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INTERNATIONALIZATION OF LAND GRANT UNIVERSITY CURRICULUM FOR A SUSTAINABLE ENVIRONMENT

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Abstract

A need exists to prepare future leaders to manage for a sustainable environment. Economic, ecological and social issues, global in scope, necessitate that managers of natural resources understand and address problems holistically. Environmental sustainability requires broad and long term perspectives. The internationalization of the Land Grant University (LGU) curriculum is an important mechanism for building the human capacity necessary to manage for a sustainable environment. This paper asks and discusses four questions: (1) Why is managing for a sustainable environment desirable? (2) Why are LGUs, in particular, the vehicle to achieve improved management for a sustainable environment? (3) Why is internationalization of LGUs important in achieving a sustainable environment? (4) Why is internationalizing the LGU curriculum so important? The paper concludes that although LGUs have made strides to internationalize research and extension, they have neglected curriculum. Internationalizing of curricula at LGUs remains a crucial step in preparing effective natural resource managers.

“Whereas the proximate causes of biodiversity loss are likely biological, the ultimate causes are likely social, economic, and political.” (Forester & Machlis, 1996)

“The need for societies to have the capacity to respond to changing environmental circumstances and to act upon environmental problems is widely recognized as one of the fundamental principles of sustainable development.” (OECD, 1994)

Introduction

This paper discusses the relationship amongst a sustainable environment, human capacity, and the internationalization of the LGU curriculum as a means to building human capacity in order to manage for a sustainable environment. There are increasingly greater challenges facing natural resource managers as a result of accelerating population and a diminishing natural resource base. LGUs play an important role in building the human capacity of present and future natural resource managers. Internationalizing of their curricula is an important step in this process.

Purpose

The purpose of this paper is to illustrate that internationalizing of the LGU curriculum is an important but neglected mechanism for building the human capacity necessary to manage effectively for a sustainable environment. An internationalized curriculum prepares natural resource managers by broadening the spatial and lengthening the temporal scale of issues under study, thus enabling a more realistic and holistic approach to problem solving. This is fundamental to addressing issues of environmental sustainability. Another intent of this paper is to heighten awareness of the need, provide rationale for, and encourage the internationalization of LGU curriculum, which must be done if LGUs are to reflect the global reality and fulfill their mission of preparing students to be effective natural resource managers.

Discussion

Why is managing for a sustainable environment desirable?

The relationship between human and natural systems necessitates a focus on natural resource management. Widespread land degradation, biodiversity loss, food and fiber security, political instability, an accelerating population rate, rapid change, globalization of economies worldwide, and increasing polarization between rich and poor demand improved natural resource management skills. Increasingly, limited natural resources must be used more productively with less negative impact on the environment. The impact of the historical mismanagement of the natural resource base further requires us to work toward the goal of sustainability. Managers must be aware of and learn how to work within the context of limited natural resources. The ecological, economic, and social factors influencing natural resource problems are extremely complex and interdependent. Understanding and identifying their interrelationships is the crucial first step to making progress toward environmental sustainability. Environmental sustainability

requires improved management at the individual, local, community, regional, and global levels. The environment has not, and does not, respect political boundaries. Consequently, addressing the challenge for achieving a sustainable environment requires approaches that are spatially broad, long term, interdisciplinary, international, and holistic.

Throughout history, individuals and disciplines have attempted to understand the complex relationships that exist between human and natural systems. Although the relationships are still imprecise and there are philosophical and practical disagreements about them, it is clear that nature is dynamic and complex, and humans and nature are interconnected. Human life and the environment are immersed in one system. When we influence nature, we influence ourselves; when we change nature, we change ourselves. Therefore, humans play an important role in the use and management of a finite natural resource base. In fact, as human demands on the natural resource base increase and natural resources diminish, the need increases proportionately to understand further the human-nature relationship in order to develop and use effective management strategies and tools. The ability of humans to understand and effectively manage natural resources is crucial to the reconciliation of present and future human needs for natural resources without destroying the base from which these natural resources are derived.

The precise definitions, objectives, and methods to achieve sustainability vary from ecological, economic, and social perspectives. It is likely that the focus of an ecologist would be on environmental integrity, an economist on economic efficiency, and a sociologist on equity between and amongst generations (Serageldin, 1993). Many definitions of sustainability exist, as a result. In one way or another, however, all reflect the complex interactions between natural and human systems and express concerns about (a) the effects of present day activities on the future, (b) the importance of maintaining ecological processes, and (c) the benefits of improving the quality of life now without denying future generations a similar opportunity (Young, 1992). Sustainable use and management

of the environment upon which humans depend for their livelihood requires a fundamental understanding of not only each of these disciplinary perspectives, but of their complex relationships. Traditional approaches are no longer adequate because they fail to teach about ecological, economic, and social interconnections (Robinson, 1991). Such approaches are too constrained by the disciplinary traditions from which they emerge. Instead, integrated and interdisciplinary approaches to natural resource management are required. We will fail in our efforts towards achieving a sustainable environment unless progress is made to integrate the viewpoints of at least three disciplines -- ecology, economics, and sociology (Serageldin, 1993).

