interviewees’ offices with only the researchers and the interviewee present. The interviewees had informed consent procedures explained to them as outlined in the Oregon State and Auburn Universities’ human subject research guidelines. The interviewees also signed an informed consent form, which was filed along with the interview transcript and original tape. Confidentiality of the interview subjects was ensured throughout the research project by not associating the interviewees name with any comments made during the interview. All interview materials (informed consent, transcription, and tape) were kept in a confidential file. After transcribing the interview tapes, we imported the text of the interview into a qualitative data analysis program, ATLAS Ti, which we used to manage and analyze the interview transcripts.

<table>
<thead>
<tr>
<th></th>
<th>Oregon State University Extension Service</th>
<th>Alabama Cooperative Extension System</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension Specialists</td>
<td>9</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>County Agents</td>
<td>17</td>
<td>19</td>
<td>36</td>
</tr>
<tr>
<td>Administrators</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>29</td>
<td>58</td>
</tr>
</tbody>
</table>
We used grounded theory procedures to analyze the interview transcriptions. Grounded theory was an ideal social research approach to examining sustainability in two Natural Resource Extension programs because it is best-suited for examining explanations about phenomena about which little information is known. Grounded theory uses a methodical set of procedures to inductively derive explanations about a social phenomenon. The analytical procedure involved open coding, axial coding, and selective coding (Glaser 1967; Strauss 1990). Open coding was the initial step we used to analyze the data. We began by reading the transcripts and describing concepts, properties, and dimensions. The next step was axial coding. This is where we made connections between categories and examined contextual conditions. In the final analytical procedure, selective coding, we integrated the axial coding statements into core thematic categories. The outcomes of the selective coding resulted in a set of core categories, which we present in the results.

The Cooperative Extension System

The Cooperative Extension System is an educational partnership between the nation’s 105 Land-Grant Colleges and Universities, the United States Department of Agriculture (USDA), and local governments. USDA-CSREES (Cooperative State Research Education, and Extension Service) administers federal funding, provides programmatic leadership for extension, and serves as the federal partner of the Cooperative Extension System. Land-grant universities are the state partners and county governments represent the local partners. Seventy-one percent of Cooperative
Extension System funding originates from state and local sources (National Research Council 1995); thus we targeted our data collection at these levels.

The Cooperative Extension System has seven base programs that serve as the core of extension programming: agriculture; community resources and economic development; family development and resource management; 4-H and youth development; leadership and volunteer development; natural resources and environmental management; and nutrition, diet, and health (USDA 1995). Forestry and natural resource program areas, which were the focus of our research, are classified under Natural Resources and Environmental Management (NREM) base program.

To fully understand the Cooperative Extension System (CES) and how it operates, we will provide a brief background on land-grant universities where the state Extension partner is located. The three types of land grant universities are commonly referred to as 1862’s, 1890’s, and 1994’s, according to the year of establishment. There are a total of 105 land-grant universities, plus Tuskegee University, located throughout the United States, its territories, and the District of Columbia.

The first type of land grant institution was created when Congress passed the First Morrill Act in 1862, providing a means of federal support to create higher learning institutions. The term “land-grant” originated from the initial granting of 30,000 acres of public land for each Senator and Representative under apportionment based on the 1860 census. States invested the proceeds from the sale of these lands in a perpetual endowment fund that provides support for colleges of agriculture and mechanical arts. In the beginning, however, not everyone benefited from the land-grant system. Under
the conditions of legal separation of the races in the South, blacks were not permitted to attend the original land-grant institutions. Although the Morrill Act of 1862 authorized “separate but equal” facilities, only Mississippi and Kentucky established institutions for blacks under this law. The second Morrill Act, passed in 1890 authorized separate land-grant institutions for Blacks in each of the 16 southern states to address discriminatory admission practices (AL, AR, DE, FL, GA, KY, LA, MD, MO, NC, OK, SC, TN, VA, WV, TX). Before the Second Morrill Act was passed, Mississippi was the only state that provided a separate land grant for blacks (Alcorn State University). One exception to this historical pattern is Tuskegee University in Alabama. Tuskegee University is a private university and while not a land grant college, it was granted 25,000 acres of land by the U.S. Congress in 1899. Because Tuskegee has espoused the land grant philosophy throughout its history, it has traditionally been associated with the black land grant institutions. The 16 Historically black land grants created under the second Morrill Act, Alcorn State University in Mississippi, and Tuskegee University make up the institutions commonly referred to as the “1890s.”

Rounding out the three types of land grant universities are the Native American land grant colleges. In 1994, the Elementary and Secondary Education Reauthorization Act (The Equity in Educational Land-Grant Status provision) designated 29 Native American colleges as land-grant universities.
Results

We present the results from the Alabama and Oregon case studies using the inputs, activities, and participation methodological framework previously outlined. Presenting each case separately, we report contextual descriptions, attitudes, commitment, participation, and challenges. We follow this up with a discussion of some commonalities and end with conclusions. All names used in this article are pseudonyms, but the state locations and position descriptions reflect those of actual interviewees.

Organization of Results

Program inputs are the first component in our evaluation framework. Program inputs are comprised of the vision, attitudes, and resources that go into programming. Here we will present the results of attitudes toward sustainability that shape the philosophy held by Natural Resource Extension personnel in Alabama and Oregon. In addition, we discuss the financial and intellectual inputs in terms of administrative support, staffing, and budgetary support given to work related to natural resource sustainability in each state. Understanding that personnel and budgets are necessary conditions to developing Extension programs related to natural resource sustainability, we examined the distribution of Extension personnel across the program areas in each state. We specifically looked at those program areas related to our research goal of investigating natural resources sustainability in Extension Education. Thus we focused on the amount of personnel working in the program areas of natural
resources, forestry, and sustainable agriculture. Because there is not a “sustainability” program area in Extension, we did not view staffing and budgets dedicated to natural resources extension as a direct measure of extension’s financial commitment to sustainable natural resource education. Rather, we used it as a baseline to begin examining the commitment to natural resources education generally, with the understanding that not all personnel in natural resources are working on sustainability issues.

Educational activities are the second component in our three-stage model of program evaluation for the case studies. This involves having a systems orientation to education utilizing collaborative working relationships to conduct programming related to sustainability.

Another aspect of sustainability that we examined in this research was stakeholder participation. Our Common Future describes participation as improving the degree and quality of participation of previously disempowered groups. As applied to Extension, this involves examining clientele participation in Extension programming and planning. We examined the extent to which non-traditional clientele—clientele that haven’t traditionally been engaged—are involved in Extension. Non-traditional clientele have been described as minorities, small landowners, environmental groups, displaced farmers, migrant laborers, displaced workers, and low-income farmers (GAO 1981; Wright and Priester 1986; Enarson 1989).
Alabama Cooperative Extension System

The Alabama Cooperative Extension System (ACES) includes Auburn University, Alabama A&M University, with Tuskegee University cooperating. ACES employs 254 county level staff, 83 extension specialists, and 15 administrators with a budget of $47 million (Alabama Cooperative Extension System 1999a). In Alabama, 23% of the Extension budget comes from federal funds, 23% comes from state funds, and 11% comes from local sources. The Alabama Cooperative Extension System has six major program areas: Family and Individual Well-Being, Agriculture, Forestry and Natural Resources, 4-H and Youth Development, Urban Programs, and Community and Economic Development. The ACES provides educational programming reaching more than 850,000 participants through its 67 county offices (Alabama Cooperative Extension System 1999a).

The ACES mission statement is listed below (Alabama Cooperative Extension System 1999a).

The Alabama Cooperative Extension System operates as the primary outreach organization for the land-grant function of Alabama A&M University and Auburn University. The System identifies statewide educational needs, audiences, and optimal educational programs that are delivered through a network of public and private partners supported by county, state, and federal governments. The organization unifies the land-grant efforts to provide educational opportunities that help people individually and collectively to make sound decisions about their lives, businesses, and communities and to develop economically, socially, and culturally.
The ACES mission identified the importance of partnerships, the existence of a federal-state-county support mechanism, empowerment through education, and the importance of developing economically, socially, and culturally.

**Program Inputs: Attitudes Toward Sustainability**

Interviewees in Alabama addressed a range of sustainability components in their personal definitions and philosophies, with the most common aspects being environmental and economic concerns (Table 6-5).

**TABLE 6-5** Aspects of sustainability identified in Alabama and Oregon extension personnel's definitions of sustainability.

<table>
<thead>
<tr>
<th></th>
<th>Alabama (n)</th>
<th>Freq.</th>
<th>Oregon (n)</th>
<th>Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Sustainability</td>
<td>29</td>
<td>1.0</td>
<td>29</td>
<td>1.0</td>
</tr>
<tr>
<td>Economic Sustainability</td>
<td>21</td>
<td>0.7</td>
<td>18</td>
<td>0.6</td>
</tr>
<tr>
<td>Community Well-Being/Quality of Life</td>
<td>18</td>
<td>0.6</td>
<td>13</td>
<td>0.4</td>
</tr>
</tbody>
</table>

Vickie Wright, a county agent described her philosophy, “I would define sustainability as taking care of your natural resources. Wise use of the land. You have to use the land but you also want it to be around for future generations. I probably don’t say it in those terms, but every time I teach the wildlife judging classes I hope that those kids learn a little bit more about their surroundings. The next time they think about throwing litter out on the road or leaving the water on when they are brushing their teeth, I hope that these clubs help them to make some important decisions.” Wright's
philosophy involved the environmental aspects of “taking care of” and conserving natural resources and the social aspect of empowering youth through education to be better decision-makers. County agent Bob Balanchine discussed his educational goals are related to sustainability, mentioning the environmental and economic aspects.

In general what we are trying to do in the area of ag and natural resources, we are trying to help people improve their practices and this sort of thing for a couple of different reasons. One, to improve their basic economic well-being. We want them to be in better shape, more efficient, more profit. And the other one is better management of our resources so that we protect the environment.

Raymond Alexander, also a county agent incorporated the future generations aspect of sustainability into his philosophy: “It [sustainability] means that you’ve got to sustain or continually educate and perpetuate the importance of resources that we have and that these resources do have an end to them. If forests are not regenerated, if wildlife is not controlled, then these things will eventually disappear. It is a huge interwoven weave that sustains these things that we think are never ending.” Alabama Extension Specialist Peter Martin incorporated the issue of scale into his sustainability definition, “You have to look at the earth as a total ecosystem. I am talking about large-scale sustainability. The whole system is tied together and a lot of people don’t relate to that. But when you talk about sustainability, that is what you are really talking about. You have to look at what happens on a small scale because it affects everything on a large scale.”

