



**BECOMING THE PREMIER ENVIRONMENTAL UNIVERSITY:
A BLUEPRINT FOR CHANGE AND ENVIRONMENTAL
LEADERSHIP
AT
THE UNIVERSITY OF VERMONT
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OPPORTUNITY

The University of Vermont (UVM) is well-positioned to become the premier environmental university in the world. Indeed, our university is already known for excellence in its environmental programs and is located in a state with a history, culture, economy, and working landscape tightly intertwined with the natural world. However, becoming the premier environmental university goes far beyond capitalizing on our location or even our academic reputation and portfolio.

Becoming the premier environmental university begins with understanding why it is important, even urgent, that we assume a leadership role in educating a new generation of business leaders, politicians, scientists, educators, and citizens who are environmentally literate and accountable. That is, citizens who understand that significant human-induced alterations to ecosystem processes are not only ecologically damaging, but also threaten our economic vitality, quality of life, and potentially the long-term viability of humanity. We must educate a new generation of ecosystem thinkers who understand “interconnectedness” and the short- and long-term implications of their decisions and actions. The premier environmental university recognizes the need for systemic change in society and our higher education system, and offers hopeful and viable approaches to creating such change. The environmental university cannot simply be about programs and projects that describe environmental problems, but rather must be about building new ecologically based enterprises, economies, and opportunities. We must be insightful and envision a university committed to the development of innovative and meaningful solutions that imagine, model, design, and demonstrate alternative ways of conducting ourselves that can lead to ecological and environmental sustainability.

Many colleges and universities claim environmental strength and seek to establish an environmental image, but few have the setting, capacity, and commitment for true environmental leadership. The University of Vermont has already declared

“environment” as a major strategic focus, has made giant strides and investments in that direction, and is poised to assume that leadership --- *true greatness is within our grasp.*
BECOMING THE ENVIRONMENTAL UNIVERSITY

Our commitment to being the premier environmental university is synonymous with commitment to lead change through creative, cooperative, integrated solutions that advance society’s welfare. Traditional disciplinary approaches to science and technology are necessary, but not sufficient to address environmental challenges and develop viable long-term solutions. We must find ways to build bridges across disciplines and challenge our customs and comfort zones. Dr. F.H. Bormann, world renowned ecosystem scientist and member of the National Academy of Science, the American Academy of Arts and Science, the Board of Advisors of The Rubenstein School of Environment and Natural Resources at UVM, has perhaps best articulated the challenge:

“to find our way we need to better understand how the natural world works; and how environment, politics, economics, and society interact to affect how the world works; and how humans can work more effectively with, and not against, nature. We need to question many assumptions deeply ingrained in ourselves and our societies.”

While the challenge is substantial, responding to the challenge can be exhilarating. Being the premier environmental university is not just about the intellectual challenge. It will require action, courage, and commitment to effect change.

While many universities provide quality environmental courses and research, typical university structures celebrate disciplines, isolate faculty and students into narrow specialty areas, and fail to engage real-world communities in real-world problem analysis and solutions. Most institutions study and learn about pieces of problems, lacking integrated, cross-disciplinary approaches. In its analysis of higher education, the Kellogg Commission on the Future of State and Land Grant Universities recently concluded that “society has problems and our institutions have disciplines.” The environmental university must break down traditional academic silos and create a climate that encourages and rewards teaching and research that integrates, for example, ecology and economics, environmental and business management, nature and culture, and science and policy. These types of efforts will be most meaningful if they address real world issues. The University of Vermont is uniquely well-positioned to do this, for it already has already made progress in all of these arenas.

A BLUEPRINT FOR CHANGE

To earn recognition as the environmental university, we must proceed on several fronts --- development of meaningful and distinctive academic programs, institutional operations and practices, and environmental outreach and engagement initiatives throughout Vermont and beyond. Elements in each of these arenas are described below.

Academic Programming

The environmental university understands and celebrates that high-quality and distinctive academic programming has two contexts — environment as a focused course of study (e.g., major) or scholarly pursuit (e.g., research focus), and environment as a cohesive element of a liberal education (i.e., ecological literacy).