Why are LGUs, in particular, the vehicle to achieve improved management for a sustainable environment?

Many arguments have been made that LGUs are in need of revitalization. Among the numerous calls for reform is the call to train and educate students for a global economy, to use information networks, and conserve the natural resource base. Because of their flexibility and mission given by society, LGUs have been at the forefront of making higher education a national necessity. The ability to stay in touch with the needs of society is a cornerstone of LGU education (Smith, 1986). Important characteristics of the land-grant system and its members as educational institutions are their ability to assess their environment, design constructive change, and initiate those changes. LGUs are well equipped with natural resource management expertise achieved over the years in understanding the natural resource base.

The accomplishments of the land-grant system have been realized through a federal-state relationship that responds to local, regional, and national priorities (Oyer, 1986). When the pursuit of agricultural activities abroad was recognized as being in the best interests of the United States, these activities became the responsibility of the Department of State and are currently being implemented by the United States Agency for International Development

(USAID). The passage in 1961 and 1975 of Title XII of the Foreign Assistance Act provided a congressional mandate for the involvement of U.S. colleges and universities, including the land-grant institutions, in the nation's foreign assistance programs. This act added a fourth element to the land grant mission, that of international involvement. Title XII created a cost sharing/matching cooperative funding relationship between the state and federal governments and land-grant universities. Additional mandates for international cooperation are included in recent farm bills, which make it the responsibility of state and federal institutions to expand international food and agricultural research, extension, and teaching programs. Furthermore, the Secretary of Agriculture is authorized to assist U.S. colleges and universities in strengthening their capabilities for food, agricultural, and related research and extension relevant to agricultural development activities in other countries.

During the 1970s, federal and state governments and LGUs united to form a strategic partnership that had the ability to invest in building long-term relationships with developing countries. At that time, it was recognized that LGUs should and could serve both local and global constituencies. To this end, LGUs established a position of liaison officer to oversee internationalization efforts in research, extension, and teaching. Because the federal government provided funds for research and development, technical assistance, contracts and grants, these functions have driven most international activities at LGUs to the virtual exclusion of teaching. Ideally, the integration and internationalization of activities should take place in all three areas of the land-grant mission -- research, extension, and teaching. Heretofore, this goal has not been aggressively pursued; thus a disequilibrium has emerged (E. Price, personal communication, April 15, 1997).

One of the tripartite purposes of the LGU is to prepare students with the skills, tools, knowledge, and philosophical approaches necessary to manage natural resources effectively. While LGUs have expertise in natural resource management, they lack the

experience in making the linkages among social, economic, and ecological factors. A particular weakness of LGUs is that their curriculum has been too narrowly focused on single disciplines, on state or national issues, and on shorter-term goals. The world today requires that natural resource managers understand the linkages amongst social, economic, and ecological factors and incorporate short, medium, and long-term goals in decision making. Without addressing actual complexities and time scales, LGUs are failing to meet this mission and are failing to take a leadership position in preparing effective future natural resource managers.

Why is internationalization of LGUs important in achieving a sustainable environment?

Globalization is a reality. While the U.S. is still strong, economically and technologically, its predominance has diminished (Olson & Howell, 1984). Seventy percent of U.S. domestic production is exposed to foreign competition. Yet, most citizens continue to act as if the world that counts ends at U.S. borders. The guiding principle of social development has been the internationalization of all aspects of human behavior. The 20th century has been one of enormously accelerating scientific and technological progress and of growing interconnectedness and interdependence in the modern world, a century which has brought many possibilities for establishing international collaboration on a worldwide scale. During this time, it was those peoples and countries most actively engaged in this process of internationalization that achieved the greatest success in their political, social, economic, and cultural development (Merkur'ev, 1991).

The changing role of the U.S. in the world demands that average citizens, as well as public officials, politicians, and business and industrial leaders, develop a better understanding of the international world (Smuckler & Sommers, 1989). This need is undeniable if the U.S. is to remain a leading nation in an era of interdependence and increasing international competitiveness. Leadership in international affairs cannot be developed or exerted in a vacuum. In the U.S., in 1984, a case was made

that the majority of citizens and a significant proportion of our leadership lacked the capacity to understand and respond to international issues. More effective international leadership will emerge only when those who are led understand why and how international issues affect their daily lives. Only then will they demand a more farsighted approach to international decision making. Events over the past six years alone illustrate the importance of analyzing and understanding the international dimensions in higher education against the backdrop of the accelerating internationalization of culture and society (Wollitzer, 1991). Consider events such as the pro-democracy movement in China, the fall of the Berlin Wall, democratic elections in South Africa, Perestroika in Russia, and the Persian Gulf War. There can be no doubt that the scope of international influence on daily life is expanding at an accelerated rate and affecting most aspects of human endeavor.

