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Joanna Endter-Wada  
*Utah State University*

Richard S. Krannich  
*Utah State University*

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# THE INTERDISCIPLINARY NATURAL RESOURCE AND ENVIRONMENTAL POLICY PROGRAM AT UTAH STATE UNIVERSITY

Joanna Endter-Wada<sup>1</sup>, and Richard S. Krannich<sup>2</sup>

<sup>1</sup>Director, Natural Resource and Environmental Policy Program and Associate Professor,  
Department of Forest Resources, College of Natural Resources,  
Utah State University, Logan, Utah 84322-5265; e-mail: endter@cc.usu.edu

<sup>2</sup>Professor, Department of Sociology, Social Work, and Anthropology,  
College of Humanities, Arts, and Social Sciences,

Utah State University, Logan, Utah 84322-0730; e-mail: rkranich@wpo.hass.usu.edu

**ABSTRACT:** The Natural Resource and Environmental Policy Program at Utah State University (USU) is an interdisciplinary, graduate, educational program that has been developed since the fall of 1991. The program administers and awards a graduate certificate, sponsors invited speakers, oversees student policy presentations, and facilitates interdisciplinary collaboration. The program has earned broad, campus-wide support and participation. All eight colleges at USU supported approval of the certificate program in 1994. At present, sixteen academic units are represented on its Faculty Advisory Committee, which oversees and makes decisions about the program. Fifty graduate students from fourteen academic units have pursued the Interdisciplinary Certificate in Natural Resource and Environmental Policy, eight students have received the certificate, and sixty-three faculty representing twenty academic units are affiliated with the program. The graduate certificate program appears to be enhancing students' employment options in applied resource management and coordination roles. This paper reviews program development efforts, describes the program, analyzes some of the challenges and opportunities that have confronted program developers, and offers a preliminary assessment of outcomes.

## INTRODUCTION

The process of developing the Natural Resource and Environmental Policy Program at Utah State University (USU) has been an exciting endeavor and has produced several significant accomplishments over the past six years. Those accomplishments include establishing a growing interdisciplinary graduate certificate program, facilitating interdisciplinary education at USU, and bringing interesting and provocative outside speakers to campus to lecture about and discuss a variety of current policy issues with members of the USU and local communities. The program development process has also included some significant challenges that tend to be common to interdisciplinary programs attempting to cross the politically entrenched departmental structures typical at most universities. The form that this program has taken can best be understood in light of the institutional opportunities and constraints that it faced at the time of its development.

## DEVELOPMENT EFFORTS

### Background

Utah State University, the land-grant institution for Utah, has had long-standing natural resource and environmental emphases in various academic programs, for instance in natural resource disciplines (Forest Resources, Fisheries and Wildlife, Rangeland Resources), in some of the social and behavioral science disciplines (Sociology, Economics, Political Science, History), and in several professional program areas (Environmental Engineering, Landscape Architecture and Environmental Planning). Within this context, there was much interest and a fair amount of informal cross-disciplinary interactions in terms of research, graduate student committees, and student selection of courses outside of their departments. Thus, some people became interested in creating a structure that would encourage and facilitate such cross-disciplinary exposure and collaboration.

Original efforts to develop a natural resource and environmental policy program such as the one described in this paper were initiated at Utah State University in the early 1980s. An ad hoc committee of faculty from several natural resource and social science programs began to meet to consider the issue. In March 1985, several people involved in and knowledgeable about natural resource and environmental policy were invited to Utah State University for consultation on the potentials for and possible nature of such a program. These people were: Robert Nelson, Office of Policy Analysis, United States Department of the Interior; Gary Shute, Senior Public Affairs Research Analyst with Standard Oil of Indiana; Jack Peterson, Executive Director and Chief Economist of Idaho Mining Association; Steven Kellert, Associate Professor of Forestry and Environmental Studies at Yale University; and, George Coggins, Tyler Professor of Law at the University of Kansas. Despite these consultants' concurrence on the need and potentials for a natural resource and environmental policy program at Utah State University, efforts to establish one did not come to fruition at that time.