Attitudes about sustainability inform a person’s worldview which shapes how they conduct Extension education programming. Without an epistemology that reflects the tenets of the concept of sustainability, respondents it would be difficult to implement programming in this realm.
Program Inputs: Staffing and Budgets

Agriculture and Natural Resource (ANR) county agents in Alabama are typically generalists. They cover multiple areas within agriculture and natural resources such as horticulture, cattle, aquaculture, forestry, and 4-H. ACES has no county agents with dedicated assignments in Forestry and of the over 250 county agents in Alabama, only one has a degree in Forestry. ACES has nine campus-based extension specialists; one each in the areas of urban forestry, forest products, forest ecology, and two each in timber harvesting, forest management, and wildlife. ACES spent $2.8 million in 1999 for Forestry and Natural Resource programs (Table 6-6). Oregon’s population (3.3 million) is about two-thirds of Alabama’s (4.4 million) and Alabama has more of its total land area in forest acreage. Yet the agents, those closest to communities and forest owners, are generalists with responsibilities in multiple program areas, creating a deficit for county forestry extension presence.
TABLE 6-6   Expenditures by Program Area, Oregon State University Extension System (FY 98) and Alabama Cooperative Extension System (FY 99)

<table>
<thead>
<tr>
<th></th>
<th>Oregon Dollars</th>
<th>Oregon Percent</th>
<th>Alabama Dollars</th>
<th>Alabama Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>12,341,831</td>
<td>49</td>
<td>15,816,432</td>
<td>34</td>
</tr>
<tr>
<td>Home Economics/Family</td>
<td>3,856,822</td>
<td>15</td>
<td>16,016,640</td>
<td>34</td>
</tr>
<tr>
<td>4-H/Youth Development</td>
<td>5,656,672</td>
<td>22</td>
<td>6,653,424</td>
<td>14</td>
</tr>
<tr>
<td>Urban Programs</td>
<td>n/a</td>
<td>n/a</td>
<td>3,650,304</td>
<td>8</td>
</tr>
<tr>
<td>Forestry &amp; Natural Resources</td>
<td>3,599,699</td>
<td>14</td>
<td>2,779,632</td>
<td>6</td>
</tr>
<tr>
<td>Community Resource Dev.</td>
<td>n/a</td>
<td>n/a</td>
<td>1,643,568</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>25,712,148</td>
<td>100</td>
<td>46,560,000</td>
<td>100</td>
</tr>
</tbody>
</table>


Program Activities

Serving the educational needs of urban residents has resulted is the thrust of a current effort underway in Alabama's Extension program. In 2000, Alabama opened the C. Beaty Hanna Urban Horticulture and Environmental Center in Birmingham, serving the educational needs of urban residents. The Urban Horticulture and Environmental Center is a collaborative effort between ACES, the Birmingham Botanical Gardens, Jefferson County Commission, Birmingham Botanical Society, and the City of Birmingham. The Jefferson County Commissioners committed a quarter million dollars to the Center. The Center will cover topics such as environmental
issues, erosion, air quality, water quality, urban forestry, and stewardship of natural resources. More importantly the Center targets the following clientele: urban residents, commercial and horticultural professionals, and home gardeners. In addition, ACES Director Steve Jones and the School of Forestry and Wildlife Sciences Dean led the charge for hiring an urban forestry extension specialist.

Collaborative work in the Alabama Cooperative Extension System is beginning to take shape through a new program planning process instituted under the leadership of their Extension Director. Since 1997, the Alabama Cooperative Extension System has used "Extension Team Projects" as a basis for program planning. Extension Team Projects (ETP) are a web-based program planning system where agents and specialists allocate their FTE among programs posted on the ETP website by Extension Specialists. Before ETP's, each agent and specialist prepared individual plans of work. Walter Rawlins, a county agent in Alabama described how Extension programming has changed in Alabama, "I think it [Extension] has changed a good bit. We used to do a lot of education and workshops from the agent standpoint. Right now, I do a lot more workshops with other organizations and agencies than I do by myself. We seem to get a lot more done [that way]." So, the system in Alabama, while changing due to ETP's and multi-county assignments in agriculture, is still fighting the traditional way of programming along county lines. An Alabama extension specialist explained how working across county lines was not always welcomed: "You just didn't go in another county uninvited. If you were in Calhoun you just stayed out of Talladega or Etowah." Alabama Extension Director Steve Jones stated, "We can no longer be what we used to be. From this day forward, our decisions with respect to field staffing
will be based more on customer needs, and less on county lines” (Jones 1999). Few interviewees in Alabama expressed working across program areas in Extension, however most county agents were heavily involved in collaborative projects with natural resource agencies like Natural Resource Conservation Service (NRCS) and the Alabama Department of Forestry. Jeff O’Connell, an Alabama county agent stated, “We work real closely with all the service organizations. I work with folks from the Alabama Forestry Commission, NRCS, Farmers Home Administration, Alabama Game and Fish.” O’Connell’s collaboration with other agency personnel in the county was typical of the responses of most county agents interviewed.

**Clientele Participation**

The transition to a unified Extension System in Alabama means that more resources will be dedicated to reaching nontraditional clientele that were typically served by Alabama A&M. Over twenty years ago, Hightower (1973, p. 118) asserted that the Extension Service’s record of working with minorities was probably the “worst in government.” In 1999, USDA made history by awarding Black farmers the largest racial discrimination settlement in federal history for allegedly denying Black farmers technical and financial assistance that was afforded to others (Fletcher 1999). Thus USDA, and Extension as one its agencies, has some credibility and trust issues with African-Americans. The work of Walton (1999) demonstrated the challenge. Walton assembled a list of Alabama citizen groups organized around sustainability topics and the extent to which they were involved with the state extension system.
One such group was the Federation of Southern Cooperatives, a non-profit group whose work focuses on land retention and development for family farms in the South, especially those owned by African Americans. When Walton asked whether their group had any contact with the Alabama Cooperative Extension System (ACES) a senior officer in the Federation responded as follows.

We have worked with some local agents of ACES in Greene, Sumter and surrounding counties, but we have never had a real institutional relationship, based on mutual trust and recognition, with the ACES and Auburn University. We have received a small amount of help recently on our forestry program and outreach to small woodlot owners. In fact, we have the general impression that Auburn would prefer if all small family-sized farmers, especially Black farmers, were to disappear, as soon as possible!

An Extension Administrator in Alabama explained the difficulties involved with meeting the educational needs of non-traditional clientele.

We can offer local groups and organizations a great deal of assistance I think, [but] we have a hard time, we are a conservative organization—and keep in mind our county agents. Unfortunately, that's somewhere where we have some vested interest. Some of these groups and organizations are not highly thought of, their objectives may be different than some of our more traditional clientele. A lot of times I'll have groups tell me 'I went to your county agent and asked for their help and they told me they couldn't do that.' What happened was, one of the things the group wanted to do was different than what the local ALFA group thought was important. So that's not good but that happens.

**Engaging the Environmental Community**

Environmental groups, minorities, and other non-traditional clientele are all part of sustainable development efforts, yet they have little involvement with Extension. Part of the problem lies in tradition. Non-traditional clientele's goals and ideologies
may be different from those of more traditional clientele groups. Extension faculty expressed some discomfort with this unfamiliarity. In addition, Extension faculty perceived that working with groups with controversial agendas could lead to a loss of credibility for Extension. Many times, issues of credibility and trust surfaced during discussions of engaging environmental groups as clientele in Extension. It was not as if Extension faculty did not have good working relationships with environmental groups, it was that the relationships had yet to be established. A Water Quality Extension Specialist in Alabama explained, "There are all kinds of clientele groups and I think Extension has probably had a good relationship with a lot of different clientele groups—except maybe if you put some of the volunteer citizen groups in that category such as some of the environmental type groups—we probably haven't had a good working relationship with them." In the absence of established relationships between Extension and environmental groups, there was a lack of trust and a fear of losing credibility. However, where relationships existed between Extension and environmental groups, it was based on communication and building trust. An urban Alabama extension agent, George Barish, described how he fostered interaction with environmental groups in the area:

We [extension] try to pride ourselves in bringing unbiased scientific research based information to the table. Most of these groups are not afraid of that because some of the time—but not always—[it] bolsters their argument. So they are receptive to getting extension's help. So we have a good working relationship with environmental groups. The programs we have here like forestry are attended by environmental groups. They read about us in the paper. Every week we usually have 2 or 3 articles pertaining to forestry, or stormwater, or erosion, or sedimentation, or related topics. I make individual
contacts—so the environmental groups hear about us and know we [extension] are here.

When asked if environmental groups participate in Extension programs one agent responded, “Not really, they have their own agenda, their own programs.” Martin, an Alabama Extension Specialist, criticized Extension and land-grant universities for not fostering communication and building relationships with the environmental community: “I have to blame it on the Administration in not having the vision to look far enough down the road to see what kind of relationships should’ve been established or could have been established that would have paid off for the organization. I can criticize the whole land-grant university system for their failure to get involved with the whole environmental movement.”

Peter Martin, an Alabama extension specialist explained how he fostered collaborative relationships where none existed before.

Some of the activities I do are almost like public relations type stuff trying to improve the relationship between extension and the land-grant university and other organizations and agencies. Some of those interactions have been somewhat weak in the state. When I came here, the College of Agriculture, the extension side and the Experiment Station side—I mean they had a poor working relationship with the Alabama Department of Environmental Management. The top people in ADEM didn’t even know anybody over here [in extension] hardly until I started going to some of the meetings. They [EPA] told me that they would love to collaborate with the land-grant university system and get more involved in extension but that they can’t get the top administrators in the land-grant university system to talk to them.”
Political Context

One contextual matter that deserves some attention and explanation is the 1995 court order that had a significant impact on Extension. The state of Alabama was recently involved in a 14-year desegregation lawsuit spanning three trials that cost the state over $20 million dollars (see Jaschik 1994; Healy 1995). The long-standing federal court case on desegregation in Alabama’s higher education system was finally decided in 1995, but only after strained negotiations and rulings that included one case dismissal and an appeal. Because little action was taken after a 1981 ruling for Alabama (along with 19 other states) to eliminate vestiges of segregation in their higher-education systems, the U.S. Department of Justice filed a desegregation lawsuit against Alabama. The trial culminated in the 11th U.S. Circuit Court of Appeals where judge Harold Murphy, who presided over two of the three trials, ruled that Alabama must erase all traces of segregation in its university system.