Many critics of American education agree that an understanding of the culture, politics, language, economy, religion, and geography of foreign lands is essential to the education of American students (Akpan & Martin, 1996). Higher education, with its component activities of learning, teaching, research, and public service, must respond to them. Now more than ever before, a period of greater internationalization of learning is developing with increasing worldwide exchange of scholars, students, and ideas. The scholar is now becoming less the citizen of one nation and more a citizen of the academic world, thus living more and more in two worlds, the international and the parochial. According to Kerr (1991), the modern university, wherever it may be in the world, represents a new convergence of national purposes for higher education with one foot planted in the nation-state and the other in the pursuit of pure knowledge. Institutions of higher learning should be global, devoted as they are to universal learning, yet still situated in a world of nation-states.

Kerr (1991) envisioned a global community of higher learning in which each university's unique strengths should be accessible to all as

part of a single learning system. He describes a model university as one in which national purposes and universal learning come together, to include a third converging element: explicitly international purposes for higher education. The two laws of motion tugging at higher education are the internationalization of universities and the nationalization of the purposes of higher education. In higher education, as in the life of nations and in virtually all other aspects of human experience, one thing is certain: everything does truly continue to change. The world's thrust towards international cooperation and competition will exert pressure upon universities to change with them (Wollitzer, 1991). Therefore, leaders and faculty of institutions of higher education must assure that graduates will have the knowledge to understand complex global forces that will have impact on their lives by putting priority on the international and comparative dimension of their programs.

LGUs now serve a complex and extensive information society where the focus is knowledge, information, and problem solving. The "product" of LGUs is largely in the form of human capacity or "experts." This is especially true for colleges of agriculture because of their need to understand the global economy and America's place within it. For some, the fact that land-grant institutions are situated in nation-states causes a perceived conflict of interest and has contributed to slow progress towards reform of LGUs, in general, and specifically in the internationalization of their programs. Fundamental to the LGU mission is the teaching of students; therefore, LGUs must adapt their teaching programs to reflect the realities of a globalized environment. To not reflect global actualities in the teaching programs of land grant institutions adversely affects students' abilities to understand and function effectively. Incorporating an international focus into the curriculum of LGUs enhances domestic teaching, research, and extension programs by equipping students with the knowledge and skills necessary to operate optimally in today's world. Moreover, doing so recognizes and reinforces the interconnectedness of human and physical systems across national borders.

One of the reasons why our society has not focused in the past on managing for a sustainable environment has been a short-term and narrow vision of our world and the future. There is a need to expand our worldview, to have a sustainable, long-term outlook on the environment, and to be inclusive and participatory through the inclusion of diverse groups, such as scientists, extension workers, educators, students, public interest groups, and citizens in management decisions. To build effective human capacity, LGUs must assure that graduates can (a) understand complex global forces, (b) see the larger picture, (c) understand cause and effect relationships, (d) understand interrelationships, and (e) think in longer time scales. With these competencies, future natural resource managers will be equipped to make effective decisions.

Why is internationalizing the LGU curriculum so important?

Curriculum is the vehicle by which skills, tools, knowledge, and attitudes are conveyed to students. Therefore, curriculum is the cornerstone to building human capacity to manage for a sustainable environment. An LGU curriculum that is not international and long range in scope is a serious impediment to preparing for environmental sustainability, as it is precisely such a curriculum that has the potential of preparing future generations to solve problems that will be largely natural resource related. Curriculum that is spatially broad, temporally long, interdisciplinary, holistic, and international in focus shifts the study of problems and their solutions to a level that effectively addresses issues of environmental sustainability. By understanding how natural resource use and degradation are affected across regions and the linkages between environmental causes and effects across political boundaries, it becomes possible to manage natural resources in a sustainable manner. Regardless of whether the management level is the household, farm, region, watershed, or ecosystem, we find that ecological, economic, and social forces impact the natural resources that managers consider in their decisions.