Environment as a focus area. Clearly, quality course offerings and scholarly research programs in environmental fields (e.g., environmental science, ecology, environmental policy, etc.) and in fundamental disciplines that underpin these fields are critically important. Many universities, including The University of Vermont, can point to such programs and courses. However, quality courses and projects are abundant at many universities. We must strive for distinction and relevance as well as quality.

Almost all assessments of future needs for environmental analysis, information, and action have called for “interdisciplinary and multidisciplinary approaches,” “integration of ecological and social dimensions,” and the need to build a new “science of sustainability.” Major federal agencies and organizations, such as the National Science Foundation, the National Research Council, and the newly formed National Council for Science and the Environment, have dedicated their efforts and resources to enhancing integrated environmental research. While most large universities are not well structured or positioned to emphasize interdisciplinary environmental learning and research; the University of Vermont is ideally positioned and routinely deploys interdisciplinary teams of faculty and students to explore and solve complex environmental challenges. Integrated approaches to environmental research and problem solving are both distinctive and increasingly relevant to student learning and society.

With respect to teaching and learning, students focused in environmental fields must have a solid integrative foundation that bridges the biophysical and social sciences in an environmental context, and the opportunity and encouragement to explore coursework and connections that extend beyond their enrollment unit. Students need to be able to think, converse, and analyze across disciplines, while retaining the fundamental knowledge and specific skills to address and mitigate environmental problems. Strong environmental programs must provide hands-on, field-based programs, which for UVM includes access to Lake Champlain, forests, mountain summits, farms, field stations, natural areas, and policy debates such as those of the Water Resources Board or Environmental Commission. Specific academic enrichments that should also be available for students studying environment at UVM include:

- problem-based courses that engage students with faculty guidance in addressing real-world issues with community stakeholders
- international and domestic travel courses taught by UVM faculty in distant locations that expose students to varying landscapes, cultures, and approaches to problem analysis and solutions,

- advanced interdisciplinary study and certificate programs focused on Ecological Economics and Conservation Leadership coordinated through multiple academic units,
- internship and service learning opportunities that simultaneously engage students and serve communities or organizations,
- laboratory and field-based research experiences with faculty and graduate students

With thoughtful and strategic investment, The University of Vermont can achieve excellence and exhibit national leadership in the following distinctive and innovative arenas, while providing enriched opportunities for our students and addressing important societal needs.

Environment and Business --- For too long, the for-profit business sector and the environmental community have been oppositional and confrontational with little good resulting for society. Significant solutions to environmental and economic challenges can be developed by collaborative dialogue and mutual investment by the business and environmental communities and development of strategies for environmentally responsible and profitable business ventures.

Ecological Design --- Few universities offer academic coursework or concentrations in ecological design, which includes designing human-based systems that mimic natural processes. Ecological design of waste treatment, new buildings, energy systems, transportation networks, and more is rapidly becoming recognized as an environmentally and economically viable approach toward sustainability. UVM can lead this effort.

Ecological Economics --- The recent addition of the Gund Institute for Ecological Economics to UVM coupled with an array of other top notch environmental scholars on campus committed to integrated approaches to teaching and research places UVM at the forefront of environmental systems thinking, valuation of ecosystem services, and simultaneous analysis of the ecological and economic dimensions of environmental challenges and opportunities.

Ecosystem Health --- UVM's strength in medical and health sciences offers a unique opportunity to develop undergraduate, graduate, and research programming focused on ecosystem health, emphasizing the numerous interconnections between human health, ecosystem function, and environmental pollution.

Ecological literacy. Perhaps the most important responsibility of and contribution to society by an environmental university will be to insure all of its graduates are ecologically literate. That is, they have an appreciation of the pervasive and interconnected importance of environmental issues to society and quality of life, and are aware of their individual and collective responsibility toward achieving a healthy natural world. Ecologically literate citizens will be more informed and responsible voters and able to sort hype from reality in the popular media. The environmental university understands that the modern day concept of a fundamentally sound liberal education

includes “engaging minds” and promoting “critical thinking” and “personal responsibility” about environmental matters as well as other subjects.

