UNIVERSITY OF MICHIGAN
SUSTAINABILITY

"The University of Michigan is strengthening its longstanding commitment to sustainability across the board – in education, research, operations and engagement."

Mary Sue Coleman, U-M President

The Michigan Difference for sustainability builds upon our strong foundation in Education, Research, Operations, and Engagement. We will leverage existing centers of excellence and build new institutional capabilities to ensure U-M has the capacity to tackle difficult and complex sustainability challenges. We will pursue global leadership within a focused number of themes selected based upon U-M strengths, problem scale, and potential impact. We will apply a range of engagement tools that foster both cross-disciplinary collaboration within the University and strong connections with our external partners who put sustainable solutions into practice. By pursuing a disciplined strategy of engaged scholarship with impact, the University of Michigan will rise as a world leader in sustainability.

EDUCATION

Our goal is to engage students in a powerful learning journey – within and beyond the classroom – that spans disciplines and instills the knowledge and skills to cultivate future sustainability leaders. Toward this end, we foster collaborations across schools, colleges, and operating units to develop innovative curricula, integrate students in research, and leverage co-curricular programs for experiential learning opportunities – using U-M campuses and field sites as living-learning laboratories.

Robust Sustainability Curricula

More than 200 teaching faculty representing diverse units and disciplines will be convened at a Provost's Seminar on Teaching in May 2010. This interactive workshop will discuss innovative methods for incorporating sustainability into the curriculum by exploring approaches for embedding sustainability principles into existing courses, creating new interdisciplinary courses, and potentially providing new concentrations, minors, or majors. Following the Provost's Seminar, a core working group of faculty, staff, and students will be assembled to build on ideas developed at the seminar and recommend implementation plans.

Co-curricular Experiential Learning

While curricular offerings are powerful media for students to engage in action-oriented, field-based education, other opportunities can be fostered through co-curricular approaches. U-M offers myriad co-curricular programs – spanning campus life, community service, and career development – that will be leveraged to advance sustainability-oriented experiential learning. These programs span multiple units, so there is a need for seamless coordination and integrated promotion across the many opportunities available to U-M students.

RESEARCH

Our goal is to achieve innovative breakthroughs to sustainability challenges that leverage U-M strengths in the natural, social, health, and technological sciences and the arts. Toward this end, we have identified and will pursue an initial set of sustainability themes that build upon our institutional capabilities and have high potential for achieving significant impact on local-to-global scales.

Water and Human Health

Ensuring and maintaining access to clean water, including for food production and industrial uses, is a multifaceted problem. Solutions cannot be developed in isolation, and will vary across regions, ecosystems, and economies. ***Our goal is to better understand the interrelationships between water use and human health, and to develop solutions that improve sustainable access to clean water through scientific, systems-based approaches.*** By defining the linkages and interactions among various uses of water and their direct and indirect effects on human health, we will develop a dynamic program that includes a wide range of U-M research on water, from engineering, to biology, to public policy and public health. Because of our location, this will include a strong focus on the Great Lakes.

Climate Impacts, Adaptation, and Mitigation

Climate change presents one of the greatest challenges in human history. Solutions must incorporate increased energy efficiency, alternative energy sources, sustainable mobility, water conservation, appropriate land-use policies, sustainable building design and construction, and an understanding of what motivates people to accept change and adopt alternate behaviors. ***Our goal is to provide the knowledge, tools, and advice to help mitigate the root causes of climate change, adapt to change, and help minimize its adverse impacts on both human and ecosystem health.*** We will improve our capacity to understand, forecast, diagnose, and communicate the effects of climate change, devise solution sets for successful adaptation, and develop innovative, integrated, and implementable solutions for reinventing our fossil-fuel dominated energy infrastructure.

Livable Communities: *Transportation, Information Technology and the Built Environment*

Escalating human population and rapid economic change is accelerating global urbanization, with associated sprawl and environmental impacts resulting in the absence of holistic planning strategies. ***Our goal is to provide the knowledge, tools, and advice that foster livable communities through integrated solutions that allow humans to efficiently access the resources they require.*** We will integrate community and land-use planning strategies into decision-making; develop green building principles, technologies, and techniques; design integrated transportation systems and related business models; create sustainable technologies and materials that increase the safety and efficiency of transportation modes and infrastructure; and invent information technology solutions to reduce unnecessary movement.

While these three themes were selected largely based on our existing strengths, critical gaps remain. Therefore, to achieve prominence in each area and to fully achieve their goals, we will build new institutional capabilities as required. To begin, we propose three new centers of excellence:

- The ***Water*** center of excellence will draw upon expertise from natural, technological, health, and social science disciplines to develop and promote interventions, policies, and technologies that provide sustainable solutions to water-stressed human populations and aquatic ecosystems, including the Great Lakes.
- The ***Climate*** center of excellence will integrate research on climate system dynamics, ecosystem and human health impacts, and feedbacks from natural and human systems to the climate system. We will identify, define, and develop solutions requiring deep understanding of coupled physical-ecological-human systems.
- The ***Social-Ecological*** center of excellence will bridge the gap between social and natural sciences by focusing on relationships between environmental change and human well-being and identifying patterns and root causes of human behavior that threaten or enhance ecosystem processes that sustain life.

While these centers serve as starting points for enhancing our institutional capabilities, other potential centers of excellence have begun to emerge through campus-wide discussions around the overarching research themes. To date, these include efforts around ***Built Environments, Food Systems, Environmental Synthesis,*** and the role of ***Culture and the Arts***. We anticipate further development of these and other areas in the near future.

OPERATIONS

Building on the active implementation of U-M's 6-Point Environment and Energy Initiative, the Office of Campus Sustainability (OCS) is partnering with the Graham Institute to lead an ***Integrated Assessment*** (IA) that will collaboratively develop practicable ideas to guide campus sustainability efforts that will help solidify U-M as a global leader. The Campus IA involves students, faculty, and staff throughout the U-M community to:

- Establish 4-5 stretch goals in key areas related to campus sustainability
- Help inform development of a campus sustainability strategy with more specific targets
- Identify opportunities to use the U-M campus as a sustainability learning laboratory
- Identify potential demonstration projects to foster campus sustainability research and learning
- Educate our community on current efforts and issues, and help change culture as appropriate
- Publish a final report to share what we have learned as a community

ENGAGEMENT

Our goal is to forge innovative cross-disciplinary collaborations that engage external stakeholders to formulate and implement better policies, practices, and solutions, fostering sustainability from local-to-global scales. We will pursue a variety of approaches that bring together external stakeholders with U-M faculty, staff and students across multiple disciplines to tackle the wicked sustainability challenges of today and tomorrow.

Sustainability Collaboratory

The Collaboratory will be the connection point where U-M sustainability centers of excellence – existing and emerging – come together. ***The goal of the Collaboratory is to develop novel, highly adaptive collaborations aimed at defining shifting sustainability challenges and developing effective solutions.*** It will serve not only as a new and innovative model for conducting research and developing sustainability solutions, but also as a model for conducting highly collaborative and engaged research consistent with principles of sustainability. The Collaboratory will:

- *Engage internal and external collaborators to define problems, conduct research, and develop solutions*
- *Create and employ novel tools to facilitate productive collaboration with minimal environmental impact*
- *Foster flexible approaches to enable methods to evolve and adapt to improve effectiveness and efficiency*

Student-oriented Engagement

Whenever possible and appropriate, we will involve students from all levels and across all academic units in research and assessment. This will allow students to contribute to scholarly output, while providing valuable opportunities to engage with faculty and external partners. Beyond the Collaboratory and related research, we will create more holistic approaches for students to engage with external partners.