Part of the ruling required the former Alabama Cooperative Extension Service to be abolished and the new Alabama Cooperative Extension System to replace it. The new Alabama Cooperative Extension System unified the Extension efforts of the two public land-grant universities in the state—the predominantly white Auburn University and the Historically Black College, Alabama A&M University. The court ordered unification resulted in complete restructuring of the Extension program and included salary equalizations, integrated programming, and leadership and direction under a single system. Langley Hughes, an ACES county agent contrasted his experiences
before and after the court ruling, pointing out some of the discrepancies that were, in part, why the case was being litigated.

It [Extension] used to be very separated. I was always here in the same office [as Auburn Extension]. But a lot of other agents were in separate offices in other counties. Back then, before the court ruling, like every other A&M agent, I did 4-H separate from the Auburn program. I was supposed to do small and limited resource farmer work—that was supposed to be the thrust of my work. So I did a lot of farm visits. And I had to work two counties instead of just one county—but I had no office, no telephone. It was terrible situation; it’s not a good way to do things. So my job responsibilities changed a lot when the system changed.

In a Chronicle of Higher Education article, Patrick Healy described the changes that occurred when former Alabama A&M Extension employee Linda Robinson took an equivalent position at Auburn University: “her salary rose by $10,000, her case load was cut in half, and she moved into a bigger office—right across the hall from her old one” (Healy 1995, p. A25). The court ordered unification of the Extension programs resulted in major changes in program planning, staffing arrangements, and budgets. As with most major changes, this one has not been without its difficulties. The unification, now five years old, is still something that Extension is working through. Etta Mae Harris, an extension specialist described some of the challenges associated with the unification.

I think it’s a while before there will be working relationships between Auburn and A&M. I think all this stuff has to settle with the unification—I think the funding issues, I think misinformation on both sides, I think it will be a while before it’s a real relaxed working relationship. But I also think it will be in our best interest to work on that. But it’s not second nature yet.
With the unification came a merging of the Extension programs. As an 1890 land grant university, Alabama A&M has traditionally worked with limited resource and minority farmers and urban residents. Alabama A&M’s proportion of low-resource clients is about twice that of Auburn’s (Healy 1995). The federal court order mandated the state to increase programming in urban and nontraditional areas. So with the unification came issues concerning who would conduct these programs. An Administrator explained the historical aspect of programming and how A&M traditionally worked with minority and low-resource clients.

In the early 1970’s when we were dividing up the turf as they funded 1890 programs and Tuskegee, they [A&M and Tuskegee] took the small farm as one of their primary constituencies. Auburn as it moves to work more with small farms, it has got to be rather hard to deal with that. One of the dilemmas you have with reaching minority communities is that we are getting much more pressure and we need to go out where the need is greatest, which often are minority communities. At the same time Tuskegee and Alabama A&M said ‘that’s our forte, we know those communities, we are better able to relate to them.’ So how then does Auburn reach out to the minority community and not at the same time usurp and play big dog with Tuskegee and Alabama A&M?

Extension Director Steve Jones clarified the dilemma by reiterating that ACES is a unified system and nontraditional extension programs are not just the responsibility or “turf” of A&M. Both institutions have a responsibility to engage these audiences and conduct these programs.

We seem a bit confused about the fit of urban Extension program within the broader Extension System... I sense a tendency to think of our Extension efforts as urban programs on one hand and everything else on the other. Some people see the former as Alabama A&M’s and the latter as Auburn’s. That is simply not the case— urban programming is fully integrated and interdependent with all other
Extension initiatives. Just as agriculture is part of the System's programming core, so, too are urban programs. Neither belongs to either university, and both draw from A&M and Auburn. We are a unified System and our programs are not constrained by some set of subject matter boundaries distinguishing one university's programs from the others... Our urban programs are as compelling and important as everything we do in Extension. They are not separate from, but are an integral part of Extension in Alabama. Join me in recognizing that our urban programs are really no different from anything else that we do.

Defying Tradition

Alabama Extension personnel felt that the state's historical orientation of Extension toward agriculture interests was an impediment to conducting programming in natural resources and related areas of sustainability. A discussion of the political context of Alabama explains this challenge.

In Alabama, interest groups are a dominant force in state government (Hrebenar and Thomas 1992; Thomas and Hrebenar 1996; Thomas and Hrebenar 1999). Few states rival Alabama in terms of interest group dominance in state politics. Hrebenar and Thomas have studied regional interest group politics since the 1980's. Some of their most recent work identified states where the dominance of interest groups in the political system was greatest: Alabama, Florida, Louisiana, New Mexico, Nevada, South Carolina, and West Virginia (Thomas and Hrebenar 1996). Alabama Farmers Federation ranked among the most effective interest groups in the state of Alabama (Morehouse 1981; Hrebenar and Thomas 1992).

Attempts to move extension beyond agriculture production have been met with resistance by some interest groups in Alabama. An Alabama Forestry Extension
Specialist explained the power of special interests, “There may still be special interest groups out there who are not entirely happy. There were some ag entities in the state who have always been very influential and pretty much been used to having the ear of the Extension Director and being able to strong-arm and have things run the way they wanted it run.” In 1998, the ACES Task Force on Extension Agriculture, chaired by a member of the Alabama Farmers Federation, issued a stinging conclusion that “the Extension System in Alabama is NOT effectively serving the state’s large or small commercial agriculture community today” (ACES 1998, p. 2). Buddy Timberlake, an Extension Administrator, explained why agricultural interests in the state are unhappy with the direction extension programming has taken in recent years:

Their frustration isn’t with what we are doing for agriculture, it is with what else we are doing. That is, ‘why is Extension doing this social programming? Don’t we have human resources to take care of pregnant teens?’ They [agricultural interest] don’t seem to accept our [ACES] broad mandate to address collaboratively with other agencies through an education process with issues that are important not just to ag, but to society broadly. So their frustration, in part, is triggered by what else they see us doing and less so, I think, a dissatisfaction with what we are doing in agriculture.

The fact that some farmers and cattlemen say that Extension is straying too far from its mission and traditional role as “teacher to the countryside” (GAO 1981, p. 15) has significant meaning coming from such an influential segment of society that provides the constituency support that lies at the heart of a bureaucracies survival. Constituency support is one of the major ways in which bureaucracies garner power—as the Extension example shows (Rourke 1984; Clarke and McCool 1996; Wood and Waterman 1994). With the political support from non-traditional clientele unknown
and support for higher education unstable (in 1995-96 higher education in Alabama received an approximate 7.5% across the board cut), traditional clientele and the power they wield remain the political backbone of Extension in Alabama. In fact, some Extension faculty also doubted whether non-traditional clientele possess the political clout to counter some of the more powerful agricultural interests. An Extension Administrator from Alabama explained:

See, we have never built up the constituency among the groups that are more interested in sustainability. Why can’t we get some environmental groups to counter some [of the agricultural interests]? The forest industry [and] all these forest landowners are not going to line up here and want us to reallocate and put some positions out there to help them with watershed, biodiversity, and all those things that are needed. But that is the avenue that we are going to [need to] get into in sustainability.

Peter Martin explained that, “ALFA is one of the most powerful lobbying groups in the state. ALFA has probably done some good things. But I’m one of those kind of people that believe that lots of programs come along that are beneficial and improve society for a people of time. A lot of times they outlive their usefulness. I think some of the programs supported by ALFA were great for a period of time but a lot of times they [ALFA] are not supportive of some other programs that may benefit agriculture and the citizens of the state— it wouldn’t [be] to their benefit as far as maintaining a certain amount of authority and power.” In examining some of the challenges that ACES is facing, it is the constellation of various factors that cause increased challenges to Extension as an organization. Extension Administrator Buddy Timberlake explains how the unification and the attack from the traditional agriculture community
combine to make a particularly difficult situation for Extension and Extension personnel in the state.

In terms of morale I think it is hard to isolate the morale impacts of unification from the morale consequences of the budget constraints we are under, the attack by the traditional ag community that we are suffering, the uncertainty at both campuses with respect to higher administration being under pressure from the state from within; the unification has probably had less of a direct impact on morale and other things than I thought it would because I think we are working through the unification and we have taken care of most of the big issue and we are working through the smaller ones now; the big issues that face us are unrelated to the unification--budget being the biggest one but also the crisis in ag extension that we are facing right now.

Defying the agricultural lobby and their tradition of influence on Alabama Extension will require garnering political support outside their base or possibly working with ALFA to realize new goals for agriculture, which include sustainability.

**Oregon State University Extension Service**

The Oregon State University Extension Service employs 189 county-based extension faculty and 124 campus based specialists and administrators with an annual budget of about $26 million. The seven program areas are Agriculture, 4-H and youth development, Home Economics, Forestry, Community Development, Sea Grant Marine Programs, and Energy. In Oregon, 14% of the Extension budget comes from federal funds, 45% comes from state funds, 15% from county funds, 18% from gifts/grants/contracts, and the remaining 8% from sales/services/fees.

The Oregon State University Extension Service mission statement is listed below (Oregon State University Extension Service 2000).
Oregon State University's Extension Service provides education and information based on timely research to help Oregonians solve problems and develop skills related to youth, family, community, farm, forest, energy, and marine resources. It carries out its mission by extending the research knowledge base of the University to people who need the information, and provides leadership in applying this knowledge to the problems people have identified.

Oregon State Extension's mission emphasizes the research base of extension education and identified seven specific areas including several aspects of natural resources.

Program Inputs: Attitudes Toward Sustainability

Interviewees in Oregon possessed positive attitudes toward sustainability and were aware of the three components. However, the environmental aspect was most frequently mentioned in Natural Resource Extension personnel's definitions, followed by economic aspects (Table 6-6). The social aspect of sustainability was least mentioned.

Most respondents discussed the integrated nature of sustainable development in the interviews. They viewed sustainability not as a separate program, but more of a component to integrate in existing programs. Derek Fleming spoke on this aspect of integration when asked if he draws upon sustainability concepts in his work. A county agent for 6 years and a forest landowner, Fleming says, “sustainability... it’s almost like it is so obvious to the agent or to the individual instructing a particular subject area that maybe sometimes it goes unspoken. So if you look on the list of workshops that come out from the agents, you won’t see many that will say ‘sustainability of Oregon’s
forests for example,' but it comes out in the context of the workshop.” Focusing
Extension Education on a systems perspective is a departure from the tradition of
being bound by county lines. Alexander Kemp, an OSU extension specialist explained
how a systems perspective was a different way of approaching education, from both
biological and topical senses. Kemp stated, “We find ourselves in this uncomfortable
middle ground in which we are trying to be a rational middle that says, ‘we’re out here
doing intensive agriculture, let’s see how we can shift that to a more resource
conserving system using more biological principles, more integrated production
methods, and shift it in this direction somewhat.” We found evidence in Oregon that
addressed education from a watershed level and the four OSU Extension faculty
whose entire focus is watershed education represent a substantial commitment to and
recognition of the importance of natural resources as part of a larger ecosystem.