Efforts to establish a natural resource and environmental policy program were renewed in the fall of 1991 with responsibilities for overseeing such an effort assigned to a new faculty hire (Joanna Endter-Wada) whose tenure-track position resided in the Department of Forest Resources within the College of Natural Resources. One of the first activities pursued by the program was sponsorship of a seminar series featuring invited speakers. These invited speakers included academicians, federal and state resource agency personnel, and members of natural resource and environmental organizations. A steering committee for the new program met with these invited speakers during their campus visits to discuss Utah State University's efforts to establish this program. These consultations were encouraging and helpful to program development efforts.

#### Need Assessment

External constituencies provided one important source of need assessment for the new program. Heads of natural resource agencies, owners of environmental consulting firms, and members of non-profit organizations expressed the need for resource professionals with broader backgrounds than the sets of technical skills that natural resource programs had emphasized in the past. They recognized the fact that many of the problems confronting natural resource and environmental managers are social, as well as technical, in nature. Public involvement in decision-making, equity concerns, and conflict management were becoming critical issues for them. Resource professionals were increasingly being challenged to design management strategies and public policies which maximize human well-being, environmental quality, and ecological integrity. The Natural Resource and Environmental Policy Program was designed, in part, to better prepare resource professionals to meet the public policy challenges of

developing innovative, creative and feasible approaches for addressing these issues.

The other important source of need assessment came from students themselves. Some USU graduate students had, on their own, put together more diverse and interdisciplinary programs of course work designed to gain a broader perspective on natural resource issues than they found available within their own departments. In addition, faced with a tight job market, graduating students were having a harder time finding desired professional employment. Students were eager for any educational advantages they could obtain that would put them in a more employable position. Thus, other rationales behind the program were to have students develop familiarity with both disciplinary and interdisciplinary concepts and principles of the social, natural, and physical science approaches to natural resource policy and to engage students in educational activities and thesis projects designed to apply this training to current policy and management issues. We hoped that by providing students with a more comprehensive educational framework for understanding complex natural resource and environmental concerns and with the critical thinking and analytical skills needed to address these issues, we would enhance their employment opportunities.

Based upon feedback from external constituencies and students, the program undertook a formal survey of other natural resource and environmental policy programs around the country to determine how they were structured, how they were funded, who they recruited, and how successful they were. We used this information to assess if there was a market for a such program at USU and to see if we could find some models that best fit our own set of institutional constraints. We determined that a graduate certificate program seemed to be the best alternative, where graduate students would still obtain a needed disciplinary degree but in addition have the opportunity to broaden their training through pursuit of an interdisciplinary certificate. There were no such graduate certificate programs in Utah at the time. Certificate programs similar to the one we have developed existed at the University of Colorado and at the University of New Mexico, but the former program had a law emphasis while the latter focused more on economics and public administration. The program that has been developed at Utah State University is unique regionally and nationally in terms of its interdisciplinary breadth and capitalizes on Utah State University's strengths in the social science aspects of natural resource and environmental policy.

#### Program Building Process

The Natural Resource and Environmental Policy Program has evolved through a series of efforts undertaken over the past six years. The first year involved program conceptualization and establishment and initiation of the program's seminar series. Program conceptualization and establishment activities

included discussing visions for the program with students, faculty, and administrators, conducting the formal needs assessment which included soliciting information on similar programs at other universities, making campus presentations about ideas for the program, establishing an informal steering committee of interested faculty, preparing and submitting proposals, hiring office staff, and negotiating arrangements for a budget, office space, and equipment. The program's seminar series was initiated with a set of speakers who addressed the theme, "Policy Analysis or Advocacy," which focused on the role of natural resource professionals in the policy process. The seminar series provided campus-wide visibility for the program and promoted interaction among faculty and students from different colleges at USU.

