GUND INSTITUTE FOR ENVIRONMENT

RESEARCH THAT INSPIRES ACTION

The University of Vermont

RESEARCH ISN'T ENOUGH TO SOLVE OUR ENVIRONMENTAL CHALLENGES.

WE NEED ACTION, TOO.

The Gund Institute for Environment mobilizes scholars and decision makers to understand and tackle critical environmental challenges.

We believe that research should inspire action. That's why we focus on problem-oriented questions in partnership with the stakeholders who can test, validate, and scale solutions to pressing environmental issues.

Based at the University of Vermont, and with a global network of scholars collaborating across disciplines, we're working towards a future where the urgency of the world's environmental challenges is met with bold action.

OUR STRATEGY FOR IMPACT

1. **CONNECT** scholars across multiple disciplines with policy makers, business leaders, and communities.

2. **CATALYZE** innovative ideas by funding and leading world-class research on the most pressing environmental issues.

3. **SOLVE** urgent environmental problems with innovations and partnerships that inspire bold action.

UNIVERSITY OF VERMONT

- Founded in 1791
- Land-grant university dedicated to public good
- Top-ranked sustainable innovation MBA program
- $1.33 billion economic impact
- Research focus: healthy societies & environment

SOLUTIONS FOR PEOPLE AND NATURE

The Gund Institute focuses on **five interconnected themes**, each of which is essential to creating a sustainable future for humans and the planet.

Informed by the belief that research should inspire action, our themes connect to global policy priorities, including the United Nations Sustainable Development Goals. This alignment helps foster collaboration with policymakers and business leaders and helps create greater impact in the world.

CLIMATE SOLUTIONS

RESILIENT COMMUNITIES

EQUITY & JUSTICE

SUSTAINABLE AGRICULTURE

HEALTH & WELL-BEING

The connections between our themes surface powerful research questions. We tackle these questions by harnessing many of UVM's recognized strengths in economics, public health, ecosystem services, complex systems, remote sensing, renewable energy systems, agriculture, food systems, and agroecology.

CLIMATE SOLUTIONS

The undeniable urgency of climate change is impacting communities around the globe and throughout the natural world. Gund scholars are rising to the challenge, pursuing groundbreaking research to help limit global warming and prepare for the effects of a changing climate.

- **PAUL BIERMAN** studies glaciers in Greenland to improve sea level rise projections, and is developing innovative snow storage techniques to prepare the snowsports industry for climate change.

- **CAROL ADAIR** uses big data, innovative sensors, and drones to advance our understanding of how soil, forests, and farms can better store carbon and reduce greenhouse gas emissions.

- **LINI WOLLENBERG** is transforming global food systems to address climate change and sustainability, including dietary shifts, low-emission agriculture, digital tools, agroecology, and climate justice.

RESEARCH INSPIRES ACTION

Gund scientists **Gillian Galford**, **Joshua Faulkner,** and **Lesley-Ann Dupigny-Giroux** are leading the Vermont Climate Assessment, an ambitious new research project that is guiding statewide action under the Vermont Global Warming Solutions Act. The work is helping the state understand the projected impacts of a changing climate, and emerge as a national leader in preparedness.

RENEWABLE TECHNOLOGIES ← → CARBON CAPTURE ← → AGROECOLOGY ← → IMPROVED GHG MEASUREMENT ←

RESILIENT COMMUNITIES

As the global trend towards urbanization continues, human settlements are impacting the natural world that surrounds them — and are under pressure from a changing climate, mass migration, and population growth. Gund scholars are working to unlock solutions that support healthy, sustainable, and resilient communities.

- **MADS ALMASSALKHI** is accelerating our clean energy future by creating smart power and energy systems that are responsive to dynamic market and grid conditions, and optimizing clean energy storage, distribution, and coordination.

- **STEPHANIE HURLEY** researches and designs green stormwater infrastructure, and uses landscape visualizations to increase the adoption of climate-smart practices for farms and cities.

- **STUART HART,** as Bill Clinton remarked, "proposes a sustainable, socially inclusive model" of business. As a creator of UVM's top-ranked Sustainable Innovation MBA program (SI-MBA), Hart works to drive innovation and entrepreneurship that benefits underserved and developing nations.

RESEARCH INSPIRES ACTION

Gund researchers **Rebecca Diehl**, **Kirsten Underwood** and **Beverley Wemple** are investigating the unequal impacts of climate-fueled flooding on New England communities, and the benefits of wetland preservation. The research is helping the state of Vermont to design better flood risk mitigation strategies.

Photo: Ismail, a farmer in Gede Pangrango, Indonesia, carries his child across a tree-lined plantation. Credit: Ricky Martin/CIFOR.

RESEARCH INSPIRES ACTION

Gund scholars **Taylor Ricketts** and **Brendan Fisher** led a series of breakthrough global studies showing that children who live near forests experience better nutrition and less disease. Using massive international datasets, their research is helping USAID, governments, and NGOs to use environmental conservation as a public health tool.

HEALTH & WELL-BEING

Society has long known that nature supports human lives, but we are only just starting to understand the environment's full potential to influence health. Gund researchers are expanding the boundaries of this understanding by exploring causal links through which nature impacts the full spectrum of human health and well-being.

