

A CASE STUDY OF STAKEHOLDER NEEDS FOR EXTENSION EDUCATION

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## Abstract

The 1998 Farm Bill mandated collecting stakeholder input for land-grant universities. This study collected stakeholder input into forestry programming priorities at a major land-grant university using qualitative case study methods. It was found that communication barriers existed between the faculty and their stakeholders. Stakeholders were not getting the information they needed to solve their daily problems. Cooperative Extension Service agents generally lacked appropriate content knowledge in forestry to serve stakeholders. It was recommended that the forestry department simplify documents that were intended for stakeholders as they were written using technical terms. Efforts to communicate with stakeholders should be expanded via the Internet, email, newsletters, demonstration plots, field days, and workshops.

## Introduction

The Cooperative Extension Service (CES) has recently undergone a period of expansion within this state. Over the last two years, the state legislature has increased annual base level funding by \$1.6 million to place two CES agents in each of the state's counties. The expansion efforts have focused on traditional program areas such as production agriculture, family and consumer sciences, and 4-H youth development.

The failure to recognize areas of need outside traditional program areas has been a core issue in the widening gulf between the land-grant university and its constituency (Dale, 2000). Recently the American public has demanded higher accountability from land-grant universities as evidenced by the 1998 Farm Bill, which mandated that public institutions collect stakeholder input when developing research, education, and extension programs (AREERA, 1998).

According to the 1998 Farm Bill, land-grant universities, experiment stations, and CES must take steps to identify stakeholders for each of the various research and academic areas to assess their needs for information and programs. This study was conducted to gather stakeholder input to fulfill the 1998 Farm Bill mandate for the Forestry Department at a major land-grant university. The researchers gathered data to assist the department in understanding its constituents' needs for information and programs and to increase communication between the research faculty and stakeholders. The Forestry Department was chosen because timber resources and wood products were the third largest agricultural commodity in the state and the most important agricultural product in the tri-county region of the state where the data were collected.

Sample selection for participation in this study was based on legitimate stakeholders who had sufficient program knowledge to contribute to the process in meaningful ways, and whose self-defined stake in forestry programs and research was high (Greene, 1988). Stakeholders were divided into three categories: beneficiaries, agents, and underrepresented citizens. Beneficiaries were those people who benefited from university programs, agents were those people involved in research and planning or delivery of programs, and the underrepresented citizens were those who were inadequately served by the university (Guba & Lincoln, 1989).

## Purpose and Objectives

The purpose of the case study was to identify and gather input from Forestry Department stakeholders for setting research and educational programming priorities. The specific objectives of the study were to:

1. Identify stakeholders of the Forestry Department.
2. Describe stakeholders' forestry related problems and challenges.
3. Describe stakeholders' educational needs.
4. Identify sources of information used by stakeholders.
5. Determine stakeholders' level of interaction with the Cooperative Extension Service.
6. Collect stakeholder recommendations on how the land-grant university could better serve them.

## Methods and Procedures

The study utilized qualitative case study techniques (Merriam, 1998; Stake, 2000; Yin, 1984) to collect, analyze, and interpret the data. One of the most important uses of the case study is to "*explain* the casual links in real-life interventions that are too complex for the survey or experimental strategies" (Yin, 1984, p. 25, emphasis in original). When using the case study approach, researchers collect extensive data on individuals and programs under investigation. The data included observations, face-to-face interviews with 65 stakeholders, and document analysis. The researchers also spent an extended period on-site and interacted with the stakeholders at various meetings and within their places of business.

Data were collected from January to June 2000 from 65 citizens engaged in forestry-related activities, artifacts, and participant observation (Patton, 1990). The interviews were audio taped and transcribed for verbatim accuracy. All interviews adhered to a flexible interview schedule that was developed in conjunction with the purpose and objectives of the study. The researchers engaged participants in probing questions, which evolved during the interview process to explore their claims.