During the second year, development efforts were focused on program development and design and on coordinating the College of Natural Resources' annual Natural Resources Week Symposium, which draws from a national audience. The program development and design activities included further networking with USU administrators, faculty, and students, developing consensus on vision for the program and a mission statement, analyzing similar programs around the country (which included phone conferences with key individuals involved in their development), designing a curriculum for the graduate certificate program, and exploring foundation, government, and private funding opportunities. The Natural Resources Week Symposium, which was entitled "Conflicts in Natural Resources Management: Integrating Social and Ecological Concerns," was planned by faculty members from the Natural Resource and Environmental Policy Program. The symposium was very successful (in terms of attendance and audience evaluation) and established the precedent of enabling graduate and undergraduate students to attend the symposium for course credit in order to become better informed about current natural resource policy and management issues. In addition, the program continued to sponsor its own invited speaker seminar series and established permanent offices in the newly constructed Quinney Natural Resources Library addition to the College of Natural Resources.

The third year was characterized by program approval and institutionalization as two significant milestones were reached. The first milestone was that the Policy Program obtained university and state approval for the Interdisciplinary Graduate Certificate Program in Natural Resource and Environmental Policy. This involved securing institutional support from participating departments, colleges, and decision-making entities, including the Dean's Council, Graduate Council, Educational Policies Committee, Faculty Senate, Graduate Dean, Provost, President, and USU Board of Trustees. State approval for the certificate program involved responding to comments from other institutions of higher education in the state and seeking final approval from the Utah Board of Regents, which was achieved in May 1994. The second milestone was that the program obtained more

permanent, institutional funding from the College of Natural Resources and the College of Humanities, Arts, and Social Sciences. Other development activities during year three included formalizing a Faculty Advisory Committee with representatives from academic units involved in fostering the program and continuing sponsorship of the invited speaker seminar series.

Efforts in the fourth year of the program focused on implementing the Interdisciplinary Graduate Certificate Program, developing the new courses designed for students in the program, and coordinating the speaker series which students began attending for credit toward the certificate. Implementing the certificate program involved program advertizing, student recruitment, student advising, conducting formal meetings of the faculty advisory committee, establishing office procedures to ensure the program was well monitored, and setting up files on students, affiliated faculty, and program courses. The new courses developed specifically for students enrolled in the program consisted of a cornerstone course, the invited speaker seminar series, and a student policy presentation seminar series. Administrative activities continued, such as operating the office, responding to inquiries about the program, preparing budget proposals and funding requests, and representing the program at various university functions.

For the fifth and sixth years, development efforts focused on refining the details of program administration and planning for the future. Monitoring and improving courses and program administration were achieved through soliciting and incorporating suggestions from enrolled students and affiliated faculty. Procedural guidelines for awarding the graduate certificate were established as students began to complete the program and receive certificates. The program is currently occupied with the transition from quarters to semesters being undertaken at Utah State University, hoping to be strengthened by impending changes in the curriculum offered by participating departments and programs. In the near future, the program will begin overseeing the awarding of student cash prizes for student research and papers focusing on examples of agency use of science in policy-making. These awards will be issued in cooperation with several federal land management agencies. The Policy Program is also devising a five-year plan for further growth and development that will be made possible by new funding to be provided by a private foundation commencing in July 1998. Finding creative ways to intensify the level of interdisciplinary interaction between faculty and students at USU and to increase the relevance of both natural and social sciences to public policy and decision-making are additional longer term goals of the Natural Resource and Environmental Policy Program.

## PROGRAM DESCRIPTION

## Program Goals and Objectives

The mission and goals of the Natural Resource and Environmental Policy Program are: 1) to foster integration of knowledge from the social and natural sciences and its application to policy issues through interdisciplinary education and research; 2) to stimulate the search for innovative, creative, feasible solutions to challenges involved in developing natural resource/environmental policies and management strategies; 3) to analyze ways of facilitating public involvement in decision-making and of managing conflicts over natural resources and environmental issues; and, 4) to provide service to policy makers, natural resource managers, and public constituencies through applied research, analysis, and information transfers.