The University of Vermont could become one of the very few universities nationally that would offer and require ecological literacy courses aimed at all students. These would not be environmental advocacy courses, but rather courses that encourage ecosystem thinking, respect for nature, and understanding of the interdependency of the natural world and humankind.

Furthermore, there is an exciting opportunity for The University of Vermont to truly stand out among universities by developing and offering an innovative cross-college Ecological Literacy Certificate or minor that exposes students to environmental concerns and opportunities in a broad context associated with each of UVM’s academic units. For example, this certificate/minor might include courses associated with ecological issues (offered by The Rubenstein School), “green” entrepreneurship (Business), environmental information management (Engineering and Math), sustainable agriculture (CALS), human health implications (Nursing/Medicine), environmental literature and humanities (Arts and Sciences), and environmental education (Education). To complete this minor or certificate, students would select ecological literacy courses from outside their college to extend the learning experience of their major.

Finally, the university should create a residential environmental program as part of the new residence halls that will be built shortly. This program should be aimed at UVM students with both professional and avocational environmental interests and should engage students in both campus and community environmental service learning opportunities.

Institutional Operations and Policies

The environmental university must model the sustainability principles that it teaches, explores, and espouses and strive to understand and diminish institutional impacts on the local environment. By implementing environmentally responsible operations and practices, the institution creates a perpetual learning opportunity for students, staff, and faculty as well as external communities. We have the benefit of a proactive and engaged Environmental Council at UVM that serves as an institutional conscience. The Environmental Council encourages responsible management of land and buildings, reduction and innovation in the use of water, energy, and fuels, and the inclusion of safe, environmentally sound and progressive waste disposal and recycling practices. Such waste reduction and energy conservation practices can be both cost effective and environmentally responsible.

Institutional operations and policies need not be separated from the academic enterprise. Working with students, staff, and faculty, we should establish a set of long-term guiding principles, such as achieving carbon neutrality by some specific future date, actively participating in the 10% challenge and measuring our progress, and demonstrating leadership in the reduction of storm water pollution from campus facilities.

By engaging our students in the setting of the principles and assessments of progress, we directly contribute to our educational mission, set a positive example for both our students and the community, and reduce our environmental impacts.

As an institution, we have made good effort to incorporate sustainability principles and practices. However, many universities, colleges, and independent schools are way ahead of us in the incorporation of ecological design principles into facility renovations and new building construction. Once again, this begins with a “systems thinking” approach to intended building use and design and recognition that our buildings are actually “learning centers” and opportunities for active learning, and not simply enclosed spaces that house offices, classrooms, storage, and laboratories. Indeed, we need to “practice what we teach.” The retrofitted and expanded Aiken Center should be the first “green” building at UVM to serve as a model and beacon for the entire university community. It’s intended that the renovated Aiken Center be a place like no other to date and represent a harbinger for our future.

We should commit to following the guidelines of LEED (Leadership in Environmental and Engineering Design) certification (or another set of guidelines) and aspire to the highest level of achievement plausible. Increasing evidence indicates, if approached thoughtfully, this need not cost more initially, and the return on investment may be as short as a few years. Our new buildings and renovations should serve as models for energy efficiency, minimize the use of substances harmful to people and the environment, utilize primarily local and “green-certified” forest products, emphasize recycled steel and other materials, and incorporate the latest innovations in heating, cooling, and wastewater treatment. We should learn from the exciting example of The Willow School in New Jersey, an independent elementary school that has incorporated such ecological designs simultaneously into its facilities and curriculum. Our ultimate goal should be new buildings and renovations that are net energy producers with water exiting the building as clean as the water entering. The technology exists to live up to these expectations. If sophisticated universities, especially leading environmental universities, don’t step up, then who in society will?

