



Sustainability Research Hub

Nelson Institute for Environmental Studies and the Office of Sustainability

Sustainability Research Visioning Event Summary

Event Description and Purpose

On September 11, 2024, the University of Wisconsin-Madison's Sustainability Research Hub hosted an in-person visioning event at Memorial Union to connect researchers and facilitate discussion around the RISE-EARTH Initiative and sustainability research on campus. The event, open to anyone on campus, brought together approximately 120 faculty, staff, and students from various disciplines to explore the university's strengths, identify opportunities for collaboration, and chart a course for future sustainability research efforts. The event's purpose was to connect UW-Madison researchers, facilitate discussions around the RISE-EARTH Initiative, explore sustainability research on campus, and identify areas where the university could further support the sustainability research community.

The event began with welcoming remarks from Paul Robbins (Dean of the Nelson Institute for Environmental Studies), Matt Ginder-Vogel (Sustainability Research Hub Director), and Melanie Hebl (Sustainability Research Hub Collaboration Specialist), followed by two breakout discussion sessions.



The first session focused on four topics: **RISE-EARTH: Adaptation**, led by Morgan Edwards (La Follette School of Public Affairs), Shawn Kaeppler (Plant and Agroecosystem Sciences), and Steph Tai (Law School), **RISE-EARTH: Resilience** led by Ankur Desai (Atmospheric & Oceanic Sciences) and Randy Jackson (Plant and Agroecosystem Sciences), **Campus as a Living Laboratory** led by Ian Aley (Green Fund), Mark Anderson (Mechanical Engineering), and Missy Nergard (Office of Sustainability) and **Identifying Sustainability Research Strengths** led by Markus Brauer (Psychology), and Noah Weeth Feinstein (Curriculum and Instruction).

The other session also focused on four topics: **RISE-EARTH: Technology**, led by Mark Anderson (Mechanical Engineering) and Luca Mastropasqua (Mechanical Engineering), **RISE-EARTH: Humanity** led by Nancy Kendall (Educational Policy Studies) and Nancy Wong (Consumer Science), **Defining Sustainability for UW-Madison** led by Andrea Hicks (Civil and Environmental Engineering) and Missy Nergard (Office of Sustainability) and **Promoting Interdisciplinary Research** led by Jennifer Hauxwell (Wisconsin Sea Grant), Alison Mikulyuk (Aquatic Sciences Center), Adrienne Nienow (College of Engineering Research Services), and Erin Silva (Plant Pathology).

Each session involved cross-disciplinary discussions and engaged participants in activities such as brainstorming, mapping exercises, and group conversations exploring sustainability research strengths, challenges, and opportunities. The event concluded with a closing discussion, where breakout session leaders reported on the major themes and outcomes of their facilitated discussions.

Key Links Between Major Topics

Human Behavior: Throughout the visioning event, several recurring themes emerged, highlighting the interconnected nature of sustainability challenges and the need for interdisciplinary approaches. One prominent link was between technological development and human behavior. Participants recognized that while technological solutions are crucial for addressing environmental issues, their effectiveness often depends on human adoption and social acceptance. This connection underscores the importance of integrating social science perspectives into sustainability research and considering the human dimensions of environmental challenges.

Wisconsin Idea: Another recurring theme was the importance of community engagement and the Wisconsin Idea. Many discussions highlighted the need to connect research with real-world applications and to work closely with communities, policymakers, and industry partners. This emphasis on engaged scholarship aligns with UW-Madison's tradition of the Wisconsin Idea, which holds that university research should benefit and improve people's lives throughout the state and beyond.



Planning for Resilience: The concept of resilience emerged as a cross-cutting theme, linking discussions on adaptation, technology, and human systems. Participants recognized that building resilience in the face of environmental challenges requires not only technological solutions but also social and economic adaptations. This holistic view of resilience ties together research on climate change adaptation, sustainable agriculture, energy systems, and community development.

Campus as a Lab: Another key link emerged between campus operations and research opportunities. The concept of using the campus as a living laboratory for sustainability research resonated with many participants. This approach involves applied research, provides real-world testing grounds for new technologies and practices, and offers opportunities to engage students in hands-on learning experiences. The connection between operational sustainability and academic research highlights the potential for synergies between different aspects of the university's mission.

Global Connections: The relationship between local and global sustainability challenges was also a recurring theme. Participants recognized that while UW-Madison is strongly committed to addressing Wisconsin-specific issues through the Wisconsin Idea, many of these local challenges are connected to broader global sustainability concerns. This link emphasizes the need for research that can scale from local to global contexts and the importance of building partnerships beyond the university.

Potential Synergies

Data Science + Sustainability: The visioning event revealed numerous opportunities for synergies between existing programs and initiatives at UW-Madison. One notable area for collaboration is between the RISE-EARTH initiative and other RISE initiatives, such as RISE-AI and RISE-THRIVE. Participants suggested that integrating artificial intelligence and data science approaches

into sustainability research could lead to innovative solutions and more effective decision-making tools.

Agriculture + Energy Engineering: Another potential synergy exists between the university's strong agricultural research programs and emerging work in sustainable energy systems. For example, research on agrivoltaics – the co-location of solar energy production and agriculture – could benefit from collaboration between experts in renewable energy technology and agricultural sciences. This interdisciplinary approach could lead to solutions addressing both food security and clean energy production.