One important aspect of personal philosophies was the articulation of what is
meant when using the term sustainability. County agent Sal Rosenberg said, “You try
to spell out what it is you mean by sustainable. So yes, I think we talk about
sustainability very much. One of the questions I get as often as any is, ‘how often
should I pump my septic tank.’ That is in many ways, a sustainability question. In the
short term, don’t bother, but if you plan to live in that house thirty years then you
need to pump the septic tank in order to maintain it’s function over a long period of
time. Extension specialist Jodine Jolma also expressed the importance of explaining
and defining sustainability, especially because of the connotations that come with
using the word. Jolma stated:
It’s amazing how terms get baggage attached to them. Collaboration is one. You know if I use that one when I am visiting my family in Belgium—collaboration, World War II... collaborators were shot! So collaboration is not a nice word. But here, it means a very different thing. So I think it is very important when we sit down and talk about what sustainable living is or sustainable ag or sustainable forestry, we need to very quickly, immediately say what we mean by that.

There was a distinction made between the concept of sustainability, which Extension found useful, and the term “sustainability”, which interviewees describe as “loaded,” “fuzzy,” and “abused.” Alexander Kemp, a Sustainable Agriculture Extension Specialist stated, “There are certainly people within the system that think sustainable agriculture is just a bunch of hot air.” Sustainability, absent of clarification, can mean many things. Kemp explained the boundless nature of sustainability and why it makes some people uncomfortable:

It’s a very difficult paradigm because it has no hard edges. It’s so mushy. Anytime you start pushing on it, it just kind of gives — it’s spongy. People don’t like things that are soft. They like things with nice crisp edges. So when you are really talking about a paradigm rather than something that is a clear set of practices and do’s and don’ts, it’s a little mushy. People say, ‘well this is what we’ve been doing all along; everything we are doing is sustainable.’

As with Alabama, Oregon Natural Resource Extension personnel’s philosophies gravitated toward the environmental component of sustainability. However, Alabama Extension included the social component of sustainability in their definitions at a rate almost equal to that of the economic component (Table 6-5).
Program Inputs: Staffing and Budgets

Oregon has the largest Forestry Extension Program in the nation and the financial commitment to Forestry and Natural Resources is substantial, $3.6 million in 1998 (Table 6-6). One major difference between Forestry Extension staffing in Alabama and Oregon is the nature of appointments at the county level. Oregon State has 15 Forestry agents in the counties that are 100% Forestry or Watershed Management, allowing them to specialize in various aspects of forestry. OSUES employs 18 county extension foresters, four which focus specifically on watershed management, two in forest products, two in forest science, 9 in forest resources, and one with a joint appointment in forest resources and liberal arts. OSUES has 10 campus based forestry extension specialists in the following areas: forest engineering (2), forest products (3), forest resources (1), forest science (2), wildlife (1), and forestry education (1). Oregon has one County Extension Forester working specifically on sustainable forestry issues as Associate Director of the Sustainable Forestry Partnership. In addition, an Oregon Extension Specialist heads the Sustainable Living program, which encourages environmentally sound consumerism.

Program Activities

Sustainability is inter-disciplinary in nature, thus extension programs that involve aspects of collaboration are more likely to provide a more holistic view of education. In Oregon, the process of collaborative program planning between county and campus-based Forestry Extension faculty began in 1989 (Garland 2000). The team
project planning process grew out of the leadership that Forestry agents and specialists saw in the 1970's. Frustrated with planning meetings where everyone presented individual reports and having identified the need for group projects, they began to look at other ways of planning and programming. The group project planning process has evolved over the years and now, Oregon Forestry Extension faculty devote about roughly 25% of their time to group projects (Garland and Adams 1992). The Forestry Extension team meets twice a year for planning meetings.

The Watershed Stewardship Enhancement Program (WSEP) grew out of the team project planning process and involves faculty from program areas and academic units such as Sociology, Forestry, Wildlife, Political Science, Sea-Grant, Community Development, and Watershed Management. The Watershed Stewardship Enhancement Program (WSEP) is a multidisciplinary educational curriculum aimed at educating watershed restoration groups and citizens about watershed ecosystems and how to work effectively in groups to achieve goals of watershed stewardship. WSEP faculty received a $10,000 innovative project grant from OSU Extension in 1997. It is a collaborative effort between Forestry Extension and Sea Grant Extension and involves faculty from the College of Forestry, College of Agriculture, and the College of Liberal Arts. WSEP covers topics of: watershed processes, stream ecology, evaluation and reduction of upland erosion, riparian area functions and management, evaluating and improving fish habitat, wetland/estuary evaluation and enhancement, working together to create successful groups, water quality monitoring. The audience for WSEP is watershed groups, farmers, foresters, and urban residents.
Because Extension agents in Oregon have multi-county assignments and are tenured in academic units on campus, they are better able to collaborate with campus and county faculty to implement programs such as WSEP. Since county extension faculty in Alabama are not tenured through academic units housed on campus as they are in Oregon, extension agents are in some ways isolated from the campus community.

**Clientele Participation**

We now examine program participation in Natural Resource Extension program in Oregon. There was a pronounced degree of cautiousness accompanying discussions about engaging environmental groups, as non-traditional clientele, in Extension. A sustainable agriculture extension specialist cautioned, “We are extraordinarily careful in working with these non-profit environmental groups because they’ve got their own agendas and it is not necessarily our agenda.” An agent explained his view, “We don’t really work with any environmental organizations per se and haven’t had a lot of correspondence with any environmental organizations even though we would love to.”

In the absence of established relationships between Extension and environmental groups, there was a lack of trust and a fear of losing credibility. An Oregon State Extension Specialist talked about the potential loss of credibility that he perceived might accompany working with non-traditional clientele like environmental groups:
So we have different values and different goals. And for those of us in extension we feel it extremely important to maintain our credibility with various clientele groups. So we are very reluctant to form alliances and coalitions with non-profits because when we do that we get oftentimes used. They want to use us as credibility for their cause. Even though we may agree with them, we're reluctant to tag our name on it because then all of a sudden we are on one side of an issue and we try to stay in the middle-ground.

Trust is an important aspect of any relationship. Alexander Kemp explained how trust was a key to building meaningful relationships with clientele.

“That's extraordinarily important in the process—building trust. First of all, you have to have the ability to talk the language and develop the repertoire during the initial stage. I don’t know what is required for that particular skill. I grew up on a farm. I've farmed myself. I've been involved in agriculture most of my life. I've been involved with working in on-farm research for 30 years. So for me it's a natural; I just can talk to farmers.”

Speaking the language of farming comes easy to someone who has farmed. Similarly, foresters can easily relate to forest owners. Thus, the lack of personal experience made it difficult for some extension faculty to build the trust necessary to establish a working relationship with environmental groups.

Political Context

The political context is especially favorable in Oregon for addressing natural resources sustainability education because Oregon’s Governor Kitzhaber has been a leader in the state with regard to restoring endangered salmon populations. In Oregon, interest groups are in a dominant, yet complementary (Hrebenar 1997)
position in state politics. Also, in Oregon environmental groups such as the Sierra
Club and Oregon Natural Resources Council rank higher than the Farm Bureau in
terms of interest group influence (Hrebenar 1997). In 1997, the Governor’s Office
released the “Oregon Plan for Coastal Salmon Restoration,” promoting a non-
regulatory cooperative approach to watershed management. Extension’s role in
watershed management was outlined:

The University Extension Service has a key role to play in both training
and outreach for the Oregon Plan. There are two major training needs:
interagency cross-training on implementation of the Oregon Plan, and
training for Watershed councils, soil and water conservation districts and
other local groups. University Extension is currently in the process of
developing a Watershed Steward Educational Program (WSEP). WSEP
is a comprehensive watershed enhancement educational program
(consisting of curriculum, training materials and learning aids) that will
enable target audiences to learn to form effective partnerships, to assess
conditions and develop strategies for mitigating or enhancing watershed
resources, and to implement effective enhancement projects. WSEP is a
joint program of the agriculture, forestry and Sea Grant Extension
program areas. The goal is that this program will be accepted by state
and federal agencies directing salmon restoration and management
programs.

Kitzhaber’s policy directives to state agencies in Oregon are intended to sharpen
their focus on water quality and watershed restoration as well as encourage greater
coordination among the agencies involved. In addition to Governor Kitzhaber’s
watershed restoration initiatives, he issued an Executive Order on sustainability in
2000 to develop a state strategy promoting sustainability in internal state government
operations (Executive Order-00-07). The executive order promotes collaboration
between state agencies and places a premium on working together. Thus, Oregon
Extension’s pioneering efforts in the area of watershed management are supported by one of the state’s leading political figures.

Contrasts and Commonalities

We will discuss some of the contrasts and commonalities between Alabama and Oregon Natural Resource Extension programs. We found that attitudes, dominance of agriculture, lack of non-traditional clientele participation, and clientele perceptions were common to both states. However, leadership and administrative support were identified as major contributing factors to Extension personnel in Oregon, and challenges differed between the states.

Attitudes

Attitudes toward sustainability revealed the salience of the term and how useful it is as an organizing topic for Extension educators in Alabama and Oregon. Natural Resource Extension personnel in both states appeared to be aware and conversant about sustainability topics. The most common aspects of definitions and philosophies of sustainability in both states were environmental and economic concerns, with social sustainability more frequently identified in definitions supplied by Alabama Natural Resource Extension personnel versus their counterparts in Oregon.

A national survey of agricultural scientists at land-grant universities revealed that they perceive agricultural sustainability as most closely tied to environmental quality
and less tied to economic and social aspects of sustainability (Lyson 1998). The results of our case studies similarly revealed a closer tie to the environmental aspect of sustainability. In addition, Lyson found discipline-related diversity in attitudes toward sustainability. In fact, 84% of academics in forestry reported that environment was an important goal above all other dimensions of sustainability, while the social dimension of sustainability was the most important goal above all others for social scientists and economists. The results of our interviews revealed that Extension personnel in Oregon and Alabama have similar philosophies and attitudes toward sustainability. Their definitions were weighted toward the environmental aspect of sustainability.

The results of our study along with the work of Lyson and others (deGraaf et al. 1996; Filho 2000) demonstrate the need for inter-disciplinary, collaborative work in order to achieve a balance of all aspects of sustainability.