The environmental university also needs to actively manage its landholdings in a sustainable manner and implement a thoughtful and progressive transportation and parking plan for the campus. Perhaps we should consider a largely pedestrian campus with an efficient and effective shuttle system of electric vehicles and bicycles for transport from peripheral “green” parking facilities. On campus, we could minimize impervious surfaces, convert paved areas to “green” spaces, and landscape with native vegetation where possible. Most of our properties off campus have not been inventoried and are not under active management. Given the importance of the working landscape to the culture and economy of Vermont and our knowledge of active and sustainable agricultural and forest management, the university should implement model land management practices and utilize wood from our properties to furnish building renovations. These projects could pay for themselves, actively involve our students, and visibly extend the positive influence of the institution into communities throughout the state.

Environmental Outreach and Engagement

Universities harbor vast intellectual resources that, effectively deployed, can solve real problems in the real world. However, universities are typically not well organized to act on local problems in a coherent manner. Rather than simply treat outreach as one more competing demand on faculty time, or an activity for Extension, the environmental university can redesign portions of its teaching and scholarly activities to become more productively involved with local communities or major national issues. For example, the “atelier” workshops of the Gund Institute involve faculty and community members partnering to solve complex challenges, and Ecological Planning and Field Naturalist graduate students work in partnership with land trusts and communities to develop land use plans. Problem-based courses also engage teams of faculty and students in projects that simultaneously represent active learning and active teaching for all involved. There is a clear role for an environmental university to participate in, even lead, the dialogue necessary to achieving sustainable human communities. As the UVM Honors College begins to take shape, serious consideration should be given to environmental service learning projects replacing the traditional honors research projects for some students.

The University of Vermont can play an important role in society by establishing a **Summer Environmental Institute** that offers workshops, short-courses, and certificate programs focused on applying integrated approaches to environmental problem analysis, land conservation, and ecosystem management. The summer institute can offer certificate programs in Land Conservation, Ecological Economics and Design, and Environmental Business Ventures. The institute could also be designed to pull divergent stakeholders together to grapple with complex and often antagonistic environmental problems. A series of published reports or public “white papers” would be designed to advance from problem analysis to potential solutions. The Summer Environmental Institute might, for example, invite business leaders and environmental leaders to non confrontational working sessions that address the challenge of designing a sustainable and desirable future for society. Interested UVM faculty can contribute technical information, available data, and facilitation of such meetings and insure accuracy of published reports. Divergent groups such as these only rarely meet together and almost never work side-by-side to seek common ground about the future. The environmental university can play a valuable role in making this happen and create an international reputation for facilitation of societal change

Finally, no institution can do it all alone. A leading environmental university will develop partnerships and collaborations and seek exposure to innovators and new and different ways of thinking. Partners will come from other institutions, state and federal agencies, and non-government organizations, and should include formal on-campus affiliations. Many such partnerships have already been established at UVM and they effectively extend the visibility and impact of UVM’s environmental programs and efforts. It is exciting to imagine an environmental university built in part on synergistic partnerships that serve as a source of enlightenment as well as building blocks for our most meaningful work.

MAKING A DIFFERENCE

Becoming the premier environmental university in the world is within our reach at the University of Vermont. Grappling with complex environmental issues and developing innovative and viable new “green” ventures are at the core of Vermont’s values and opportunities for economic development. With UVM at the helm, Vermont can serve as a model for how ecosystems can be managed to provide necessary goods and services without threatening ecosystem integrity or constraining the capacity of the environment to support human uses over the long term. By focusing on and investing in environment as an institutional priority, UVM will be capitalizing on its extant strength and the tremendous “sense of place” that defines Vermont. The immediate winners will be our students, who will become effectively prepared to serve society and to function in a world where disciplines do not exist. Ultimately, society will be the major beneficiary.

The University of Vermont has the expertise, energy, location, and momentum to become the leading environmental university in the world with special thanks to the incredibly generous gift from the Rubenstein family. With appropriate venture funds and some strategic capital investments (institutional and philanthropic), we can better integrate the environmental elements of the campus and build stronger synergy's, expand and solidify our evolving and distinctive strengths in Ecological Design, Lake and Watershed Studies, and Environmental Business Management, and truly educate ecologically literate and accountable leaders of the future. Moreover, we will attract the best and brightest faculty and students in the country to the university. Indeed, we will become widely known as the university dedicated to confronting environmental challenges facing society and defining opportunities to build ecologically based economies.