

Title: Operationalizing Sustainability Education at the University of Hawai‘i at Manoa

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Purpose: The purpose of this paper is to further operationalize sustainability education at the University of Hawai‘i at Manoa (UHM) through a review of past actions and situate these in the context of Education for Sustainability themes and the UHM mission in the State of Hawai‘i.

Methods/Approach: This paper describes activities that created the conditions for introducing sustainability projects and curriculum at UHM. Through participant observation in meetings and workshops and the review and analysis of materials related to campus sustainability, the author compiled information to consider the extent that these inform current initiatives and the direction of sustainability education at UHM.

Findings: This case study is not an exhaustive review of campus activities since UHM has been undergoing administrative restructuring, but it indicates that campus-wide initiatives are building the critical mass toward fulfilling the objective to become an active participant in higher education for sustainability.

Value: This paper provides information on activities to inform readers interested in trends to establish sustainability research and instruction at institutions of higher education.

Keywords: Education for Sustainable Development, sustainability, University of Hawai‘i at Manoa

Introduction

A reorientation of education is required in contemporary societies to provide and disseminate knowledge and skills for living and working sustainably (Orr, 1992; Orr, 2004; Edwards, 2005). But what does it mean to live and work sustainably and how might institutions of higher education promote these outcomes? The goal of the United Nations Decade of Education for Sustainable Development 2005-2014 is “to integrate the principles, values, and practices of sustainable development into all aspects of education and learning” (UNESCO, 2007). The international community has debated in conferences and summits for decades how to address key themes, including environmental conservation, rural and urban development, peace and human health, and the equitable distribution of wealth and justice. Participants in this global dialogue suggest that solutions, in part, will be found through setting standards in education that make generational changes. Edwards (2005) notes that the “sustainability revolution” has become a catalyst for social transformation. This transformation involves improving the quality of and access to education; more significantly, it requires an overhaul of what and how people are educated.

By many accounts, contemporary societies are in a period of crisis with regard to sustainability’s triple bottom line of environment, economy, and equity. The awakening to environmental crises since well before the United Nations Conference on the Human Environment in 1972 has led directly and indirectly to new fields of study in academia with express missions for science to inform policy. The sustainability crisis is a further manifestation of similar concerns regarding the human-environment relationship. This paper does not attempt to convince the reader that any crisis exists. That discussion has already entered public discourse. What is of interest to this author is how education addressing sustainability themes will manifest at the University of Hawai‘i at Manoa (UHM). It is from this point of reference that the paper goes beyond making the case *for* education for sustainability and presents *how* sustainability education can, and is, being developed for the benefit of the State of Hawai‘i.

Sustainability Education

Characterized as “creatively ambiguous,” the Bruntland Commission in *Our Common Future* (1987) defined sustainable development and sustainability as the promotion of decision-making and actions whereby the needs of people today are met without compromising the ability of people in the future to meet their own needs. Although a more precise and universally accepted definition is not currently available, or perhaps desirable so as to be inclusive of various interpretations, generally accepted components are the environment, economy, culture, and social equity. The scope and membership of sustainability converts “are consequently in substantial flux and may be expected to remain so for some time ... (but there is) something that is intellectually exciting, practically compelling, and might as well be called ‘sustainability science’” (Clark and Dickson, 2003).

Less ambiguous is an understanding that achieving sustainability requires a period of transition from determining development by quantity of goods and services consumed to an assessment that measures “the quality of human knowledge, creativity, and self-realization” (Kates et al., 2005). Edwards (2005) suggests a commitment to public education be added to the triple bottom line. “Through education, sustainability can become firmly established within the existing value structure of societies while simultaneously helping that value structure evolve toward a more viable long-term approach to systemic global problems” (Edwards, 2005:23). Orr (2004) notes that education is no guarantee of a transition toward sustainable lifestyles. “More of the same kind of education will only compound our problems. This is not an argument for ignorance but rather a statement that the worth of education must now be measured against the standards of decency and human survival – the issues now looming so large before us in the twenty-first century. It is not education, but education of a certain kind, that will save us” (Orr, 2004:8).

Whether local successes can be upscaled globally or international and/or national policies can be appropriately downscaled to local conditions, the rationale for wide public participation “may simply be regarded as good in itself” (Schellnhuber et al., 2005). Education for Sustainable Development (ESD) provides a platform upon which the

public can effectively contribute to the transition and begin to measure improvements to their quality of life.