Stakeholder identification was accomplished utilizing the snowball technique; that is, stakeholders were asked to identify additional peers when interviewed by the researchers (Babbie, 1989). The initial list of stakeholders was identified by the Forestry Department faculty and by the researchers when attending a forest utilization conference in April 2000. Data were collected until no new themes emerged from the interviews based on negative case analysis (Guba & Lincoln, 1989). The data were analyzed and reported using procedures recommended by Creswell (1998):

1. Organization of data. Facts about the case were arranged in a logical order.
2. Categorization of data. Categories were identified and the data were clustered into meaningful groups (coded).
3. Interpretation of codes. Specific statements that fell into like clusters (codes) were examined for specific meanings in relationship to the purpose and objectives of the study.
4. Identification of patterns. The data and their interpretations were scrutinized for underlying themes and patterns that characterized the case and allowed the researchers to draw conclusions.
5. Synthesis. An overall portrait of the case was constructed where conclusions and recommendations were drawn based on the data presented. Because of their focus on a particular situation, case studies may not be generalized beyond the specific research parameters of the study (Yin, 1984).

## Findings

Sixty-five stakeholders were identified for the study. They were interviewed and classified as an agent, beneficiary, or underrepresented citizen (Table 1). Agents were those persons who worked for the university. Beneficiaries were those persons who received benefit from the land-grant university, and underrepresented citizens were those who did not receive any benefit from the land-grant university, either by choice or by chance that the university was unable to assist them. Stakeholders were classified by self-reported connection to the university.

Table 1

Stakeholder Connection to the Forest Industry and Classification

Connection to the Forest Industry	Stakeholder Classification	n
Non-industrial private forest landowner (NIPF)	Beneficiary, Underrepresented	15
State forester	Beneficiary	15
Forest industry (small)	Beneficiary, Underrepresented	7
Natural Resource Conservation Service	Beneficiary	5
Private consultant	Beneficiary	5
United States Forest Service	Beneficiary	4
Forest industry (large)	Beneficiary	4
University employee	Agent, Beneficiary	3
Private land manager	Beneficiary	3
Private organization	Beneficiary	2
Urban forester	Beneficiary	1
Journalist	Beneficiary	1
Total		65

This study sought to collect stakeholder input regarding problems they encountered in their forestry-related occupations, their need for research-based information, how they obtained information, to what extent they interacted with the CES, and their recommendations for improving services offered by the Forestry Department. Stakeholders stated their perceptions on several aspects of their relationship to the land-grant university during these interviews.

Problems

Stakeholders identified seven categories of problems encountered within their forestry-related occupations. Their problems centered on timber management, business and marketing of timber products, receiving adequate information, environmental and wildlife issues, government and legal issues, wood products and processing, and non-industrial private forest landowner (NIPF) issues.

*Timber management.* Forty-one stakeholders (63%) stated that they needed more information on best management practices, control of pests and invasive species, fertilization, GIS/GPS mapping, and use of fire to control invasive species.

*Business and marketing of timber products.* Thirty stakeholders (46%) requested information on computer simulated economic models that would demonstrate the outcome for various management practices and a means for expanding markets for wood products. Several stakeholders suggested that simulation models could meet the need for better management decisions. Economic models could also assist landowners in understanding options for land use, for example, the trade offs of beef versus timber production.

*Educational opportunities and dissemination of information.* Twenty-six stakeholders (40%) identified the lack in this area. Information such as stand yield tables and specific management practices for the state was not available or difficult to obtain.

*Environmental regulations, conservation issues, and wildlife management.* Twenty-two stakeholders (34%) reported that hunting leases, wildlife conservation, vehicle use on forestland, upland erosion, riparian impacts on water quality, drought, or land-use conflicts were problem areas and that they needed more education and information on how to deal with these issues.

*Government and legal issues.* Nineteen stakeholders (29%) reported that government regulations, policies, and laws concerning timber production were arbitrary or capriciously applied. However, the stakeholders also reported that many of the problems they faced could be avoided if they better understood the regulations so they could implement strategies for compliance.