Natural Resource Extension personnel in Oregon and Alabama both perceived a strong concern from clientele about sustainability ideals, especially environmental and quality of life issues. Adam Cooper, an Extension Specialist in Oregon, described the reaction of the public to sustainability, “I think this whole concept of sustainability of the land and the water resource becomes very significant. We are seeing more and more concern and interest.” Cooper expressed his perception of sustainability concerns, “Until Extension faces the issue of natural resource sustainability, if you will, they are in for a bad time because that’s what I think people want right now— and I don’t think you can exist too long if you don’t give people, at least partly, what they want.” One Alabama Extension agent detailed a needs assessment in his county, “We did a pre-program survey of people and there were more than 90% of those survey
participants that said they wanted to participate in educational activities that would tell
them more about environmental quality and stewardship.” So there was a perception
among Natural Resource Extension personnel interviewed that clientele are very much
interested in and concerned about the environmental aspect of sustainability.

Agriculture Dominance

In both Alabama and Oregon, the Agriculture, Home Economics, and 4-H base
programs dominate expenditures (Table 6-5). The Oregon State University Extension
Service has the largest Forestry Extension program in the nation, employing 28
Extension Foresters at the state and county levels, yet Forestry and Natural Resource
Extension personnel in Oregon account for only 14% of total program area
expenditures in the state—one of the smallest program percentages (Table 6-5).

The dominance of agriculture in Extension staffing and budgets has several
implications. Agriculture has long been criticized in Extension for focusing
exclusively on production. Part of natural resources sustainability is broadening the
focus beyond production and recognizing social and environmental values. Meyer
(1997) noted that land grant universities must incorporate a wider definition of
agriculture, beyond just agricultural production, to encompass environmental
management of all lands. McDowell (1991) asserted that the budget for Extension has
been disproportionately committed to the agriculture community and to the benefit of
farmers and ranchers. In another study, 87% of land grant university administrators,
consultants, and researchers said environmental issues will be the driving force for
land grant Colleges of Agriculture and 94% stated that environmental interests should also be included as clientele (Meyer 1995). Yet analysis of budget and staffing documents does not reveal that this change has taken place. In fact, a 1995 national survey of the general public found that wealthy, educated, whites who live on farms are more likely than their less educated, poorer, urban counterparts to have used extension services or have participated in its programs, neatly delineating the rural tradition of Extension (Christenson et al. 1995). This provides evidence that a balance needs to be found between dollar and staffing allocations among program areas in Extension. Just as sustainable agriculture is a small subset of the agriculture base program so is the contingent of Natural Resource Extension personnel that are working on sustainability issues. Thus the staffing and budget data suggest the need for increased staffing and funding for work in sustainable agriculture and sustainable natural resources education.

Lack of Non-Traditional Clientele Participation

For program participation in Natural Resource Extension, we found that environmental groups, minorities, and other non-traditional clientele had little involvement with Extension. Results showed that non-traditional clientele groups have educational needs that are not being served. In our examination we found little evidence of participation in Extension programs by environmental groups. Extension faculty in Oregon and Alabama conveyed that environmental groups, as a non-traditional clientele group, did not participate in Extension programs very often and
were rarely present on any of the county advisory boards that guide extension programming at the local level. Few Extension personnel in Alabama or Oregon demonstrated efforts to work with environmental groups. In Alabama, there are over one hundred citizen groups concerned with natural resource and environmental quality in the state. The majority of the organizations are structured around water resources, forestry, wilderness, and wildlife issues (Bailey et al. 2000)—areas in which Natural Resources Extension personnel have expertise. This fact becomes even more significant in light of findings indicating that environmental groups have the highest demand for educational programs related to sustainability (Broussard and Bliss, forthcoming).

Of the 58 Natural Resource Extension agents, specialist, and administrators interviewed in Alabama and Oregon, only 7 were female and only one was non-white. In both states we observed a lack of non-traditional clientele participation. These two facts are not unrelated. Diversifying the ethnic, cultural, and gender composition of Extension faculty would be a first step toward improving diversity in program participation. Improved diversity in program participation, in turn, will broaden the discourse around sustainability and begin to address unmet educational needs of non-traditional clientele.

Challenges

Lack of time, staff, and funding were identified as challenges by interviewees in both states, albeit not to the same extent in Oregon as Alabama (Table 6-7). This was
one of the major contrasts in the Alabama and Oregon case studies. Lack of staff was identified as a major challenge by over 70% of Natural Resources Extension personnel in Alabama compared to only 55% in Oregon.

**TABLE 6-7** Frequency of challenges to implementing sustainability in Natural Resource Extension programs as identified by interviewees

<table>
<thead>
<tr>
<th>Challenges</th>
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<th>(n)</th>
<th>Oregon Frequency</th>
<th>(n)</th>
<th>Alabama Frequency</th>
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<td>0.66</td>
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</tr>
<tr>
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<td>8</td>
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</tr>
<tr>
<td>Lack of Administrative Support</td>
<td>0.28</td>
<td>8</td>
<td>0.07</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

One Alabama county extension coordinator discussed time constraints with doing work, "I spend a lot of time on natural resources, but most of that is spent after work because I don't have time to do it during work." While natural resources education was important to this County Coordinator, he was relegated to doing this after hours because it exceeded the amount of time he could spend on it during the normal work hours because of his other responsibilities in non-natural resource areas.

Langley Hughes, an Alabama Extension Agent discussed some of the hardships he has endured due to time constraints on the job and even touches on his perceptions of other agents' experiences with lack of time.

My wife used to say I was never at home. I've heard several other agents' wives' say it too—that they spend too much time on the job. It's easy to do when you are expected to do a lot and there are always
opportunities to do so much more. You have to say no a lot. It is rare that anything ever goes away once it is started. They [Extension] don't usually take any programs away. They are always just adding more. No job is perfect, but I like extension work. I like what I do.

The time constraints described by Alabama county agents are related to the extensive downsizing that has happened in the Extension System there. Buddy Timberlake, an administrator in the state said, “Ten years ago we had over 400 agents; today we have 226. We don’t have as many to go around.” The downsizing has led to a consolidation of positions accompanied by broader job responsibilities for remaining agents. Listening to Walter Rawlins describe his job responsibilities typifies the description offered by many ANR (Agriculture and Natural Resource) agents in Alabama: “I have responsibilities in areas of animal and dairy science, forestry, aquaculture, small ruminants, water quality. Those are the basic ones but I have nine different categories that I work in.” Rawlins laughed, “We could talk three hours about that.” However, the personnel issue is a serious matter and is likely correlated to the funding constraints that precipitated the downsizing. This was in contrast to the experience of Extension Foresters in Oregon who had dedicated assignments in forestry and were able to specialize in particular aspects of the discipline such as forest products or forest engineering.

Low funding levels for natural resource programs was also a significant obstacle identified in the case studies; again, this was identified as more of a challenge in Alabama than in Oregon. Alabama County agent Bob Balanchine is a leader in conducting forestry education programs in his state and this subject area was clearly a high priority for him in his county. However, Balanchine reluctantly admitted, “I am
not willing to say that extension needs to jump into a lot more forestry type programs because of resources. I mean we don’t have the resources to spend a whole lot more time into anything when we are downsizing. There is no area where we can do a lot more than we have in the past.” One state-level administrator in Natural Resources Extension offered a perspective about support for sustainability, “Like most new concepts, without an infusion of new funds it’s difficult to turn the ship around and begin programming in the new areas. To some degree, the push on sustainability is something like that.”

The expressed lack of time and money to conduct expanded programming are partly explained by downsizing. Extension in both Oregon and Alabama has undergone significant restructuring and downsizing in the past. Between 1998 and 2000, the Alabama Cooperative Extension System eliminated or reconfigured over 80 positions (9 administrators, 13 specialists, 47 field-based educators, and 11 support staff) (ACES 1999c). In 1998, the Alabama Cooperative Extension System was faced with a budget shortfall of over $1 million due to a 7.5% across the board cut to higher education in 1995-1996 (ACES 1998). Edward Norton, an Extension Administrator in the state explained the consolidating effects of downsizing:

We have stretched our resources and when you’ve got a county staff of four agents and you lose an agent... all of a sudden you lose one of the 4-H agents. What happens is that it sucks one of those other people right in it and the 4-H program goes on as it was and the adult programs are the ones that are diminished because you’ve got 4-H clubs expecting you. The principal is expecting you. We have got to come to grips with that. As long as they are doing it that way it affects what I do because that is gobbling up resources that could go into Natural Resource areas.
George Barish, a county agent, was able to focus specifically on horticulture when he first came to Extension in Alabama. Barish stated, “When I came here 11 years ago primarily to address the issue of home horticulture. We have downsized considerably in the last few years. When I came here there were three of us working in the area of horticulture. The other two gentlemen took early retirement due to our downsizing and I've picked up all of the responsibilities. All of the work that they were doing now falls under my umbrella. Obviously it is impossible to do everything that three of us did 11 years ago so I've just been spread out a lot more and obviously can't focus quite as well as could 11 years ago. The downsizing has forced county agents to be generalists covering multiple program areas and making it difficult to specialize.”

Leadership and Administrative Support

Extension personnel in Oregon viewed administrative support and leadership as an important factor in their ability and encouragement to branch out in new directions with regard to educational programming. Ronald King, an Extension Specialist in Oregon explained his administration’s reaction to the negative reactions he was receiving from sectors of the agricultural industry sectors because of reduced-input, water conserving research and extension work he was conducting.

A group of the industry folks actually came down and met with the Dean of the College of Agriculture, the Director of the Experiment Station, the Director of Extension, and my Department Head. They met with them for three hours and tried to get the [my] research stopped. So it was kind of a bad situation actually. I had a lenient administration. If I had different administrators, they could've lowered
the boom and said, you’re not going to fool around with this anymore. But they didn’t and I actually admire them for that because a lot of the administration really tries to keep the population happy. That’s one of the reason’s I guess I feel so strongly that we work for society as a whole and not for special interest groups. I would hate to think I work just for the pesticide manufacturers or whoever is supplying some of the grants.

Because administrators provided the support for his research and extension program, King was able to continue working on his sustainability-related topics despite the industry’s discontent. Jodine Jolma, also an Extension Specialist at Oregon State, expressed how the administrative support she received allowed her to take her Extension work in a sustainability direction.