One measure of success is the extent to which institutions of higher education reorient curriculum toward greater transdisciplinary instruction and research associated with key themes. The purpose of Education for Sustainable Development (ESD) is to have outcomes that are both immediately evident and of multi-generational benefit. A comparison is with environmental sciences/studies and conservation biology that have informed public health, resource management, and restoration ecology decision making and policies since their inception and legitimacy have increased over the past half century (Leopold, 1949; Carson, 1962; Soule and Wilcox, 1985; Blaike and Brookfield, 1987; Wilson and Peter, 1988; Noss and Cooperrider, 1994; French, 1995). Another example of science informing public discourse is the work of the Intergovernmental Panel on Climate Change (2007).

ESD “utilizes all aspects of public awareness, education and training to create or enhance an understanding of the linkages among the issues of sustainable development and to develop the knowledge, skills, perspectives and values which will empower people of all ages to assume responsibility for creating and enjoying a sustainable future” (Rebello, 2003:4). Institutions of higher education that conduct research and instruct at post-secondary levels are “equipped to lead the way” in terms of preparing future leaders. The message to universities that emerged from the United Nations Conference on Environment and Development was a call for educators, particularly those in science and technology, to direct their efforts on the “highest priority goals of a sustainability transition” (Clark and Dickson, 2003).

Lack of charismatic leaders or symbols has not prevented progress from being made in many locations. “The strength of the Sustainability Revolution lies in its decentralized, nonhierarchical organizational pattern, which encourages diversity and alternative approaches to the ecological, economic and social challenges of our time” (Edwards, 2005:8). Institutions of higher education are poised for the important task of creating the foundation for a literate society, both ecological and sustainability, capable of dialogue to meet the needs of nature and humanity.

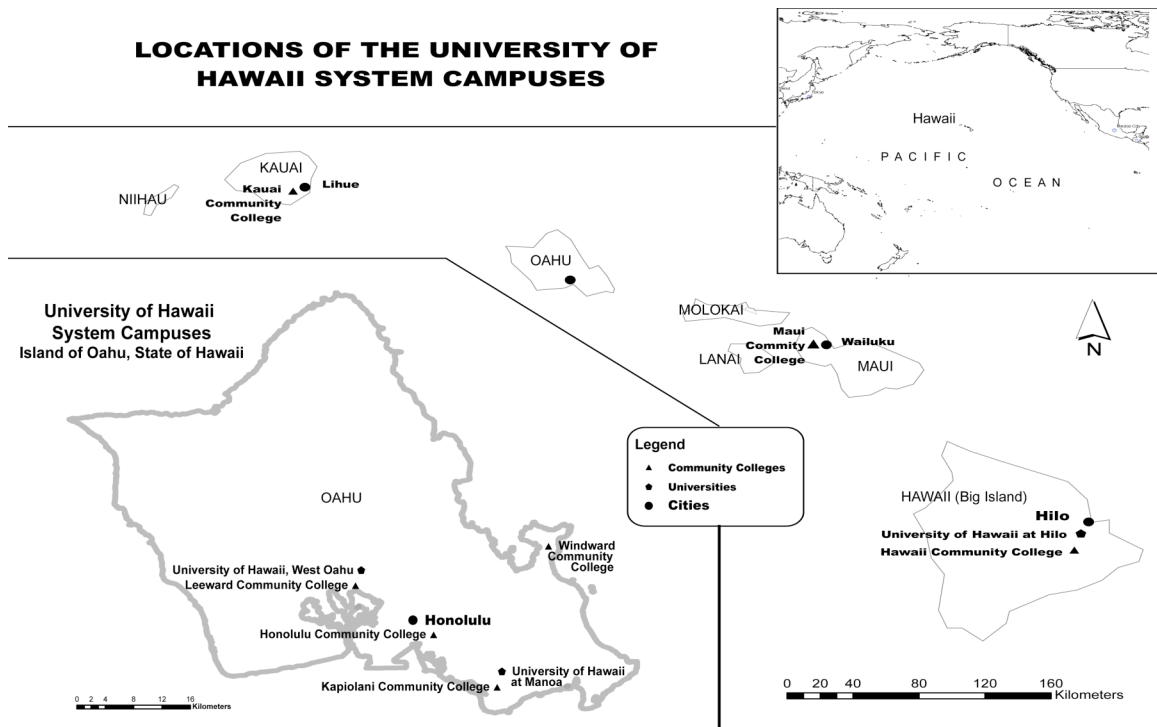
Informal networks of communication and actions avoid what James Hansen, director of NASA’s Goddard Institute for Space Studies, suggests is a public kept “in the dark about increasing risks to our society and our home planet” (Hansen, 2006). In order to avoid a campus community kept in the dark, UHM faculty and community members collaborate to bring the rhetoric of sustainability to practice on campus and in the State. The purpose of the next section is to document ongoing efforts at UHM to position itself for demonstrating solutions in a remote island location uniquely vulnerable to unsustainable lifestyle choices.