▶ **CHRIS DANFORTH'S** cutting-edge algorithms sift through billions of social media posts, searching for patterns in how nature influences human health and happiness.

▶ **CHRISTINE VATOVEC** explores the unintended environmental and health consequences of pharmaceuticals and medical supply chains, and the health benefits that people derive from nature.

▶ **ASIM ZIA, SCOTT MERRILL,** and **CHRIS KOLIBA,** are at the forefront of a national effort to reduce catastrophic disease outbreaks in the livestock industry using experimental gaming and virtual reality to better understand human decision-making.

NATURE ◄ ► MENTAL HEALTH ◄ ► INFECTIOUS DISEASES ◄ ► HUMANITARIAN MAPPING ◄

SUSTAINABLE AGRICULTURE

Food systems sit at the intersection of human and environmental health, raising vital questions about how we can feed nine billion people while supporting ecosystems for generations to come. Gund researchers are tackling these challenges, working towards a future where agriculture — and the natural world it depends upon — can thrive.

▸ **HEATHER DARBY** and **ASIM ZIA** use machine learning and artificial intelligence to improve farm sustainability and viability with innovative practices that improve production while keeping water, air, soil, and people healthy.

▸ **ERIC VON WETTBERG** studies genetic diversity in crops, such as chickpeas, lentils, corn, peas, and hemp to preserve the variation needed to develop resilient crops for a changing climate.

▸ **ERNESTO MÉNDEZ** partners with farmers and organizations in Latin America, Africa and Vermont to advance agroecological transitions, an approach to better understand and build food systems that are socially just and ecologically sound.

RESEARCH INSPIRES ACTION

Gund researcher **Meredith Niles** and her team responded to COVID-19 by leading one of the largest U.S. studies of pandemic food access, revealing that food insecurity hit 30% of U.S. households, especially marginalized communities. This research is helping national and state policymakers understand — and address — the pandemic's impacts on food insecurity, nutrition, and human health.

EQUITY & JUSTICE

Marginalized communities are disproportionately affected by environmental problems, yet they are frequently excluded from decision-making that shapes the world around them. Gund researchers are searching for environmental solutions that address inequities and injustices based on such factors as race, gender and income.

▸ **JARLATH O'NEIL DUNNE** flies drones over U.S. cities, revealing how former redlined neighborhoods have less trees and parks, and therefore less natural cooling protection for residents facing rising temperatures and heatwaves.

▸ **BINDU PANNIKAR** works with communities and decision makers to improve equity and justice across topics as diverse as migrant dairy worker conditions, energy justice, governmental approaches to mining permits, and climate-related food security among indigenous people in Alaska.

▸ **LEON WALLS** and **ERIC ROY** are designing and piloting a program incorporating ecological design into an environmental science curriculum for K-12 Black students and other students of color.

RESEARCH INSPIRES ACTION

Gund researchers **Pablo Bose**, **Kelsey Gleason** and **Brendan Fisher** are studying the world's largest refugee camps to understand how our changing environment—with rising heatwaves, storms and flooding—can contribute to disease outbreaks and other health risks. Their humanitarian research project will help partners to improve health conditions for some of the world's most vulnerable citizens.

ENVIRONMENTAL JUSTICE   RACE, CLASS, GENDER   INEQUALITY   ANTI-RACISM

POWERED BY PARTNERSHIP

We believe that partnering with external stakeholders as research collaborators — rather than research consumers — leads to research that inspires action. By bridging the gaps between academia, government, business, and communities, we increase the potential for insight, innovation, and ultimately, impact.

OUR PARTNERS INCLUDE RESEARCHERS, ADVISORS, AND COLLABORATORS FROM

BUSINESS
Ben & Jerry's

Johnson & Johnson

Microsoft

Philo Ridge Farm

UVM Sustainable Innovation MBA Program

NGOs
World Wildlife Fund

Environmental Defense Fund

The Nature Conservancy

Conservation International

League of Conservation Voters

Audubon Society

Vermont Land Trust

Future Earth

CGIAR

ACADEMIA
Stanford University

Harvard University

University of Cambridge

Duke University

Cornell University

University of Michigan

University of Minnesota

Woods Hole Research Center

McGill University

Australian National University

University of Queensland

University of Minas Gerais

Havana University

CATIE

GOVERNMENT
United Nations

United States Congress

U.S Department of Agriculture

U.S. Environmental Protection Agency

USAID

USGS

The World Bank

Basque Center For Climate Change

Vermont Agency of Natural Resources

Vermont Agency of Agriculture, Food, and Markets

WORK WITH US

We're looking for organizations to partner in creating research that inspires bold action on pressing environmental challenges. If you would like to discuss collaborating with the Gund Institute, please reach out: **gund@uvm.edu**

UVM.EDU/GUND

MAKE IT HAPPEN

We're on a mission to mobilize scholars and decision makers to tackle the planet's critical environmental challenges.

This work is made possible thanks to the generosity of individuals, foundations, and businesses who share our vision for a world where urgent environmental challenges are met with bold action.

A gift to the Gund Institute helps us invest in the people and ideas needed to develop innovative solutions for people and nature. If you're interested in growing the impact of our work, please visit go.uvm.edu/givegund or drop me a line.

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