## Interdisciplinary Representation

All eight colleges at USU supported the formation of the Natural Resource and Environmental Policy Program. Sixteen academic units are represented on the Policy Program Advisory Committee. The sixty-three affiliated faculty come from twenty different academic units and the fifty students in the program represent fourteen different degree granting programs. The following list illustrates the program's cross-disciplinary breadth, where participation on the Faculty Advisory Committee (FAC) and formal membership by affiliated faculty (AF) and students (S) are indicated after the various units.

## College of Agriculture

Agricultural Systems Technology and Education Dept.  
[FAC, AF, S]

Plant, Soils and Biometeorology Dept. [AF, S]

## College of Business

Business Administration Dept. [FAC, AF]

Economics Dept. [FAC, AF]

Management and Human Resources Dept. [FAC, AF]

## College of Education

Health, Physical Education and Recreation Dept.  
[AF]

## College of Engineering

Biological and Irrigation Engineering Dept. [AF, S]

Civil and Environmental Engineering Dept. [FAC,  
AF, S]

## College of Family Life

Human Environments Dept. [AF]

## College of Humanities, Arts, and Social Sciences

American Studies Program [S]

History Dept. [FAC, AF, S]

Landscape Architecture and Environmental Planning  
Dept. [FAC, AF, S]

Political Science Dept. [FAC, AF]

Sociology, Social Work, and Anthropology Dept.  
[FAC, AF, S]

## College of Natural Resources

Fisheries and Wildlife Dept. [FAC, AF, S]

Forest Resources Dept. [FAC, AF, S]

Geography and Earth Resources Dept. [FAC, AF, S]

Rangeland Resources Dept. [FAC, AF, S]

Watershed Science Unit [FAC, AF, S]

## College of Science

Biology Dept. [FAC, AF]

Toxicology Program [S]

## University Libraries [FAC, AF]

## Graduate Certificate Program

The main activity presently of the Natural Resource and Environmental Policy Program is administering the Interdisciplinary Graduate Certificate in Natural Resource and Environmental Policy. The certificate program is a unique interdisciplinary program that is supplementary to disciplinary degree programs, and trains students for careers in government, education, consulting, and conservation. A student who completes this program receives a certificate in Natural Resource and Environmental Policy, and notification of this certificate appears on the student's transcript.

The certificate program recruits from students accepted into thesis-requiring master and doctoral degree programs at Utah State University who satisfy the program prerequisites of having undergraduate or other experience in natural, physical, and social sciences and/or demonstrated understanding of general ecological principles, earth processes, and social systems. A sub-committee of the Policy Program Advisory Committee reviews graduate student requests for admission to the program.

Students must complete several course requirements in order to obtain the certificate. First, an integrative cornerstone seminar offered each year as a team-taught course is normally taken in the student's first year. Second, students are expected to take at least four courses from a list of twenty policy core courses offered by several departments to gain perspective on different disciplinary approaches to natural resource policy. Students are required to take graduate course work in other departments as only one of these courses can be from the student's home department. Finally, students must participate in two other integrative activities. They must attend the invited speaker seminar series for credit (one year of attendance for master students; two years of attendance for PhD students). In their last year of graduate school, certificate candidates must make a public presentation on the policy dimensions of their thesis or dissertation as part of the student seminar series, for which they receive one credit. Administrative requirements include having a faculty member affiliated with the Policy Program on students' graduate committee and completing various forms to receive the certificate.