Laying a foundation for sustainability at UHM

The University of Hawai‘i at Manoa (UHM) is a land-grant, sea-grant, and space-grant institution located in the city of Honolulu on the island of Oahu (map 1).

Take in Map 1

Map 1: Locations of the University of Hawai‘i System Campuses



UHM celebrated its centennial in 2007 and is the State's largest institution, public or private, of higher education. There are over 20,600 students enrolled in 225 undergraduate, graduate, and professional degree programs. The university has recognized research and instructional expertise in earth sciences, evolutionary biology, tropical medicine, international business, environmental law, and Asian and Pacific Island studies, among other fields of study. According to the UHM Catalog, "The purpose of UHM is to provide an environment in which both faculty and students can discover, examine, preserve and transmit the knowledge, wisdom, and values that will enrich present and future generations" (University of Hawai'i, 2006:72). UHM distinguishes itself in its Hawaiian, Asian and Pacific orientation with an emphasis on Hawai'i's unique location and biological and cultural diversity.

Charter of Sustainability

In view of the significant impacts such a large institution has on a tropical island environment, over 1,000 UHM stakeholders contributed to the development of *A Charter of Sustainability* in 2003. The objective was to recognize UHM's responsibility to become a model for island sustainability based on Native Hawaiian values of stewardship. As a result of this and related efforts initiated by faculty and students, the topic of sustainability now has a modest place in campus discourse. A critical mass of stakeholders discuss as "inevitable" UHM becoming a leading institution of higher education in the field of sustainability research and instruction, whether by charting an independent path or being led by external agencies.

The Office of Sustainability was created in 2002 with the mission to coordinate campus initiatives and activities such as the brainstorming sessions that led to the Charter. Strategic goals identified in the Charter include 1) use energy wisely, 2) practice sustainable water use, 3) minimize negative impacts on the land, 4) create sustainable buildings, 5) promote alternative transportation, 6) minimize material waste, 7) adopt green purchasing policies, 8) enhance the quality of the campus experience, and 9) teach the principles of sustainability (University of Hawai'i at Manoa, 2003).

This last goal, sustainability education at UHM, is included in the UHM Institutional Proposal prepared for the Western Association of Schools and Colleges.

“A focus on sustainability and renewability. These values are also a reflection of our unique Hawaiian cultural history, as voiced in the Hawaiian core value of *malama i ka ‘aina, malama i ke kai* (caring for the land and sea that sustain us). The Hawaiian culture teaches us to see Manoa as part of an *ahupua‘a* extending from mountaintop to ocean, emphasizing an ecosystem understanding of our home. Hawai‘i’s unique geographical status as the most isolated, populated land mass on the planet makes it incumbent upon us to develop research, technologies, economy, and a way of life based on sustainability and renewability, as Polynesians did over thousands of years of voyaging, discovery and settlement. Fostering a pedagogical, social, and cultural environment that reflects these values and the knowledge developed by Native Hawaiians over millennia should be central to our efforts. Cultivating, practicing, and communicating these values are our University’s gifts and obligation to the rest of the world” (University of Hawai‘i at Manoa, 2006:8).

Despite bureaucratic and financial challenges, including interim appointments of administrators and limited budgets, the Charter envisions a time when sustainability concepts will be “at the core of all education, research and outreach efforts.” A reorganization of priorities in UHM research and instruction, considered necessary to prepare students to compete effectively in a global economy, also recognizes the rapid decline of biological and socioeconomic metrics that indicate a potential degrading quality of life for humans in the coming century.

Curriculum and ESD themes

Members of a sustainability curriculum committee identified the following objectives for sustainability education:

- Courses that focus on complex, transdisciplinary analysis and problem solving related to sustainability issues.
- Models of learning for sustainable research, practice, and community service.
- Conditions for life-long learning.
- Research that addresses community identified concerns.
- Commitment to the natural, economic, and cultural well-being of these islands.
- Leadership in the study and practice of sustainability in the Asia-Pacific region.

