C.W. & Modene Neely
Charitable Foundation

School of Sustainability
Neely Foundation Food and Agriculture Sustainability Research Grant Program

2014 AWARDS SUMMARY
The Neely Foundation Food and Agriculture Sustainability Research Grant Program is managed by:

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The Neely Foundation Food and Agriculture Sustainability Research Grants consist of awards to fund advanced undergraduate and graduate students in activities designed to support and further food and agricultural system sustainability. This program is made possible by a grant to the Julie Ann Wrigley Global Institute of Sustainability by the C.W. & Modene Neely Foundation of Gilbert, Arizona.

Funded projects can be local, regional or international in scope, and may cover all aspects of food and agricultural systems — including issues associated with:

- international development and food security
- agricultural trade and technology policies
- climate change impacts and rural adaptation
- water rights and governance
- consumer preferences and behavior
- nutrition and the built environment
- community gardening
- food as a focus for social change
“I study governance for sustainability in food systems in this globalized era. The Neely grant allowed me to visit Colombia, engage with members of RSPO, and study the interactions between multiple levels of decision-making at the organization. I was able to visit palm oil plantations, engage with sustainability practitioners and non-governmental organization members of RSPO, and collaborate with academics working on the sustainability challenges of palm oil expansion.”

—Ashwina Mahanti
PhD Candidate, School of Sustainability
Governing Telecoupled Food Systems through Multi-Stakeholder Initiatives: The Roundtable on Sustainable Palm Oil (RSPO)

Ashwina Mahanti, PhD Candidate, School of Sustainability at Arizona State University

Research Locale: Bogota and Santa Marta, Colombia

Audience: Roundtable on Sustainable Palm Oil, non-governmental organizations and palm oil plantation owners

Description of Project: As trade grows more integrated and production grows more fragmented, distant interactions are shaping the sustainability challenges of a place. Additionally, nearly all land systems exhibit forms of telecoupling. Telecoupled systems are two or more geographically or socially independent systems that influence outcomes in one another. An example is the links between energy policies in the European Union, increased demands for commercial palm oil, biodiversity loss and threats to orangutan habitats in Indonesia and Malaysia, a search for new frontiers for palm oil production such as Colombia and Africa, and concomitant land use changes in these regions. The Roundtable on Sustainable Palm Oil (RSPO) was constituted in 2004 to address the suite of sustainability challenges associated with palm oil expansion. RSPO does this by bringing together different stakeholders from across places and sectors and along the value chain to deliberate the transformation to a sustainable palm oil market. Indeed, the last decade has seen a proliferation of commodity roundtables to account for the dispersed multi-level, multi-actor, multi-place problems associated with large-scale global consumption of multi-use agricultural commodities.

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About the Researcher: Ashwina Mahanti is a third-year doctoral candidate in the School of Sustainability at Arizona State University. Her research interests include sustainability governance, globalization, agriculture and food systems, and climate change. Prior to starting her PhD at the School of Sustainability, she worked as a consultant for the United Nations Development Program and helped create the climate change action plan for the Andaman and Nicobar Islands. For her master’s project at the University of Michigan, she worked with the World Bank to assess the vulnerabilities of agro-pastoral communities in Latin America and West Africa to climate change as well as the role local institutions play in enabling adaptation.

Her current research on food systems’ governance involves collaborating with RSPO to further advance the organization’s sustainability agenda. She is interested in understanding the process of institutional learning and change within multi-stakeholder initiatives such as agricultural commodity roundtables.
“The Neely Charitable Foundation Food and Agriculture Sustainability Research Grant provided a ‘Global South’ perspective and case studies to supplement Phoenix-based research.”

—Jared Stoltzfus
PhD Candidate, School of Sustainability
Organic Waste Management as a Mechanism for Phosphorus Cycling: Case Studies from India

Jared Stoltzfus, PhD Candidate, School of Sustainability at Arizona State University

Research Locale: New Delhi and Jalgaon, India

Audience: municipalities, large volume food waste producers, informal recycling sector, community organizers and farmers

Description of Project: Phosphorus (P) is required for food production, but global supplies are limited and P fertilizers are too expensive in many parts of the world. India is the world's largest importer of P, but the government is slowly reducing the subsidies that make it affordable to small-scale farmers. At the same time, cities are struggling with the incredible volumes of waste and associated smells, vermin and health hazards that come with growing populations. A complex, informal recycling system operates within many cities to recover plastics, metal, paper and glass, but organic waste is largely ignored. According to the Food and Agriculture Organization of the United Nations, approximately one-third of all food produced is wasted from farm to fork due to inadequate refrigeration, damage during transportation and an inability to sell before it spoils.