### Invited Speaker Seminar Series

The Policy Program sponsors a seminar series that features about nine invited speakers each year (three per quarter). Speakers are generally recommended by students and faculty and the Policy Program often cooperates with departments to co-sponsor speakers. The seminar series has included diverse speakers from venues such as government, conservation groups, academia, and non-profit organizations. These speakers have addressed local, national, and international natural resource and environmental policy issues. The seminar series is widely advertised and serves not only affiliates of the Policy Program but members of the USU campus community and the broader local community in which the university is located.

### Program Administration

The Interdisciplinary Graduate Certificate Program is overseen and administered by the Natural Resource and Environmental Policy Program Faculty Advisory Committee, which consists of representatives from the sixteen academic units participating in the program. The Faculty Advisory Committee members make decisions concerning program policies and student admissions, review and coordinate the courses included in the program, and advise certificate students from their respective departments.

Program management and record keeping is handled by the director and staff of the Natural Resource and Environmental Policy Program. The program director is an associate professor in the Department of Forest Resources. One-third of her nine-month appointment is allocated to the Policy Program. The program's staff consists of one half-time staff assistant and a part-time student worker.

Several academic units at Utah State University have provided funding and support for the program over the past six years. The Department of Forest Resources has provided the director's salary and some administrative support. The College of Natural Resources has provided the staff assistant's salary, one-half of the program's \$8,000 annual operating budget, and office space. The College of Humanities, Arts, and Social Sciences has provided the other half of the program's annual operating budget. In addition to funding, these units have provided the critical political support that was necessary to develop the program.

## CHALLENGES AND OPPORTUNITIES

### Program Formation Context

The Natural Resource and Environmental Policy Program faced several challenges and opportunities during the formation process. Efforts in the mid-1980s to initiate the program were stifled by lack of support from several key

administrators who placed more emphasis on disciplinary expertise than interdisciplinary collaborations and who were in positions to prevent the program from moving forward at that time. Changes in some administrative positions and the hiring of some key administrators who were much more receptive to such initiatives led to the revitalization of program development efforts in 1991.

The USU context in the early 1990s presented other challenges for program development. The most important constraint was the competition for resources by departments and programs already in place. Limited state funding had led Utah State University to rely heavily on external funding sources, principally research contracts and grants, and the College of Natural Resources, along with several other colleges, had become highly leveraged. Department heads had become dependent upon salary and overhead return money that their faculty brought in from outside sources and were protective of their positions as cost centers for research projects. In this context, the politics of university decision-making made it highly unlikely that proposals for new cost-center programs would be supported. Key decisions were made during the first year by university administrators, one of which was that the Policy Program would emphasize curriculum development and would not become a research unit and seek cost center status.

At the same time, limited state funding and leveraging had increased pressures on faculty to compete for extramural funding, which limited their availability to offer additional classes or create new ones in support of the Policy Program. Faculty members' past efforts in support of interdisciplinary programs had oftentimes been unrecognized, unrewarded, or opposed by department heads whose priorities were on ensuring faculty loyalty to meet departmental needs first. However, Policy Program resources were limited. The program was allocated a small amount of seed money. It had no faculty positions except one-third of the director's nine-month appointment, and insufficient funds to offer compensation to faculty to develop or teach courses designed specifically for the Policy Program. The program initially shared a secretary with two other interdisciplinary programs, had a half-time professional staff person, and had limited office space. Resource reallocation was nearly impossible given the political power of department heads and their desire to protect existing departmental budgets and space allocations. As a result, efforts to develop the program's curriculum were of necessity oriented toward primary reliance on existing courses offered in the participating departments.

Another factor that influenced the form that the Natural Resource and Environmental Policy Program took was the fact that two other interdisciplinary programs already existed within the College of Natural Resources, the Ecology Center and the Watershed Sciences Unit. The directors of those programs had previously had battles with department heads and college administrators over issues typically raised by

programs that attempt to cross major institutional boundaries, such as funding, space allocation, faculty loyalty and time commitments, receipt of credit and provision of services for interdisciplinary program students, appropriate evaluation and recognition of interdisciplinary contributions by faculty, and administrative discretion. The result was that college administrators and department heads did not want to see a program that looked like either of the existing interdisciplinary programs, but instead wanted a program that would be less threatening to the current situation.