Water + Sustainability: The university's expertise in water research, spanning multiple departments and centers, presents opportunities for synergistic collaborations. Integrating perspectives from engineering, natural sciences, and social sciences could lead to more comprehensive approaches to water quality, management, and policy issues. Programs like Water@UW-Madison, the Nelson Institute, Center for Integrated Agricultural Systems, and the Wisconsin Energy Institute were highlighted as models for fostering such interdisciplinary collaborations.

The power of our students: The Green Fund, which supports student-led sustainability projects on campus, presents opportunities for synergy with academic research. By connecting student initiatives with faculty expertise, the university could create a powerful model for campus as a living laboratory, where operational sustainability improvements are integrated with research and education.



Human Health + Planetary Health: There is also potential for increased synergy between sustainability research and the university's health-related initiatives. Participants noted the connections between environmental health and human well-being, suggesting that collaborations between environmental scientists, public health experts, and medical researchers could lead to innovative approaches to addressing the health impacts of climate change and environmental degradation.

Topics UW-Madison is Well-Positioned to

Address

The visioning event highlighted several areas where UW-Madison is particularly well-positioned to make significant contributions to sustainability research.

Premiere Agricultural Research: One key strength is agricultural sustainability and sustainable land use. The university's long history of agricultural research, combined with its expertise in plant genetics, soil science, and agroecology, positions it to develop innovative solutions for sustainable food systems.

Water Power: Water-related research was identified as another area of strength. With its location near the Great Lakes and its extensive freshwater research programs, UW-Madison is ideally situated to address challenges related to water quality, aquatic ecosystems, and sustainable water management.

Clean Energy Headquarters: Energy transition and clean energy technologies represent another area where UW-Madison has significant expertise. The university's research in areas such as energy storage, solar energy, and bioenergy positions it to contribute to the development of sustainable energy systems. The campus itself, with its commitment to carbon neutrality, provides opportunities for real-world testing and implementation of new energy technologies.

Biology at its Best: Biodiversity conservation and ecosystem management represent another area of potential leadership for UW-Madison. The university's strong programs in ecology, forestry, and wildlife management, along with its network of research stations and natural areas, provide an excellent foundation for addressing the biodiversity crisis.

Policy Center: UW-Madison's strengths in environmental policy and governance also position it to address the complex social and political dimensions of sustainability challenges. The university's expertise in areas such as environmental law, public policy, and community engagement can contribute to the development of effective strategies for implementing sustainable practices and policies.

Upper Atmospheric: Lastly, the university's interdisciplinary approach to climate change research, spanning fields such as atmospheric sciences, ecology, and social sciences, positions it to address the multifaceted challenges of climate adaptation and resilience. This holistic approach aligns well with the complex nature of climate-related sustainability issues.

Identifying Gaps in UW-Madison's Research Capabilities

While UW-Madison has numerous strengths in sustainability research, the visioning event also revealed some areas where additional capabilities or resources might be needed.

Indigenous Knowledge: Another area where additional capabilities might be beneficial is in the integration of Indigenous knowledge and perspectives into sustainability research. While the university's definition of sustainability acknowledges the importance of Indigenous wisdom, participants suggested that more could be done to actively engage with Indigenous communities and incorporate their knowledge into research practices.

Measuring & Implementing Policy: Some participants also noted a need for increased capacity in policy analysis and implementation related to sustainability. While the university has strengths in environmental policy, there may be opportunities to enhance its ability to translate research findings into actionable policy recommendations and to study the effectiveness of various policy interventions.

Interdisciplinary Connections: Lastly, while UW-Madison has strong individual disciplines, some participants felt that there was a need for more structured support for truly interdisciplinary sustainability research. This includes bringing together researchers from different fields and developing methodologies and frameworks for integrating diverse disciplinary perspectives.

Resources and Support Needed for Building a Sustainability Research Community

The visioning event highlighted several key resources and types of support that would be beneficial for building and maintaining a strong community around sustainability research at UW-Madison.

Seed Grants: One crucial need is for dedicated funding to support interdisciplinary collaborations. Participants suggested that seed grants or pilot funding specifically for cross-disciplinary sustainability projects could help catalyze new collaborations and innovative research directions.

Administrative Support: Administrative support was another frequently mentioned need. Many researchers noted that the complexities of managing interdisciplinary projects, especially those involving community partnerships, can be time-consuming and challenging. Dedicated staff support for post-award project management and pre-award team building, research administration, grant

writing, and community engagement could help alleviate some of these burdens and allow researchers to focus more on their scientific work.



Shared Spaces: Physical spaces for collaboration were also identified as important resources. Participants suggested that having shared lab spaces or dedicated facilities for sustainability research could foster more spontaneous collaborations and provide a visible hub for sustainability efforts on campus.

Reward & Support Interdisciplinary Work: Many participants emphasized the need for structures and incentives that encourage and reward interdisciplinary work. This could include adjusting promotion and tenure criteria to better recognize collaborative research, creating joint appointments across departments, and providing professional development opportunities focused on interdisciplinary research skills.

Dedicated Engagement Help: Support for community engagement and partnerships was another key need identified. Participants noted that building and maintaining relationships with community partners, tribal nations, policymakers, and other stakeholders is crucial for impactful sustainability research but often requires significant time and resources. Dedicated support for these engagement efforts could help ensure that research is relevant and responsive to real-world needs. Additionally, support for science communication and outreach efforts could help translate research findings into actionable information for policymakers and the public.

Cross Disciplinary Events: Lastly, participants highlighted the importance of communication and networking support. Regular events, seminars, and workshops that bring together researchers from different disciplines were seen as valuable for fostering new collaborations.