Implementation and institutionalization of ESD themes into existing courses, as well as their incorporation into new courses, is possible given the breadth of content from

which to select (Table I). Nonetheless, effective promotion of sustainability education is complicated by the perpetuation of rigid disciplinary boundaries that discourage collaboration. One identified bureaucratic impediment to collaboration includes how faculty workloads and contributions are determined for tenure and promotion.

Take in Table I

Table I: Existing Coursework at the University of Hawai‘i at Manoa by College or School Corresponding to ESD Themes (sources: unesco.org; University of Hawai‘i at Manoa, 2005-2006 Catalog)

ESD themes	Architecture	Arts and Humanities	Languages, Linguistics and Literature	Natural Sciences	Social Sciences	Business Administration	Education	Engineering	Hawaiian, Asian, and Pacific Studies	Interdisciplinary Programs	Law	Medicine	Nursing and Dental Hygiene	Ocean and Earth Science and Technology	Social Work	Travel Industry Mngt	Tropical Agriculture and Human Resources
Overcoming Poverty		X			X	X			X						X		
Gender Equity		X			X				X		X						
Health Promotion	X	X			X							X			X		
Water		X		X	X				X					X			X
Climate change		X		X	X									X			
Biodiversity		X		X	X						X			X			X
Disaster prevention	X	X			X									X			
Rural Development		X			X	X											X
Cultural Diversity		X			X												
Peace and Human Security		X			X												
Sustainable Urbanization	X	X			X											X	

While identified short-term goals are being achieved and outcomes demonstrated to the campus community, the long-term goal is to go beyond the low hanging fruit of reduce, reuse, and recycle. Preliminary and current projects were a campus recycling program, a campus buildings energy audit, water conservation measures for facilities and grounds, and a campus bicycle plan. A new student dormitory opening in 2008 has green building design elements, and another building has become a catalyst for demonstration research projects that involve the administration, faculty, graduate and undergraduate students, and campus organizations. Additional projects involving faculty and student collaboration with grounds and facilities management are having an impact on the visibility of sustainability practice on campus.

The future of sustainability education at UHM: course designation, certificate or degree program?

UHM can improve sustainability literacy and practice in the State of Hawai'i through education, research, and service activities. Existing UHM facilities on-island that facilitate sustainability education include: 1) the Manoa campus, located in a city of nearly one million people; 2) Waikiki Aquarium, adjacent an urban beach and neighboring a major tourist destination; 3) Lyon Arboretum, 193 acres of tropical rainforest in the back of Manoa Valley; 4) Coconut Island, an offshore island in nearby Kaneohe Bay, already home to a marine laboratory, and 5) experimental agricultural facilities.

Of equal significance to the availability of UHM grounds and facilities for research and service projects will be to take advantage of cooperative agreements made, and those to be made in the future, between various University of Hawai'i System campuses (ten campuses on four islands) and institutions of higher education around the world. These agreements provide opportunities to broaden the global connection for students and faculty to and from campuses in the form of field courses, study abroad programs, and student/faculty exchanges. There are a number of appropriate places in the Asia-Pacific-Americas regions for experiential learning with a sustainability focus, and similarly, the UH System can help situate the Hawaiian Islands as a center of excellence and a

destination of choice for individuals and institutions in search of such expertise. State and regional collaboration will be an outcome of leadership demonstrated by the flagship institution of higher education in the State of Hawai‘i.

Course designation

A proposed sustainability course designation is intended to identify existing and future courses in the UHM catalog to provide students with information to make selections that match their interests. The designation model is based on current General Education requirements that address determined competencies: oral and written communication, ethics, and diversity, for example. Existing courses with sufficient sustainability content are identified and faculty invited to participate to apply for designation while new courses are being developed to address identified deficiencies. This course designation would *not* represent an additional requirement for students, but it could be a first step toward fulfilling the strategic goal of teaching the principles of sustainability and making them “at the core of all education” as stated in campus objectives.

Certificate program

UHM currently offers 26 Certificate undergraduate programs that are open to all classified students who are interested in attaining a credential signifying competence in a particular field of study. An undergraduate sustainability certificate would address the academic, research, and professional needs in the State of Hawai‘i. Students enrolled in a degree program could access the broad range of interdisciplinary expertise available at UHM and take advantage of the diverse environmental conditions found in the Hawaiian Islands for field research, service learning, and career internship opportunities. This program would require an additional 15 credit hours of sustainability designated courses beyond the normal degree requirements. Students completing a sustainability certificate would be conversant across a broader academic continuum of disciplines. The emphasis on experiential learning would help students develop practical skills increasingly identified as minimum desired qualifications by decision makers and communities trying to create and promote sustainable economies, communities, and environments.