The Sustainable Living Project... the idea is to promote environmentally responsible consumerism and environmentally responsible lifestyles. I wrote the white paper, the gist of it and I called Robert [her administrator] on the weekend and I said, Robert, I’ve got an idea, you’ve got to listen. And I waved my arms around on the phone and he was pretty tolerant and he said, put it down on paper. And what we ended up doing was coming up with the Sustainable Living Project and our idea was to reduce environmental degradation and improve quality of life. So that was the direct catalyst. The fact that I have an environmental ed. Background, the fact that I had a very willing boss who was willing to kind of push the envelope made a huge difference... my boss allowed me to do it. I cannot give enough credit to Robert Beard who said, you know this is one of those holes that we have that we didn’t even know we had, let’s see if we can fill it. I have to say that the other two people that I answered two— because I had three bosses— did not buy off on the concept anywhere as enthusiastically as he did.

These are just two examples of cases where administrative support allowed both extension specialists and agents to branch out into education addressing sustainability topics that were not always well-received and at times, controversial. Administrative
leadership and support was identified as a major contributing factor to conducting education related to sustainability in Oregon.

Conclusions

We conducted comparative case studies of Natural Resource Extension programs in Oregon and Alabama to examine program inputs, activities, and participation as they relate to sustainability. Our analysis yielded informative characteristics with regard to how Natural Resource Extension personnel in both states view sustainability and how it is implemented in programming. Our comparison of Alabama and Oregon Extension revealed parallels regarding awareness and attitudes toward sustainability as well as differing levels of commitment to staffing and funding related to Natural Resources Extension. The historical orientation of Extension toward agriculture, lack of financial commitment, and lack of staffing were identified as major challenges.

Major challenges to education related to natural resource sustainability in Alabama were lack of funding, which led to downsizing and broader program responsibilities for remaining staff. In addition, the traditional agriculture constituency in the Alabama has resisted change in Extension educational programming. Because the political institutions that support Extension in Alabama had different views for what they thought Extension should be doing, it was difficult to increase services to non-traditional clientele or take new programming directions. This made for a particularly precarious position because loss of support from traditional audiences could translate into decreased political support and subsequent funding for Alabama Extension.
Coupled with the court-ordered desegregation of Extension programs five years ago, this creates an especially complex environment. However, we did see how partnering with organizations provided the political support and funding necessary to implement changes, as was the case with the Urban Environmental and Horticulture Center in Birmingham. Oregon faced similar challenges with traditional agriculture lobbies, but they were not the most powerful interest groups and their influence on state politics was not as significant as it was in Alabama. The addition of Governor Kitzhaber's sustainability and watershed restoration initiatives created a very different political landscape than that of Alabama. The Governor has provided funding for grassroots watershed restoration groups and given a directive to state agencies to address watershed and sustainability issues in their work. Therefore, we conclude that the political context of a state is a significant factor that can influence the Extension organization and its commitment to sustainability.

Because Oregon county agents were not charged with broad programmatic responsibilities (covering multiple program areas), they were able to dedicate their time exclusively to forestry education, with several dedicating a majority of their time to watershed and sustainability issues. With only 14% of Extension expenditures in the forestry and natural resources program area, Oregon has made tremendous strides in the area of sustainability including a curriculum aimed at helping grassroots watershed councils manage and make decisions about watersheds, four county-based staff to carry out watershed level educational programming, a Sustainable Living program with the goal of helping consumers address sustainability concerns in their lives. Without the staffing and funding to support increased extension work in the area of natural
resources, it will be difficult for Extension in the states to address natural resource sustainability concerns. Thus, a financial commitment to natural resource sustainability through education must accompany the intellectual commitment. In the face of limited resources and downsizing, this requires reorientation of the current financial investments toward programming that incorporates the tenets of sustainable agriculture and natural resources.

Non-traditional clientele participation in Extension programs was lacking in both Alabama and Oregon. In order to improve the degree and quality of participation, Extension must broaden its clientele base to include non-traditional clientele like urban residents, environmental groups, and minorities in extension programs and program planning.

Philosophical support for sustainability is but one of a constellation of factors needed to demonstrate awareness of and commitment to sustainability in Extension education. Financial commitment in terms of budgets, staffing, and leadership must accompany that philosophical vision. In addition, Extension must engage non-traditional clientele in Extension programs, program planning, and staffing order to achieve equitable program participation. Lastly, the political context of a state affects the degree of commitment to natural resource sustainability education in Extension and should be taken into consideration as a mediating factor.

Gene Davis, an agent in coastal Alabama described Extension using an analogy of a ship on fire: "We are on that ship. I'm a passenger as an employee and the Administration is the crew. There are some fires and we ain't getting a lot of good responses. We know there are some problems. I don't think this ship is gonna sink
but I'd like to know where the life preservers are." Sustainability may be the life preserver that Extension needs to maintain its relevancy and respond to society's educational needs. It is evident that clientele are concerned about sustainability and Extension's response to those concerns, through both philosophical and financial commitment, will define this educational partnership and its viability in the future.
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Wright, Angela, and Bruce Shindler. 1999. Perspectives on watershed management: Knowledge and opinions from the Lower South Santiam River, Crabtree Creek, and Thomas Creek watersheds. Corvallis: Oregon State University.

CHAPTER 7

SUMMARY AND RECOMMENDATIONS
Summary

Natural Resource Extension programs inform and influence management, decisions, and knowledge of thousands of citizens across the country, and have the potential to contribute much to the national dialogue around sustainability. In this study, I examined the concept of sustainability exploring its use, definition, and utility in Natural Resource Extension education programs in the United States. The data came from quantitative and qualitative research methods applied at the county, state, and federal levels:

- Extension budget and planning document analysis
- Key informant interviews with federal Extension Administrators
- National survey of state Natural Resource Extension Administrators
- Comparative case studies of Natural Resource Extension programs in Alabama and Oregon

I examined sustainability in terms of Natural Resource Extension program inputs, program activities, and stakeholder participation. Program inputs are the resources that go into educational programming in extension: staff, dollars, and vision. Educational programs include the actual programs that are conducted through Cooperative Extension. Participation describes the interaction between Extension and their clientele in programs and program planning. The broad component areas of program inputs, educational activities, and participation served as a guide in document analysis and as topics for the interviews. Awareness indicators refer to extension
program inputs and commitment indicators refer to Extension program activities and participation. Inputs, activities, and participation all take place in the context of the organization and political environment, thus contextual factors were taken into account in the research design.

I found that for program inputs, there was an awareness and support for the concept of sustainability and broad philosophical support for natural resources sustainability education at the county, state, and national levels. However, this support was not reflected in the actual commitment as measured by program inputs such as funding and staffing. The Oregon case study revealed that administrative support was a significant program input that allowed some of the new directions in programming to take place, while Alabama revealed the challenges of a political context ruled by the traditional agriculture lobby and the effects of reorganization and downsizing.

The dimensions of educational activities that proved most significant were approaching education from a systems viewpoint and collaborating with others in Extension or in other disciplines and program areas. The collaborative relationships and broader ecosystem focus yielded productive working relationships and projects that embodied the concepts of sustainability. Results showed that Natural Resource Extension Administrators around the country and in Alabama and Oregon viewed educational activities related to natural resource sustainability as high priority and also perceived that clientele were concerned about sustainability issues.

For program participation in Natural Resource Extension, we found that environmental groups, minorities, and other non-traditional clientele had little involvement with Extension. While we did find examples of non-traditional clientele
participation in Extension programs, there was not evidence that this was consistently the case. Results showed that non-traditional clientele groups have educational needs that are not being served and the participation aspect of sustainability outlined in our framework falls short of being met.

The major challenges to addressing natural resource sustainability through education identified by research participants were 1) the historical orientation of Extension toward traditional agriculture, 2) lack of administrative support at the USDA level, 3) lack of staffing, and 4) lack of funding. These challenges were more pronounced in Alabama, where the constellation of challenges was the greatest. Oregon’s favorable political context for natural resource sustainability was a significant factor in Extension’s programming direction related to sustainability.

Our research focusing on the federal Extension partner, CSREES, revealed the struggles of a weakly funded agency whose Natural Resource Program Leaders constantly battle to increase their share of support from an agency that has not yet recognized the importance of the Natural Resource and Environmental Management (NREM) program area in Extension— at least not in budget allocations. NREM commands little attention in CSREES strategic plans, budgets, and philosophies.

The federal dollar contribution to the Cooperative Extension System has been shrinking in recent years and the states have taken on a larger financial responsibility for funding Natural Resources Extension Education. The Renewable Resources Extension Act (RREA), which is the federal funding mechanism for Natural Resources Extension has received weak financial support since its inception, requiring the states to leverage their allocations to build successful programs. RREA’s first
appropriation was $2 million in 1982. It is barely over $3 million 18 years later. As states and counties have been providing an increasingly greater percentage of extension funding, it appears that leadership will likely come from this level with regard to sustainability programming. The handful of Natural Resource National Program Leaders in Washington are in a state of continually fighting for resources for the Natural Resource and Environmental Management Program Area. It is difficult for these Program Leaders to be visionary when the budgetary legs of their programs are unstable.

We found that the historical agricultural tradition in Extension, while changing, was still an impediment to addressing natural resource sustainability. USDA was founded upon dependence on clientele and the agricultural constituency remains a major source of USDA's power as a bureaucracy. White, educated, wealthy, rural clients remain the groups who are most likely to have participated in Extension programming, not urban, minority, or environmental interests. The Alabama case study demonstrated how the political institutions that support extension makes it difficult to garner input and participation by diverse groups in extension education programs. Increasing services to non-traditional clientele involve, to some degree, reduced educational services to traditional clientele groups. This makes it a particularly difficult position for Extension because loss of support from traditional audiences, could translate into decreased political support and subsequent funding.

A balance needs to be found between dollar and staffing allocations among program areas in Extension. Just as sustainable agriculture is a small subset of the agriculture base program so is the contingent of Natural Resource Extension
personnel that are working on sustainability issues. Thus the staffing and budget data provide evidence of the need for increased staffing and funding for work in sustainable agriculture and sustainable natural resources education.

**Recommendations**

Based on the evaluation of Extension’s awareness level, inputs, and participation, I conclude that the following outcomes are necessary for Extension to address natural resource sustainability through its educational programs:

- **Intellectual Commitment:** Recognition that sustainability encompasses environmental, economic, and social aspects that must all be addressed in natural resources extension education; this involves approaching education from a systems viewpoint and integrating the three components of sustainability.

- **Financial Commitment:** commitment to natural resources education in extension should be reflected in budgets and staffing; this may involve a redirection of extension resources away from production agriculture and toward natural resources and sustainable agriculture programming and staffing.