Interestingly, the two existing interdisciplinary programs differed quite substantially from one another and from the eventual form that the Policy Program took. The differences are best explained in terms of the timing and politics of when they were initiated. The Ecology Center is over thirty years old and has the advantage of a large annual line item allocation from the state legislature originally secured when state funding for higher education was more readily available. It is able to support a twelve-month half-time director, a full-time professional assistant to the director, and a full-time executive secretary. The Ecology Center also pays portions of faculty salaries and in return prescribes courses those faculty will teach in support of its graduate educational program. The Ecology Center has cost center status which enables it to secure overhead return on research projects it administers. Graduate students in the Ecology Program receive degrees from their respective departments but with an ecology emphasis based upon course work approved by an Ecology Center steering committee (e.g. students can earn degrees in Forest Ecology, Fisheries Ecology, etc.).

The Watershed Science Unit was developed about twenty years ago and is unique in being the only non-departmental degree granting program at Utah State University. Students can earn B.S., M.S., and PhD degrees in Watershed Science. The program was originally developed and continues to survive based upon the commitment of a core group of natural resources faculty to understanding and teaching how water moves through natural landscapes (which differentiates it from engineering) and why it is important in the diverse ecosystems of the arid West. The program operates with minimal financial and staff resources. It depends upon faculty to negotiate with their department heads to allocate portions of their teaching loads to support the program and upon someone to direct it for minimal compensation.

Since neither of the interdisciplinary programs at Utah State University provided a model that was possible to emulate in the early 1990s, we looked to other universities for ideas. The certificate programs from the University of New Mexico and the University of Colorado provided interesting examples of program structures that appeared to be financially and politically feasible. The program could be built, for the most part, upon existing courses that were selected, approved, and packaged for their relevance to the program's goals, thus reducing costs and conflicts over commitment of faculty time.

A certificate program was less threatening to existing departments because it recruited from students already admitted into their programs and it enhanced the educational opportunities available to their students.

One additional constraint which probably delayed design and approval of the certificate program by about one year was debate that occurred during the 1992-1993 academic year over whether the university should transition to a semester system. A new university president, who was determined to instigate the change at the behest of the Board of Regents, eventually chose to defer a decision on the matter, in part due to strong faculty opposition. During this time, faculty were reluctant to put much effort into shaping educational programs that might soon be irrelevant if a semester conversion resulted in wholesale curriculum revisions. Ironically, a transition to semesters was later mandated state-wide by the Board of Regents without discussion and is scheduled to be implemented during the 1998-1998 academic year. Because this occurred well after the Policy Program implemented its certificate program, the transition poses little risk to the program's survival, although it does pose new challenges as well as opportunities for modifying the content offered in some courses.

Given these contextual challenges, what opportunities account for the program's success? The most significant factor has to do with the visions of faculty members, their recognition of important changes occurring in the field of natural resource management, and their collective commitment to interdisciplinary education and to making this program a reality. Their program building efforts were shaped by feedback from students and external constituencies, who affirmed that this was a valuable pursuit. In addition, the support of the deans from Natural Resources and from Humanities, Arts, and Social Sciences and of several department heads (particularly from Forest Resources and Sociology) helped with the institutional politics. The program also benefitted from the fact that a new Quinney Natural Resources Library attached to the College of Natural Resources building was dedicated in fall 1992 and the Policy Program was allocated some office space in this new building.