This organic waste contains large amounts of P and other nutrients, but requires processing before it can be used as a fertilizer. Several mechanisms have been implemented at various scales in India to convert this waste into resources, including compost, livestock feed and methane gas. This research creates case studies of multiple sites in order to identify barriers and opportunities to nutrient recovery along with underlying conditions required by different mechanisms, to outline business models to determine feasibility in other contexts, and to assess the marketability of the nutrient-rich products to the farming community. P and other nutrients can be continually recovered by identifying the appropriate processing mechanisms for various scales and waste streams, while also providing the valuable services of landfill diversion, greenhouse gas emission reduction and energy production. The Neely Charitable Foundation Food and Agriculture Sustainability Research Grant provided a 'Global South' perspective and case studies to supplement Phoenix-based research.

About the Researcher: Jared Stoltzfus is a fourth-year doctoral candidate in the School of Sustainability at Arizona State University. Studying and traveling throughout the Middle East for a semester in college opened his eyes to the problem of waste management and the idea of sustainable development. After graduating from Eastern Mennonite University with a biology degree, he worked as the Stream Health Coordinator for the City of Harrisonburg before moving to Guatemala to work with a community development organization. All of these experiences fostered his interests in waste management, alternative energy and sustainable agriculture. While dreaming like an idealist, he thinks pragmatically and hopes his research will help identify policy transitions and systems-based solutions for waste, energy and fertilizer markets. After graduating, he wants to teach, provide sustainability consulting and operate a bed-and-breakfast on a working farm with his wife and two kids.
“I tried to uncover some of the causal pathways linked to the successful adaptive management of SES. The results show that robust systems are characterized by an active outer-loop adaptive process; in other words, frequent updating of underlying assumptions or social goals that guide specific group strategies or actions.”

—David J. Yu
PhD Candidate, School of Sustainability
Demystifying Building Blocks of Adaptive Management of Social-Ecological Systems under Environmental Uncertainty: Evidence from a Behavioral Experiment

David J. Yu, PhD candidate, School of Sustainability at Arizona State University

Research Locale: Bloomington, Indiana

Audience: policymakers, development practitioners, sustainability practitioners, community organizers and farmers

Description of Project: A long-held assumption in the management of social-ecological systems (SES) is that management trial and learning (or learning-by-doing) is an essential tool for adaptation under uncertainty. Learning is needed because knowledge about SES is often incomplete, and change and surprise are inevitable in coupled social and ecological processes. Management trials facilitate learning about the consequences of exploratory management actions, as well as the updating of existing strategies and assumptions, so that SES can persist through uncertainty. However, after three decades of research on the adaptive management of SES, the questions of what type of management trial and learning is most effective – and under what conditions – still remain largely unanswered. What are appropriate configurations of management trial and learning and supporting conditions? Do such configurations vary depending on the presence or absence of uncertainty? I examined these questions using a laboratory behavioral experiment of SES. Human subjects of our experiment faced a decision problem on the collective management of an irrigation system under environmental uncertainty. By studying how they iteratively solved the decision problem under uncertainty, I tried to uncover some of the causal pathways linked to the successful adaptive management of SES. The results show that robust systems are characterized by an active outer-loop adaptive process; in other words, frequent updating of underlying assumptions or social goals that guide specific group strategies or actions.

About the Researcher: David Yu is a fifth-year doctoral candidate in the School of Sustainability at Arizona State University. David received his Bachelor’s of Applied Science from Simon Fraser University, and his Master’s in Public Policy from the National University of Singapore. David's field of study is the interdisciplinary science of coupled social-ecological systems. Specifically, his research centers around the question: how should we design hard and soft human-made components – or infrastructure – for more resilient SES? For example, irrigated agriculture relies heavily on hard human-made infrastructure such as canals and dams to obtain a steady supply of water resources. This physical infrastructure enables humans to expand and stabilize agricultural production levels despite environmental variability. Further, humans often develop soft human-made infrastructure, such as institutional arrangements and organizational form, to manage SES. This type of social infrastructure brings order and regularity to human relationships with natural resource systems, as well as behavior among humans, and thus facilitates collective action.
About ASU’s School of Sustainability

Established in 2007, the School of Sustainability brings together multiple disciplines and leaders to create and share knowledge, train a new generation of scholars and practitioners, and develop practical solutions to the most pressing environmental, economic and social challenges of sustainability — especially as they relate to urban areas.

For more information, visit the School of Sustainability website: schoolofsustainability.asu.edu

About ASU’s Julie Ann Wrigley Global Institute of Sustainability

The ASU Wrigley Institute is the hub of the university’s sustainability initiatives. The institute advances research, education and business practices for an urbanizing world. Its School of Sustainability, the first of its kind in the U.S., offers transdisciplinary degree programs to create practical solutions for environmental, economic and social challenges.

For more information, visit the ASU Wrigley Institute website: sustainability.asu.edu
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