- **Collaboration:** Addressing sustainability requires working across program areas, across disciplines, and within programs.
• Inclusive and Diverse Participation: Engagement of non-traditional clientele in extension programs and program; this includes broadening the diversity of viewpoints and backgrounds of personnel in Extension

While not identified as a major challenge by Extension personnel involved in the research, I found that diversity in the program participation aspect of sustainability was lacking in all aspects that we examined—case studies in two states and the national survey. Coupled with the lack of racial and gender diversity among Natural Resource Extension Administrators around the country, this has significant impact on realizing the goals of sustainability (Table 5-12). Diversifying the ethnic, cultural, and gender composition of Extension faculty would be a first step toward improving diversity in program participation. Extension must broaden its staff to reflect the racial and ethnic diversity of the society it serves. Improved diversity in program participation, in turn, will broaden the discourse around sustainability and begin to address unmet educational needs of non-traditional clientele.

Given the historical and long-standing focus of extension on production agriculture, a true commitment to natural resource sustainability requires a shift away from this framework and toward one that demonstrates commitment, possesses a holistic worldview, encourages collaboration, and provides for diverse and inclusive participation. The philosophical commitment to sustainability is but one of a constellation of factors that contribute to that commitment becoming a reality for extension. County, state, and federal extension partners must all demonstrate that commitment and it should be evident in Cooperative Extension System philosophies,
staffing, and budgets. In addition, Extension must broaden its clientele base to include non-traditional clientele. Extension's limited resources must be retargeted to fill some of the educational voids. Dedicating only 3 percent of Extension staff nationwide to forestry extension work does not represent a substantial commitment to the tenets of natural resource sustainability education.

Extension educators have the ability to communicate and help the public better understand the issues around sustainability and provide a more complete understanding of alternative decisions available to both natural resource leaders and society. Extension's response to sustainability concerns at the federal, state, and local levels will define the future of this educational partnership and whether it will become a source of education for all Americans.
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APPENDICES
Exploring Sustainability in Natural Resource Extension Programs

A Survey of State Forestry & Natural Resource Program Contacts

Oregon State University
Department of Forest Resources
You have received this questionnaire because you have been identified as a contact for natural resources extension in your state. We are very interested in your responses to these questions regarding sustainability and natural resources extension programming. Please be assured that your answers to all questions remain strictly confidential.

"If you are not the person that handles forestry or natural resource extension for your state, please forward this questionnaire to the appropriate person."

THANK YOU!

Section 1

The following set of questions refers to the concept and application of sustainability. Perhaps the most widely used definition comes from the Brundtland Report: "to meet the needs of the present without compromising the ability of future generations to meet their own needs." The inter-dependence of social, economic, and ecological systems is a central concept of sustainability.¹

1. Please answer the questions in this section in the context of the above definition. Choose the statement that best reflects your personal view about sustainability.
   (Circle one number for each statement)

<table>
<thead>
<tr>
<th>AGREE</th>
<th>SOMEWHAT AGREE</th>
<th>SOMEWHAT DISAGREE</th>
<th>DISAGREE</th>
<th>DON'T KNOW</th>
</tr>
</thead>
</table>

   a. I agree with the concepts of sustainability, but just don't use that term.        1 2 3 4 5
   b. I am not familiar enough with the concepts of sustainability to have an opinion.  1 2 3 4 5
   c. I fully embrace the concepts of sustainability and use the term.               1 2 3 4 5


(START OF NEXT PAGE)
Choose the statement that best reflects your personal view about sustainability.
(Circle one number for each statement)

<table>
<thead>
<tr>
<th>Statement</th>
<th>AGREE</th>
<th>SOMEWHAT AGREE</th>
<th>SOMEWHAT DISAGREE</th>
<th>DISAGREE</th>
<th>DON'T KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>d. I reject the concepts of sustainability and subscribe to a different way of thinking</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>e. The concepts of sustainability are useful, but the term is too politically loaded</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>f. Concepts of sustainability guide my individual work in Extension</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>g. Sustainability is little more than a buzzword</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>h. I consider myself a proponent of sustainability</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>i. I believe in the concepts of sustainability</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>j. Some clientele are suspicious of the term sustainability</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>k. Sustainability is too politically controversial to be useful in my work</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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</tbody>
</table>

(PLEASE TURN THE PAGE)
2. Please complete the following sentence. *(Circle one number)*

If I had to generalize, I would say that most of ....

1. Our state’s natural resource programs incorporate neither the concepts nor the term sustainability.

2. Our state’s natural resource programs incorporate the concepts of sustainability, but not the term.

3. Our state’s natural resource programs incorporate both the concepts of sustainability and the term.

4. Our state’s natural resource programs incorporate the term sustainability, but not the concepts.

3. Which of the following best describes your belief? *(Circle one number)*

1. Using the term sustainability in natural resource extension programs attracts more clients than it deters.

2. Using the term sustainability in natural resource extension programs has no impact on clientele.

3. Using the term sustainability in natural resource extension programs deters more clients than it attracts.

4. Which of the following best describes your belief? *(Circle one number)*

1. Generally, inclusion of the term sustainability in program titles detracts from the credibility of natural resource programs.

2. Generally, inclusion of the term sustainability in program titles has no impact the credibility of natural resource programs.

3. Generally, inclusion of the term sustainability in program titles adds credibility to natural resource programs.
**Section II**

The next set of questions is about natural resource extension programs in your state.

5. The following topics are possible components of natural resource extension programs. Please rank each of the following components on a five-point scale from lowest priority (1) to highest priority (5) in your state's natural resource extension programs and from (1) no funding to (5) adequate funding for each in your state's natural resource extension programs. (Circle one number each for priority and for funding)

<table>
<thead>
<tr>
<th>-Priority-</th>
<th>-Funding-</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOW</strong></td>
<td><strong>MEDIUM</strong></td>
</tr>
<tr>
<td>a. Forest regeneration</td>
<td>1</td>
</tr>
<tr>
<td>b. Watershed health</td>
<td>1</td>
</tr>
<tr>
<td>c. Economic diversification</td>
<td>1</td>
</tr>
<tr>
<td>d. Production forestry</td>
<td>1</td>
</tr>
<tr>
<td>e. Small landowner workshops</td>
<td>1</td>
</tr>
<tr>
<td>f. Watershed planning</td>
<td>1</td>
</tr>
<tr>
<td>g. Public issues education</td>
<td>1</td>
</tr>
<tr>
<td>h. Ecosystem management</td>
<td>1</td>
</tr>
<tr>
<td>i. Biodiversity conservation</td>
<td>1</td>
</tr>
<tr>
<td>j. Collaborative learning</td>
<td>1</td>
</tr>
<tr>
<td>k. Ecological health</td>
<td>1</td>
</tr>
<tr>
<td>l. Community well-being</td>
<td>1</td>
</tr>
<tr>
<td>m. Forest roads</td>
<td>1</td>
</tr>
<tr>
<td>n. Public participation in forestry</td>
<td>1</td>
</tr>
<tr>
<td>o. Forest health</td>
<td>1</td>
</tr>
<tr>
<td>p. Sustainable forestry</td>
<td>1</td>
</tr>
<tr>
<td>q. Urban forestry</td>
<td>1</td>
</tr>
<tr>
<td>r. Wildlife management</td>
<td>1</td>
</tr>
<tr>
<td>s. Public forestry education</td>
<td>1</td>
</tr>
<tr>
<td>t. Forest profitability</td>
<td>1</td>
</tr>
<tr>
<td>u. Youth forestry education</td>
<td>1</td>
</tr>
<tr>
<td>v. Forest products marketing</td>
<td>1</td>
</tr>
<tr>
<td>w. Forest management planning</td>
<td>1</td>
</tr>
<tr>
<td>x. Timber harvesting</td>
<td>1</td>
</tr>
<tr>
<td>y. Best Management Practices</td>
<td>1</td>
</tr>
<tr>
<td>z. Empowerment of local communities</td>
<td>1</td>
</tr>
</tbody>
</table>

(PLEASE TURN THE PAGE)
6. Please indicate whether you agree, somewhat agree, somewhat disagree, or disagree with each of the following statements. (Circle one number for each)

<table>
<thead>
<tr>
<th>AGREE</th>
<th>SOMEWHAT AGREE</th>
<th>SOMEWHAT DISAGREE</th>
<th>DISAGREE</th>
<th>DON'T KNOW</th>
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</table>

a. Our programs include a specific community well-being component.......................... 1 2 3 4 5

b. Our programs are designed to address landscape level issues......................... 1 2 3 4 5

c. Biodiversity conservation is an important program goal............................. 1 2 3 4 5

d. There is adequate participation in planning Extension programs by local communities and local groups ........................................ 1 2 3 4 5

e. We offer staff training opportunities related to sustainable development........... 1 2 3 4 5

f. Our programs encourage natural resource management on a long time-scale (10+ years) ...................... 1 2 3 4 5

g. Environmental groups are represented on our natural resource advisory council(s) ........................................ 1 2 3 4 5

h. The federal partner (CSREES) provides leadership with regard to sustainability programming ....... 1 2 3 4 5
7. Please indicate whether or not your state natural resource extension service provides each of the following programs. (Circle one number for each)

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
<th>DON'T KNOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>1</td>
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<td>3</td>
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<tr>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

a. We offer educational programs on Best Management Practices
b. We offer educational programs on certification of forest products
c. We offer programs in languages other than English
d. We offer urban forestry programs
e. We offer programs on watershed management
f. We offer programs in (specify)__________

8. In the space below, please summarize your own personal definition, view, or philosophy of sustainability.
9. Do you see a need for natural resource programs in extension dealing with sustainability?  
(Circle the number of your answer)  
1 NO (Skip to question number 10)  
2 YES  

9a. Below is a list of possible challenges that may or may not arise when delivering/designing natural resource programs in extension that deal with sustainability. Please indicate whether the following items represent a big challenge, modest challenge, or no challenge in your state.  
(Circle the number of your answer for each)  

<table>
<thead>
<tr>
<th>Big Challenge</th>
<th>Modest Challenge</th>
<th>Not a Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Lack of funding</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>b. Lack of awareness by extension faculty</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>c. Lack of awareness by extension constituents</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>d. Lack of interest by general public</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>e. Lack of time for extension faculty</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>f. Lack of staff to conduct expanded programming</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>g. Lack of clarity around what sustainability means</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>h. Difficulty of defining sustainability</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>i. Lack of federal partner (CSREES) leadership</td>
<td>1 2 3</td>
<td></td>
</tr>
<tr>
<td>j. Other (specify)</td>
<td>1 2 3</td>
<td></td>
</tr>
</tbody>
</table>