#### Institutional Concerns

Part of the program building process involved securing support and approval from several USU decision-making bodies, including the Dean's Council, Graduate Council, Educational Policies Committee, Faculty Senate, Graduate Dean, Provost, President, and USU Board of Trustees. A formal program proposal had to address various institutional concerns. The proposal included four sections: 1) the request which stated the justification of need and an indication of whether similar programs were offered elsewhere in the state or region; 2) an indication of institutional readiness which included an explanation of the program's relation to USU's overall mission and goals, how the program would be

administered, the impact of the program on other programs at USU, faculty and staff needs, and, requirements for new facilities, equipment, and library or learning resources; 3) a description of the curriculum, projected enrollments, and involvement of external consultants in developing the proposed program; and, 4) estimated costs and projected budgets for the first five years.

State approval for the certificate program from the Utah Board of Regents involved having other institutions of higher education in the state review and comment on the proposed program and then responding to their comments. The only real opposition to the program came from another state-supported university, which had no program that was in direct competition with the Policy Program but which was making plans for future development in this general area. That university's comments were addressed and the program was approved.

#### Curriculum Issues

One of the impacts of the Graduate Certificate Program on existing programs has been to increase student diversity and enrollments in some graduate courses, particularly those identified as core courses for the certificate. The core courses consist of one course from Agricultural Systems Technology and Education, one course from Civil and Environmental Engineering, two courses from Economics, two courses from Forest Resources, two courses from Fisheries and Wildlife, two courses from Geography and Earth Resources, two courses from History, one course from Landscape Architecture and Environmental Planning, two courses from Political Science, one course from Recreation Resources, one course from Rangeland Resources, two courses from Sociology, and one course from Watershed Science. The Advisory Committee has provisions for including new core courses as appropriate ones become available. All of the professors who teach courses identified for inclusion in the certificate program agreed to have their courses listed as part of the program. These professors are committed to interdisciplinary education. However, the challenges and benefits of having students from various disciplinary backgrounds in their graduate courses have become more apparent over time.

The increased enrollment in certificate courses has changed the nature of some formerly small graduate seminars, but has generally been manageable and welcome in most instances. Some graduate courses that risked cancellation from lack of sufficient enrollment or were only taught sporadically given limited departmental student demand have been stabilized and are offered more regularly.

The greatest challenge for professors has been to meet the disciplinary needs of departmental students as well as the interdisciplinary needs of graduate students from other departments who may not be very well prepared for advanced course work in another department. Graduate students

sometimes struggle in advanced courses outside their own discipline. Although the program has tried to address this issue by having students meet some cross-disciplinary prerequisites, some problems persist. The most obvious benefits of the increased course diversity are student enlightenment that comes from exposure to different viewpoints, challenges to disciplinary assumptions and mind sets (which hones critical thinking), lively debates, and comradery with students that program participants might not otherwise meet. The challenges and opportunities are really two sides of the same coin. Students and faculty do occasionally struggle with the need to learn and communicate outside of their accustomed disciplinary niches, but they are also enriched in the process.

The cornerstone course for the Policy Program has been an attempt to deal with disciplinary diversity during the first year of students' courses of study. The major objectives of this course are: 1) to introduce students to different disciplinary perspectives for understanding and analyzing natural resource and environmental policies and decision-making processes; 2) to help students understand the role of science in policy-making; and, 3) to challenge students to evaluate and integrate information about a common resource management or environmental policy issue that tends to give rise to competing and often contentious perspectives. This is achieved by focusing on a highly visible and controversial current natural resource policy issue, having a team of faculty affiliated with the Policy Program participate in the course, and giving students opportunities to meet with people directly involved in the issue (via forums or guest speakers, attendance at public hearings, field trips, etc.). The cornerstone course presents a unique opportunity for students to assess available data, follow news coverage of an issue, and have discussions with representatives of different viewpoints.

#### ASSESSMENT OF OUTCOMES

The success of the Natural Resource and Environmental Policy Program can be assessed by various outcomes. Program growth and development as marked by milestones mentioned previously are one indication of the program's success. The program has gained increased university recognition and stature for its educational contributions through the certificate program and its visible seminar series that serves the entire campus community. The program has had a positive effect on departmental programs' abilities to recruit highly qualified faculty and graduate students as they perceive additional benefits from being involved in the program.

