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. The study described here developed a model for collecting stakeholder input when developing educational programming priorities using qualitative case study methods. The study found that communication barriers existed between university faculty and stakeholders. Stakeholders were not getting the information they needed to solve daily problems. Extension agents generally lacked appropriate content knowledge and printed communications were ineffective. The article offers recommendations based on the study's findings.

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Introduction

The study described here was designed to serve as a model for gathering stakeholder input for all land-grant universities to fulfill the mandate of the 1998 Farm Bill to collect stakeholder input when setting research, education, and Extension priorities (AREERA, 1998). The researchers worked with one academic department in a land-grant university to assist them in understanding their constituents' needs for education, information, and programs, and to increase communication between the faculty and stakeholders. The Department of Forestry was chosen because timber resources were the third largest agricultural commodity in the state and the failure to recognize areas of need outside traditional programs has been a core issue in the widening gulf between land-grant universities and their constituency (Dale, 2000).

Sample selection for participation in the 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 was high (Greene, 1988). Stakeholders were divided into three categories: beneficiaries, agents, and underrepresented citizens. Beneficiaries were those people who benefited from university programs, such as participants in educational programs; agents were those people involved in research and planning or delivery of programs, such as Extension agents and faculty; and underrepresented citizens were those who were inadequately served by the university, such as absentee landowners (Guba & Lincoln, 1989).

Purpose and Objectives

The purpose of the case study was to develop a model for gathering input from stakeholders for setting research and educational programming priorities to fulfill the mandate of the 1998 Farm Bill. The specific objectives of the study were to:

1. Identify stakeholders of one academic department at a major land-grant university.

2. Describe stakeholders' 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 employed 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.

Data were collected from January to June 2000 from 65 citizens engaged in forestry-related activities. Interviews, artifacts, and participant observation were used as data sources (Patton, 1990). The researchers also spent an extended time period on-site and interacted with the stakeholders at various meetings and within their places of business. The researchers (Kelsey, Pense, and Mariger) conducted the interviews face-to-face with the stakeholders. The interviews were audiotaped and transcribed for verbatim accuracy. All interviews adhered to a flexible interview instrument that was developed in conjunction with the department faculty and the purpose and objectives of the study. A panel of experts (faculty members within the forestry department) validated the instrument for content and face validity. The instrument was also field tested and refined for more accurate data collection.

Stakeholder identification was accomplished using 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 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 by the researchers and classified as an agent, beneficiary, or underrepresented citizen (Table 1).

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	4
Private land manager	Beneficiary	3
Private organization	Beneficiary	2
Urban forester	Beneficiary	1
Journalist	Beneficiary	1
Total		65

The study sought to collect stakeholder input regarding:

- Problems they encountered in their occupations,
- Their need for research-based information,
- How they obtained information,
- To what extent they interacted with Extension, and
- Their recommendations for improving services offered by the university.

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 with production. Although these problems were forestry-industry specific, they can be generalized to other agricultural situations that Extension agents encounter with producers. Problems areas included:

1. Product management,

2. Marketing of products,

3. Receiving adequate information regarding product production,

4. Environmental and wildlife issues,

5. Government and legal issues concerning product production,

6. Product processing, and

7. Private landowner issues.

Product 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.

Marketing of 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 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 tradeoffs of beef versus timber production.

Educational Opportunities and Dissemination of Information

Twenty-six stakeholders (40%) identified the lack of adequate information regarding product

production as a problem. Information such as specific management practices 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 private land, 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.

Products and Processing

Thirteen stakeholders (20%) encountered problems with management of by-products, creating value-added products, and capturing more value for their products and by-products.

Private Landowners

Eleven stakeholders (17%) cited problems concerning the maltreatment of private landowners 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 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 results of research conducted by the faculty at the land-grant university. They requested more communication from faculty regarding research results that were written for the forestry practitioner. Several participants reported that Extension Fact Sheets currently available from the university were under-utilized because they were written at a level that was too technical for most readers.

Sources of Information

Stakeholders identified 22 sources of forestry-related information (Table 2). Contact with other people in informal settings such as coffee shop gatherings constituted 70% of the responses. Other sources of information were magazines, journals, and newsletters. Government land managers, specifically USFS employees, primarily used Fact Sheets; however, people in small forest-based businesses did not use Fact Sheets.

Of the 52 stakeholders who responded to questions on use of Extension, 19 (36%) indicated that they used Extension 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 Extension in their area did not focus on the forest industry and expressed the desire for the local Extension agent to receive continuing education in various forestry-related topics.

Table 2.
Sources of Information Used by Stakeholders

Source of Information	n	Number of Respondents and Connection to the Forest Industry
Other people	20	NIPF[1] 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[1] 5, Forest industry 4, Private consultant 3, NRCS 1.
Journals	16	State forester 7, NIPF[1] 4, Private consultant 3, USFS 1, University employee 1, Private organization 1.
Extension	14	State forester 5, NIPF[1] 4, Forest industry 4, Private consultant 1.
Newsletters	12	NIPF[1] 5, State forester 4, USFS 1, OK forest association 1, private consultant 1, forest industry.
Forestry professionals	11	NIPF[1] 5, Forest industry 4, Private land manager 1, Private consultant 1.
Conferences	11	NIPF[1] 3, Forest industry 3, State foresters 2, Urban forester 1, USFS 1, University employee 1
Associations	8	NIPF[1] 2, State foresters 2, Private consultants 2, Private land manager 2.
Printed media	8	State forester 3, Private forester 1, Forest industry 1, NIPF[1] 1, Urban forester 1, Journalist 1.
Government documents	7	State forester 3, Private land manager 2, NRCS 1, USFS 1.
Consultants	6	NIPF[1] 2, Forest industry 1, Private land manager 1, State forester 1, NRCS 1.
Internet	6	State forester 2, NIPF[1] 2, Private consultant 2, Forest industry 1.
Self	5	NIPF[1] 2, Forest industry 2, Private consultant 1.
Fact sheets	4	State forester 3, NIPF[1] 1.
University researcher	3	NIPF[1] 1, Private consultant 1, Forest industry 1.
University courses	2	Forest industry 1, USFS 1.
Cooperatives	1	State forester 1
General	1	State forester 1
Industry representatives	1	Private consultant 1.
Newspapers	1	Forest industry 1.
Other colleges	1	State forester 1.

TV/Radio	1	Private organization 1.

[1]NIPF is a non-industrial private forest landowner

Stakeholder Recommendations

The researchers collected recommendations on how the academic 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 Extension 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 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 choose not to learn online. Stakeholders also asked for content-specific workshops, demonstration plots, and field days.

Stakeholders recommended that Extension target school children, small landowners, 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 it is the third largest commodity in the state. It was also pointed out that Extension 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.

Conclusions and Recommendations

This study sought to develop a model for collecting stakeholder input into land-grant university research and programming priorities as mandated by the 1998 Farm Bill (AREERA, 1998). Even though Extension in this state had undergone 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.

The majority of stakeholders had not received adequate information from the land-grant university. 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 production practices. It is recommended that Extension invest in appropriate communication avenues to reach their intended audience.

It was also discovered that stakeholders were not using Extension 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.

In this study stakeholders strongly favored face-to-face interaction with Extension agents. This phenomenon has also been documented in other settings by van den Ban and Hawkins (1996). Face-to-face consultations allow Extension 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. Given the level of interest in traditional Extension approaches, Extension 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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