10. People have different reactions to the term sustainability. Below are possible reactions that people may have. Please indicate whether a statement does or does not generally represent your experience.  
(Circle the number of your answer for each)  

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. The term resonates with the urban public</td>
<td>1 2</td>
</tr>
<tr>
<td>b. It's a new buzzword</td>
<td>1 2</td>
</tr>
<tr>
<td>c. Woodland owners identify more with the term stewardship</td>
<td>1 2</td>
</tr>
<tr>
<td>d. People are skeptical of sustainability</td>
<td>1 2</td>
</tr>
<tr>
<td>e. The term is politically charged</td>
<td>1 2</td>
</tr>
<tr>
<td>f. It turns people off</td>
<td>1 2</td>
</tr>
<tr>
<td>g. Extension might be viewed as having an advocacy position</td>
<td>1 2</td>
</tr>
<tr>
<td>h. The term resonates with the rural public</td>
<td>1 2</td>
</tr>
<tr>
<td>i. Other (specify)</td>
<td>1 2</td>
</tr>
</tbody>
</table>
11. How would you characterize the level of demand for sustainable natural resource programs coming from each of the following groups? (Circle the number of your answer for each)

<table>
<thead>
<tr>
<th></th>
<th>NO DEMAND</th>
<th>GROWING DEMAND</th>
<th>HIGH DEMAND</th>
<th>UNSURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Federal Partner (CSREES)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>B. County Extension Faculty</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>C. Advisory Councils</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>D. Extension Specialists</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>E. General Public</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>F. Rural Public</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>G. Environmental Groups</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>H. Commodity Groups</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I. Urban Public</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>J. Other (specify)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

12. Of the groups listed above in question number 11, which do you feel have the highest, second-highest, and third-highest demand for programs in sustainability? (Please write the letter in the appropriate box).

<table>
<thead>
<tr>
<th>HIGHEST DEMAND</th>
<th>SECOND-HIGHEST DEMAND</th>
<th>THIRD-HIGHEST DEMAND</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Please turn the page)
Section III

This last section will help us learn about your background and experience.

13. Which of the following Extension titles currently apply to you? (Circle all that apply)

1. Natural Resources and Environmental Management (NREM) Base Program Coordinator
2. State Program Leader for Forest Management
3. State Program Leader for Wood Products Marketing
4. Agriculture and Natural Resources Program Leader
5. State Program Leader for Natural Resources at an 1890 Institution
6. Extension Agent at a Tribal College (1994 Land-Grant)
7. Extension Specialist
8. Extension Director
9. Other (specify)

14. For how many years have you held the position referred to in question 13?

___________ YEARS

15. For how many years have you been employed by the Extension Service?

___________ YEARS

16. Do you have primary budget authority over funds for forestry and/or natural resource programming in your state? (Circle the number of your answer)

1. YES
2. NO

17. Do you have primary leadership authority for forestry and/or natural resource programming in your state? (Circle the number of your answer)

1. YES
2. NO

18. What was your age on your last birthday? (Circle one number)

1. UNDER 25 YEARS
2. 26-35 YEARS
3. 36-45 YEARS
4. 46-55 YEARS
5. 56-65 YEARS
6. OVER 65 YEARS

(GO ON TO NEXT PAGE)
19. Which of the following best describes your racial or ethnic identification? (Circle one number)

1  White, European American, Non-Hispanic
2  Black, African American, Non-Hispanic
3  Hispanic or Latino American
4  Asian or Asian American
5  Middle Eastern or Middle-Eastern American
6  North African or North African-American
7  Pacific Islander
8  American Indian or Alaskan Native
9  If none of the above choices applies to you, please use your own description.

20. What is your gender? (Circle the number of your answer)

1  FEMALE
2  MALE

21. What is the highest level of education you have achieved? (Circle the number of your answer)

1  Associate’s
2  Bachelor’s
3  Master’s
4  Doctorate
5  Other (specify)

22. Please indicate which of the following best describes the program in which you earned the highest degree specified in question 21 above. (Circle the number of your answer)

1  Agricultural Sciences (Animal Science, Crop and Soil Science, Rangeland, Plant Biology, Entomology, Horticulture)
2  Business
3  Engineering
4  Economics
5  Liberal Arts (Psychology, Foreign Language, Political Science, Philosophy, History, Music, English)
6  Forestry
7  Home Economics and Education
8  Science (Chemistry, Biology, Physics, Mathematics, Statistics, )
9  Earth Science (Geology, Geography, Geosciences)
10  Oceanic and Atmospheric Sciences
11  Veterinary Medicine
12  Fisheries and Wildlife
13  Sociology, Rural Sociology
14  Other (specify)

23. Would you like a copy of the results of this survey? (Expected summer 2000)

1  YES
2  NO

(PLEASE TURN THE PAGE)
Please feel free to write any comments in the space below.

Thank you for your help!

Please return your completed questionnaire in the enclosed postage-paid envelope to:

Survey Research Center
Oregon State University
44 Kidder Hall
Corvallis, OR 97331-4606

(GO ON TO NEXT PAGE)

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APPENDIX B

INFORMED CONSENT FORM
INFORMED CONSENT FOR STUDY:
UNDERSTANDING SUSTAINABLE DEVELOPMENT
IN NATURAL RESOURCES EXTENSION PROGRAMS

I/we ___ Shorna Broussard ___ appreciate your taking time to meet with me/us to discuss sustainable rural development in Oregon. Federal regulations, as well as requirements of Oregon State University, require that you give your informed consent before we begin our interview.

The full title of our project is “Collaboration for sustainable development: activists, agents, and academics.” This project is an undertaking of the College of Forestry at Oregon State University. The project is funded by the U.S. Department of Agriculture through the National Research Initiative Competitive Grants Program. The principle investigator on this project is

Dr. John Bliss, Starker Chair in Private and Family Forestry
Forest Resources Department
203 Peavy Hall
Corvallis, OR 97333
(541)737-4427

Purpose of Research. The purpose of our research project is to document and understand sustainable development programming in the Oregon State University Extension Service. Dr. Bliss and Shorna Broussard, a graduate student from the College of Forestry at Oregon State, are conducting the research.

Why you were selected to be interviewed and what we hope to learn from you. You were selected because your professional responsibilities are related natural resources and/or sustainable development. Information that you share with us during this interview is an essential part of our research efforts.
Time commitment. There is no set time limit to this interview and we may ask to interview you on more than one occasion as the research progresses. You may halt the interview at any time and you may decline to meet with any member of the research team at any future point.

Possible Risks. We do not believe there are any risks associated with participation in an interview. We do recognize that diversity of opinions exist regarding how natural resources might best be managed and how sustainable development might be achieved. We will be interviewing many individuals to gain as broad an understanding of these subjects as possible.

Your rights. If at any time you wish to speak off the record or make statements that you wish not to be attributed to you, we will honor your request. You do not have to answer any questions that we ask and such refusal will involve no penalty. You also have the right to decline to answer any specific question we ask. No comment you make to us will be able to be identified as coming from you without your expressed written permission.

Compensation. No financial compensation or payment will be made to those who participate in this study.

Your decision whether or not to participate will not jeopardize your future relations with Oregon State or with the College of Forestry. If you have any questions, we invite you to ask them now. If you have questions later, please contact Dr. John Bliss (541-737-4427) and he will be happy to answer them. You will be provided a copy of this form to keep.

If you have questions about your rights as a research subject, please call Mary Nunn, Director of Sponsored Programs, OSU Research Office, (541)737-0670.

Signature of Subject ___________________________ Name of Subject ___________________________

Date ___________________________

Investigator Signature ___________________________ Name of Investigator ___________________________
Interview Questions
County Agents, Extension Specialists, County Coordinators

Interviewee #

Interview Date

Interviewee Location

Prior to interview, request or obtain

Preliminary Periodic Faculty Review for FY 98,
Job Description,
Advisory Council List

Program Information from Web

Length of time in Extension?
Length of time in current assignment?
What disciplines are your degrees? Any special training beyond that?

Extension

1. Describe your role in Extension

2. How are programs designed?
   - input?

3. Describe your planning process, documents, time scale.

4. How much of the overall budget comes from county funding?
   - To what extent does local funding influence programming?

Advisory Councils

1. Do you have any advisory councils?
   - County level?
   - Program area level?

2. Tell me about your experiences with your advisory council. How does it work?
   - How are people appointed?
   - What do you look for?
   - What is the influence?
- How well has it worked?

3. What is the purpose of the Advisory Committee in your county?

4. Describe other advisors that have input into program?
   - How is that information used?

5. How do you evaluate whether the Advisory Committee is representative?

6. Are there any segments of the community that are not so well represented on council?

7. Are there any local organizations that you work with?
   - (I will have list of active natural resource organizations in their area)
   - Are any represented on committee? If not, why?

**Sustainable Development**

1. To what extent is sustainability discussed?

2. Is it an issue for you or your clientele?

3. How useful has the concept of sustainability been to you in your Extension work?

4. Think about a system that you are familiar with.
   - What makes a system sustainable?
   - What leads to sustainability?

**Social, Economic, and Environmental components of Programs**

(SO) To what extent do programs have specific community welfare components to them?

(EV) Can you tell me at what scale your programs are conducted in terms of time and geography?

(SO) To what extent are programs designed to enhance community well-being?

(EC) How does what you do in Extension address the educational needs of the people in your counties?

(EV) Do your programs address biodiversity conservation?

(SO) What are some examples of programs that involve collaboration with stakeholders or some other form of local involvement?
(EV) Do your programs address ecosystem health and vitality? What kinds of things do you focus on?

(EC) How do your programs tie in with economic issues such as diversification?

(EC) What do you do that affects economic viability and adaptability?

**Demand for Sustainability**

1. Is there a demand out there for programs dealing with sustainability? Where is the demand coming from?
   - From constituency? Has it been identified in the yearly needs assessment?
   - From the top?
   - From you?
   - From past clients? From new clients?
   - Are you partnering with organizations you haven’t in the past?

2. Do you feel comfortable meeting the demand or do you feel you need additional training?
   - What kind of training would you need

**Future and Recommendations**

1. Is sustainability something we should be incorporating into Extension programs?

2. What are the some incentives that you see for sustainability programming in Extension?
   - Special grants, dollars, encouragement

3. What are some challenges that you see for sustainability in Extension?

4. What recommendations do you have for how sustainability can be incorporated into Extension programs?

5. To what extent are you being supported to do sustainable development work?

6. What is your perception of the Oregon Extension’s awareness of sustainability?