The program is fulfilling its main objective of facilitating interdisciplinary graduate education. Student enrollment has grown to fifty students in the almost four years since the graduate certificate was approved. Graduate students appear to be satisfied with the program, as indicated by opinions expressed in exit interviews and in advising sessions with the



director. For some students with broad interests that do not fit neatly within departmental structures, the Policy Program is perceived to be their main academic unit of affiliation and has given them an enhanced identity. From experiences of the eight students who have received the certificate (two PhD students and six master students), the program appears to be positioning them for more applied resource management and coordination roles. Of the two PhD students, one is working as an agricultural economist for the Economic Research Service of the USDA in Washington D.C. through the Presidential Management Intern Program, while the other is working as a coordinator of conservation and rural community development programs for the Natural Resource Conservation Service in Colorado. Of the six master students, one is working as an environmental analyst for a private consulting firm in Utah, one is a program associate for forestry extension at Utah State University, one is a county extension agent in Montana, one is a Natural Resource Conservation Service agent in Missouri, one (recently completed) is volunteering for an environmental agency while seeking more permanent employment, and the last one has just completed and is on the job market.

Finally, the program is involved in numerous forms of outreach and extension through its seminar series and through the individual activities of various affiliated faculty members. The program has been of direct service to state policy makers through the role that the director played in 1996-1997 chairing a state-wide legislative task force on forestry issues. Many faculty affiliated with the program are involved in outreach teaching roles through short courses that address the training needs of resource management agencies. In addition, faculty and students are involved in focused research efforts that are conducted on behalf of or in cooperation with federal and state resource and environmental agencies.

#### SUMMARY

The Interdisciplinary Natural Resource and Environmental Policy Program at Utah State University has been developed since 1991, although efforts to establish such a program date back to the mid-1980s. The program's goals are to foster interdisciplinary collaboration toward addressing a variety of natural resource and environmental challenges in order to better train the next generation of resource management professionals and to be of service to policy makers, natural resource agencies and professionals, and public constituencies. Input from external constituencies and from USU graduate students, as well as a formal assessment of similar programs in the United States, established demand and need for such a program.

Program development efforts included formulating a common vision and mission statement, networking with faculty and administrators, negotiating over access to resources (office space, staff, operating funds), finding innovative ways to work within the existing university political and resource allocation structure, designing a curriculum, seeking institutional and state approval, and implementing and administering the certificate program. Current program activities involve administering a graduate certificate program and sponsoring an invited speaker seminar series. The program has gained wide cross-disciplinary and institutional support.

The major challenges to program development had to do with the political and institutional context at the time it was developed, which was characterized by limited resources, institutional leveraging, increased pressures on faculty, the existence of other interdisciplinary programs that threatened departmental structures, and uncertainty over whether USU would transition from a quarter to a semester system. Several opportunities account for the program's success, given the challenges it faced: faculty commitment to a common interdisciplinary vision, recognition of important changes occurring in natural resource fields, the support of several key deans and department heads, and allocation of some space, faculty and staff time, and money to initiate the program.

The program has had several impacts on USU. It has increased the enrollment and diversity in some graduate courses, which present challenges as well as opportunities for faculty and students. The program has aided in new faculty and student recruitment and increased satisfaction among some graduate students not comfortable within departmental confines. The program has grown, gained recognition, increased employment opportunities for graduate students, and been of service to outside constituencies.

Some continuing challenges confront the program. The program must contend with departures or shifts in role assignments of key faculty. Programmatic reorientation in some departments can occur. Institutional pressures, particularly regarding growth in undergraduate enrollment, can have impacts on the allocation of resources to graduate education.

The program is seeking ways of extending educational opportunities for students in the future. Being a better source of information as well as funding are primary goals. Enhancing graduate student opportunities to participate in field trips, professional meetings, and internships, as well as helping students find policy-related professional employment, are directions for future development.