*Wood products and processing.* Thirteen stakeholders (20%) encountered problems with managing hardwoods, creating value-added products, and capturing more value for wood products and by-products.

*Non-industrial private forest landowners.* Eleven stakeholders (17%) cited problems concerning the maltreatment of NIPFs by the forest industry and the abuse of landowner rights. A few small landowners reported that timber harvesters ignored contracts and left harvested lands in disrepair.

### Information Needs

As stakeholders discussed the problems and challenges they faced in producing wood and wood products, they were asked about their information needs by the researchers. Forty-two stakeholders (65%) reported that they needed more information and continuing education on forestry-related topics similar to their problem areas (timber management, business and marketing, current research, and wildlife; specifically declining quail populations and fire ant control).

Timber management education was of primary importance to this group and included several subcategories. Stakeholders wanted more information on the use of fire in forest management and appropriate silvicultural practices for various sizes of operations. Stakeholders also cited a need for more information on management for recreation, risk management (trespass and theft issues), and safety issues.

Stakeholders cited a need for business and economic education including marketing wood and wood products. They suggested that faculty develop an economic model that could predict returns from various types of forest management scenarios. Small landowners requested assistance with developing legal documents to protect themselves from abuse by loggers and developers.

Several stakeholders expressed interest in knowing more about the Forestry Department and results of research conducted by the faculty. They requested more communication from university faculty regarding research results that were written for the forestry practitioner. Several participants reported that the Forestry Fact Sheets currently available from the university were under-utilized because they were too technical.

### Sources of Information

The most frequently used source of forestry-related information was other people in informal settings such as coffee shop gatherings with other forestry professionals. Table 2 describes the number of stakeholders who reported sources of information and which stakeholder category the respondent belonged to.

Stakeholders identified 22 sources of forestry-related information. Sources of information involving contact with other people constituted 70% of the responses. Other sources of information were

forestry-related magazines, journals, and newsletters. Government land managers, specifically USFS employees, primarily used fact sheets; however, NIPF or people in small forest-based businesses did not use university produced fact sheets.

Of the 52 stakeholders who responded to questions on use of CES, 19 (36%) indicated that they used the CES very little, did not use their services at all, or confused them with other agencies like the Department of Forestry. Thirty-three stakeholders (63%) stated that the CES in their area did not focus on the forest industry and expressed the desire for the local CES agent to receive continuing education in various forestry-related topics.

Table 2

Sources of Information Used by Stakeholders

Source of information	n	Number of respondent and connection to the forest industry
Other people	20	NIPF 7, State forester 4, Forest industry 3, Private organizations 2, NRCS 1, University employee 1, USFS 1, Private consultants 1.
Magazines	18	State forester 5, NIPF 5, Forest industry 4, Private consultant 3, NRCS 1.
Journals	16	State forester 7, NIPF 4, Private consultant 3, USFS 1, University employee 1, Private organization 1.
Cooperative Extension Newsletters	14	State forester 5, NIPF 4, Forest industry 4, Private consultant 1.
Forestry professionals Conferences	12	NIPF 5, State forester 4, USFS 1, state forest association 1, private consultant 1, forest industry.
Associations	11	NIPF 5, Forest industry 4, Private land manager 1, Private consultant 1.
Printed media	11	NIPF 3, Forest industry 3, State foresters 2, Urban forester 1, USFS 1, University employee 1
Government documents	8	NIPF 2, State foresters 2, Private consultants 2, Private land manager 2.
Consultants	8	State forester 3, Private forester 1, Forest industry 1, NIPF 1, Urban forester 1, Journalist 1.
Internet	7	State forester 3, Private land manager 2, NRCS 1, USFS 1.
Self	6	NIPF 2, Forest industry 1, Private land manager 1, State forester 1, NRCS 1.
Fact sheets	6	State forester 2, NIPF 2, Private consultant 2, Forest industry 1.
University Researcher	5	NIPF 2, Forest industry 2, Private consultant 1.
University Courses	4	State forester 3, NIPF 1.
Cooperatives	3	NIPF 1, Private consultant 1, Forest industry 1.
General	2	Forest industry 1, USFS 1.
Industry representatives	1	State forester 1
Newspapers	1	State forester 1
Other colleges	1	State forester 1
TV/Radio	1	Private organization 1.