The internationalization of the curriculum at an LGU is mandated by both necessity and law. Internationalization of the LGU curriculum is a natural outgrowth of the tripartite mission to provide education, research, and services to the constituents of the states in which LGUs are located. Inherent in this mission is the fundamental premise that the activities of LGUs change constantly to address evolving needs. The growth of international elements in human affairs is a prevalent force in the late 20th century and a pressing need to which land grant institutions must respond in all aspects of their mission. The fact that Title XII mandates that the LGU curriculum be internationalized has been largely ignored. Indeed, curriculum has been left behind. Although some efforts have been made to internationalize curriculum at U.S. academic institutions, in areas such as arms control, resolution of conflict, and peace and development in the 1980s, these have tended to be the exception rather than the rule. In 1987, the Study Commission on Global Education recommended that the U.S. place more emphasis in the curriculum on world history, on an understanding of one or more cultures in addition to the American culture, on an analytical view of the world as an interrelated series of systems: physical, biological, economic, political, informational, and evaluative, and on the ability to analyze important public issues, both domestic and foreign. However, such recommendations have not been fully incorporated into LGU curriculum.

Although LGUs ostensibly serve the nation-state in which they are located, the technological, economic, social, and political factors have combined to bring many scholars to the conclusion that internationalizing the curriculum is an essential component of education. The internationalization of curriculum at LGUs is only one component of the reform and revitalization efforts and is presently a priority because it directly impacts society's ability to meet changing needs by preparing capable professionals to function in the global community. In their efforts to meet the ever-changing needs of society, LGUs are undergoing reforms, which include "internationalization."

Within the LGU system, both research and extension functions have been internationalized, to some extent. In comparison, teaching and curricula have not. A principal way in which an educational institution creates human capacity with the knowledge and skills necessary to manage for a sustainable environment is through the curriculum.

There are a number of reasons to internationalize instructional programs and curriculum at LGUs. These include: (a) curriculum is the vehicle through which formal education takes place, (b) past emphasis has been on research, therefore curriculum has lagged behind, (c) curriculum directly transfers skills, knowledge, experiences, and attitudes to students, (d) LGUs must reflect globalization and meet the needs of the U.S. economy, (e) LGUs are inherently international institutions and should reflect this fact in their curriculum, (f) an internationalized curriculum promotes multi-disciplinary and interdisciplinary efforts and integrates international and domestic teaching materials, (g) such a curriculum builds long-term relationships with developing countries and promotes cross-cultural linkages, international understanding, peaceful international cooperation and national security, (h) internationalization fosters faculty updating their knowledge and skills, and enables the U.S. to learn from collaboration with other countries, (i) internationalizing provides opportunities to establish meaningful communication with the foreign students on campuses, which yields increased knowledge and understanding and enriches the training of American faculty and students, (j) LGUs lead society in information generation and technology, and (k) internationalization helps to maintain the LGUs' competitive position vis-à-vis other academic institutions.

Some factors that impede curricular change include: (a) individual personal behavior, including fear, self-centeredness, and narrow vision, (b) organizational and environmental factors (organizational structure, availability of information, institutional direction), and (c) special interest constituencies (administration, curriculum committees, faculty, students, accreditation agencies, practitioners, and the

media). Institutional culture, the traditional image of agriculture, aversion to risk, denial that globalization has arrived, short-sightedness, and ignorance about the importance of international activities and the cost-sharing conflict between states and the federal government are critical factors that have delayed the internationalization of curriculum at LGUs. These impediments should be evaluated and understood at each institution in order that curricular change occurs.

Internationalization can be infused through the flow of new knowledge, the content of the curriculum, the flow of scholars, and the flow of students (McConaghy, 1990). The general trend of internationalization of university education has been to increase activities in these areas: (a) student exchanges and education abroad programs, (b) foreign language study, (c) cooperation in the area of curriculum, i.e., joint publications of textbooks, (d) development of inter-university information networks, (e) establishing joint scientific research projects, (f) joint publishing projects, (g) the role of international organizations and universities in education, and (h) bilateral relations (Merkur'ev, 1991). These activities contribute to, but do not take the place of, explicit internationalization of the content and teaching methodologies of LGU course curriculum.

Conclusion

The roles of LGUs are changing as the world changes around them, but the strong commitment to serve society remains the same (Smith, 1986). Higher education is a necessary part of our lives as a contributor to social and economic development. LGUs have made a significant impact in past years in an economy that was moving from an agricultural to an industrial base. This impact continues today and will continue into the 21st century, as society moves from an industrial to an information economy. For LGUs to be leaders in this changing environment, their curricula must reflect the growing complexities of the trend toward globalization and the interconnectedness between human interactions and the natural world. Although LGUs have made strides to internationalize research and extension, they

have largely neglected curriculum. The internationalization of curricula at LGUs remains a crucial step in preparing students to manage for a sustainable environment.

If you are thinking a year ahead, sow seed.

If you are thinking ten years ahead, plant a tree.

If you are thinking a hundred years ahead, educate the people.

By sowing seed, you will harvest once.

By planting a tree, you will harvest tenfold.

By educating the people, you will harvest one hundredfold.

-Anonymous Chinese poet, circa 500 BC

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