A certificate program capstone course would facilitate collaborative research that ultimately reduces the environmental footprint of the UH System. The course, modeled

on the existing Environmental Studies senior capstone course, would specifically address campus and community identified concerns and problems and share this expertise with participating public and private organizations. Campus and community internships would have broader impact through exposure to real-world projects outside the classroom setting, and provide training in problem solving and conflict resolution, quantitative and qualitative research methods, proposal and report writing, and making oral presentations to stakeholders. These skills will be an added value to students in preparation for the rigors of graduate school and professional careers.

Degree program

Sustainability degree programs are increasing at institutions of higher education around the world, as are the number of members in such organizations as the Association for the Advancement of Sustainability in Higher Education (AASHE) and University Leaders for a Sustainable Future (ULSF). Sustainability degree programs provide interdisciplinary skills that societies and employers require to identify, analyze and solve complex issues. In addition to the investigation of human-environment interactions mediated by diverse cultural, political, and economic conditions, UHM faculty expertise related to sustainability challenges includes climate change, protected areas and conservation of environmental diversity, invasive species management, ecological restoration, tourism management, and alternative energy solutions, among others.

Any proposed degree program would augment and be specifically designed so as to not duplicate existing programs. Students will by necessity take courses offered by a variety of departments who will likely contribute perspectives and opinions that enrich the experience for both students and faculty. Such a degree program helps recruit faculty and students who contribute to UHM's comparative advantage of being located in the center of the Pacific Ocean as the bridge linking East and West: Asia, the Pacific, and North and Latin America. A degree program would benefit from the existing natural, human, and cultural resources of the Hawaiian Islands as a center of diversity whose people, lifestyles, and worldviews contribute peaceful solutions to sustainability concerns evident in each of these regions.

Regional significance

UHM's international and regional linkage is already established with such institutions as the neighboring East-West Center and various regional studies centers on campus (China, Korea, Japan, Okinawa, Pacific Islands, Philippines, South Asia, and Southeast Asia). Experience and expertise gained from instruction and research by students and faculty can be exported to communities in need of such skills. Sustainability courses on campus, in the field, or through distance learning technologies, provide students and faculty hands-on experiences with concepts, skills, and practices relevant to contemporary societies, particularly on Pacific Islands with similar geographic features. Cooperative regional networks of institutions of higher education and their host communities promote sustainability education and work toward resolution of a list of identified concerns and conflicts in ways appropriate to rural and urban communities.

Hawai'i 2050

One task for UHM's second century is to maintain regional preeminence by creating knowledge that produces solutions to contemporary challenges associated with sustainability in the State of Hawai'i. Demonstrated leadership at UHM through commitment to sustainability education furthers the strategy of becoming a world leader in education and research as envisioned by many community leaders. The State of Hawai'i Legislature unveiled the Hawai'i 2050 Sustainability Task Force draft plan in 2007 that aims to address and guide future development. The Task Force activities over the past two years provide sustainability content and community case studies that can be infused into the curriculum of higher education at UHM. While this teaching opportunity increases awareness of those who have a stake in the outcome, participation of UHM students can help ensure any updated State Plan avoids a short shelf life, the fate of the Hawai'i 2000 report completed during the term of Governor George Ariyoshi in the 1970s.

Former Governor Ariyoshi considers success of Hawai'i 2050 dependent on "community movement" and that "hopes and good ideas have a way of rising to the top" (Ariyoshi, 2006). UHM can inspire hope and incubate those good ideas and ensure the campus is a forum to "engage and involve as many residents as possible in an open and meaningful discussion about Hawai'i's preferred future." Sustainability education at

UHM develops expertise and leadership required to maintain the unique way of life in the Hawaiian Islands that is widely recognized by residents and visitors.

Conclusion

What evidence will there be that society has been transformed as an outcome of all the rhetoric on sustainability of the past two decades, and how will anyone notice a difference at UHM? Effective education for sustainability demands collaboration among and support from administration, faculty, staff, students, and service providers, in addition to the surrounding host community. These stakeholders benefit from expanded learning opportunities in a mutually beneficial process that situates an institution of higher education as an active sustainability practitioner. Such actions, already underway at many institutions of higher education, but at times painfully unresolved for both nature and society in the Hawaiian Islands, demonstrate that institutions of higher education are well served to invest resources in sustainability.

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