NIPF=Nonindustrial private forest landowner.

USFS= United States Forest Service

## Stakeholder Recommendations

The researchers collected recommendations on how the Forestry Department could better serve the needs of its stakeholders. The 79 recommendations fell into four broad categories including 42 recommendations for disseminating research results and other information more effectively, 23 recommendations for reaching target audiences, 10 recommendations for improving CES services, and 4 recommendations calling for greater cooperation between the university and other organizations that serve the forestry industry.

Fifty-three percent of the recommendations were suggestions on how the Forestry Department could promote and disseminate information to its stakeholders. The stakeholders specifically commented on creating publications for lay-audiences as well as using e-mail, listserves, and the Internet to broadcast information. It was recommended that the faculty create media-rich interactive materials such as a CD-ROM that could be used independently of the Internet for those who chose not to learn online. Stakeholders also asked for content specific workshops, demonstration plots, and field days on forestry.

Stakeholders recommended that the CES target school children, small landowners (NIPF), forestry professionals, and the legislature for its research and education programs. Respondents stressed that all citizens needed to know more about natural resource management and the economic importance of forestry as the third largest commodity in the state. It was also pointed out that the CES needed to educate the public, especially children, about natural resource management to counter environmental propaganda that has permeated school textbooks without being certified as research-based knowledge.

Stakeholders recommended several changes in practice for the university, including an increase in staffing and salary for personnel with expertise in forestry management. This state pays its CES agents \$10,000/year less than the national average wage for similar positions. Several recommendations called for the CES to focus more on face-to-face interactions with constituents and to increase awareness of rural issues among urban people.

## Conclusions and Recommendations

This study sought to collect stakeholder input into university research and programming priorities as mandated by the 1998 Farm Bill (AREERA, 1998). Even though the CES is undergoing a period of expansion, findings indicated that the majority of forestry stakeholders were underserved and were not enjoying the bounty of knowledge generated at the university. It is recommended that CES agents be adequately prepared with forestry content knowledge and skills before placement in the tri-county forest region of the state. This will facilitate the exchange of research-based information and stakeholder input between research faculty and stakeholders. If the CES cannot immediately place a qualified agent in the forested region of the state, then the current agent should receive in-service training to upgrade his skills to better serve forestry stakeholders.

The majority of stakeholders had not received adequate information from the land-grant university for the state. It was found that barriers existed between research faculty and citizens in both oral and written communications. The lay audience reported that written information was too technical and not usable for improving timber production. It is recommended that the university invest in appropriate communication avenues to reach their intended audience. It was also discovered that stakeholders were not using the CES Fact Sheets because they were too technical. Fact Sheets are documents that are intended for lay audiences. It is recommended that agricultural communications professionals conduct a content analysis on the fact sheets and rewrite them so that they are more comprehensible for the intended audience.

University faculty were located 250 miles from the forest region; thus, stakeholders did not have ready access to them. The university employs one extension specialist in forestry. It is recommended that the Forestry Department make institutional changes to address the extension personnel shortage to better serve stakeholders.

CES clients strongly favored face-to-face interaction with agents (van den Ban & Hawkins, 1996). International extension services, counterparts of CES, devote the greatest proportion of staff time to developing personal relationships with clients. Face-to-face consultations allow CES agents to integrate research-based findings with solving clients' problems. Stakeholders of this study were interested in being served through face-to-face channels as well. The following quote typifies respondents' desires for more contact with CES agents: "an extension forestry specialist is needed in [our part of the state], we are 250 miles from campus, telephones and e-mails are great but just not enough". Given the level of interest in traditional extension approaches, the CES should expand its forestry programming to include workshops, demonstration plots, and field days to communicate research findings and information to non-academic audiences.

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