

# Policy Strategic Growth Area 2018 Research Forum

Seeking Interdisciplinary Solutions to Complex Problems:  
Research Project Reports and Directions for the Future

April 19, 2018 | 1:00 – 6:00 PM

The Inn at Virginia Tech | Blacksburg, VA

1:00-1:05

## INTRODUCTION

**Karen A. Roberto**, Co-Chair, Policy Strategic Growth Area Stakeholder Committee; Director, Institute for Society, Culture and Environment

1:05-2:45

## SESSION I: Progress & Findings of Research Projects

**Moderator: David Orden**, Co-Chair, Policy Strategic Growth Area Research Committee; Director, Global Issues Initiative, Institute for Society, Culture and Environment

### Rurality as a Social Determinant of Health in Autism Spectrum Disorder (ASD): Using Technology to Improve Access to Critically Important Services

**Angela Scarpa**, Associate Professor of Psychology; Director, VT Center for Autism Research, College of Science

### Hitching the Wind and Sun: A Transdisciplinary Renewable Energy Facilities Sustainable Siting Project

**Ron Meyers**, Assistant Research Professor of Fish and Wildlife Conservation, College of Natural Resources and Environment

### Integrating Safety, Security and Safeguards in Nuclear Science and Policy

**Sonja Schmid**, Associate Professor of Science, Technology and Society, College of Liberal Arts and Human Sciences

2:45-3:00

## BREAK

3:00-4:00

## SESSION II: Planning Grant Progress Reports

**Moderator: Wen You**, Associate Professor of Agricultural and Applied Economics, College of Agriculture and Life Sciences

### Sharing Stories: Understanding Place, Identity and Narrative for Policy Change

**Katrina Powell**, Professor of English; Director, Center for Rhetoric in Society, College of Liberal Arts and Human Sciences

### Civilizing Public Discourse in Environmental Policy Disputes

**Marc J. Stern**, Associate Professor of Forest Resources and Environmental Conservation, College of Natural Resources and Environment

### Ethical Decision-Making Under Ambiguity

**Thomas Rowe**, Postdoctoral Fellow, Department of Philosophy, College of Liberal Arts and Human Sciences

### Policy for Active Aging: WHO's Global Age Friendly Initiative

**Eunju Hwang**, Assistant Professor of Apparel, Housing and Resource Management, College of Liberal Arts and Human Sciences

4:00-4:55

**SESSION III: Crafting Effective Interdisciplinary Policy-Oriented Research**

**Moderator: Douglas Lind**, Co-Chair, Policy Strategic Growth Area Research Committee; Department Head of Philosophy, College of Liberal Arts and Human Sciences

**Panel**

**Don Taylor**, Vice Provost for Learning Systems Innovation and Effectiveness; Charles O. Gordon Professor, Industrial Systems Engineering

**Anand Desai**, Section Head, Evaluation and Assessment Capability, Office of Integrative Activities, National Science Foundation; Professor of Public Policy Analysis, John Glenn College of Public Affairs, Ohio State University

**Anne Khademian**, Co-Chair, Policy Strategic Growth Area Stakeholder Committee; Presidential Fellow, Virginia Tech

4:55-5:00

**CLOSING REMARKS**

**Karen A. Roberto**, Co-Chair, Policy Strategic Growth Area Stakeholder Committee; Director, Institute for Society, Culture and Environment

5:00-6:00

**RECEPTION** – Lower Quad

# **ABSTRACTS**

## **RESEARCH PROJECTS**

**Rurality as a Social Determinant of Health in Autism Spectrum Disorder (ASD): Using Technology to Improve Access to Critically Important Services**

**Hitching the Wind and Sun: A Transdisciplinary Renewable Energy Facilities Sustainable Siting Project**

**Integrating Safety, Security and Safeguards in Nuclear Science and Policy**

## **PLANNING GRANTS**

**Sharing Stories: Understanding Place, Identity and Narrative for Policy Change**

**Civilizing Public Discourse in Environmental Policy Disputes**

**Ethical Decision-Making Under Ambiguity**

**Policy for Active Aging: WHO's Global Age Friendly Initiative**

## RESEARCH PROJECTS

### Rurality as a Social Determinant of Health in Autism Spectrum Disorder (ASD): Using Technology to Improve Access to Critically Important Services

College of Architecture and Urban Studies

- Laura Jensen (School of Public and International Affairs)

College of Engineering

- Denis Gracanin (Computer Science)

College of Liberal Arts and Human Sciences

- Sharon Ramey (Human Development)

College of Science

- Angela Scarpa (Psychology)\*

\* Team Leader

#### Abstract

This initiative will conduct policy research on the use of technology to facilitate access to evidence-based autism spectrum disorder (ASD) services in rural communities, addressing rurality as a factor causing social inequity. The project will: 1) conduct a systematic assessment of barriers to services access for parents of children with ASD in rural, under-served communities; 2) conduct a workshop panel on rural needs to provide leadership and policy implications; and 3) apply the information to develop an internet-based, parent training for ASD in a rural agency for future testing. Additionally, the aim is for this to be a community-based participatory research design between Virginia Tech (VT) and a rural agency to collect qualitative and quantitative data in a specific rural setting. This project will position VT for implementation of evidence-based parent training that innovatively integrates face-to-face and telehealth formats to serve specified client needs. Thereafter, this model can be tested in larger feasibility and effectiveness trials and be disseminated for use in other locales to address place-based social disparities in their access to ASD care. The program will capitalize on a multidisciplinary team from the VT Center for Autism Research, the Center for Human Computer Interaction, the Center for Public Administration and Policy, and the VT Carilion Research Institute to collect pilot data informing a collaborative NSF grant. This project also aligns with the Virginia Tech Equity and Social Disparity in the Human Condition Strategic Growth Area, the Adaptive Brain and Behavior Destination Area, and the Intelligent Infrastructure for Human Centered Communities Destination Area.

## Hitching the Wind and Sun: A Transdisciplinary Renewable Energy Facilities Sustainable Siting Project

### College of Architecture and Urban Studies

- Ralph Hall (School of Public and International Affairs)
- Patrick Miller (Architecture and Design) \*
- Todd Schenk (School of Public and International Affairs)

### College of Business

- Anju Seth (Management)

### College of Liberal Arts and Human Sciences

- Richard Hirsch (History and Science & Technology Studies)

### College of Natural Resources and Environment

- W. Mark Ford (Virginia Cooperative Fish and Wildlife Research Unit)
- Scott Klopfer (Conservation Management Institute)
- Ron Meyers (Fish and Wildlife Conservation) \*
- Peter Sforza (Center for Geospatial Information and Technology)
- Marc J. Stern (Forestry and Resource Conservation)

### Biocomplexity Institute

- Achla Marathe

\* Team Leaders

## Abstract

The legal, moral, and strategic imperative to address the threats posed by climate change necessitates an extraordinary increase in the number of wind and solar facilities for significant reduction in U.S. greenhouse gas emissions. Wiistenahngen, et al., argued that social acceptance may be the limiting factor for renewable energy development. Building a large number of these facilities will be challenging due to economic, environmental and social challenges with siting commercial-scale renewable energy facilities.

The transdisciplinary Renewable Energy Facilities Sustainable Siting Project (REFSS) will conduct a coordinated research strategy to identify how to site renewable energy facilities in a more publicly acceptable way via university, industry, government, and community partnerships. The action research will help reduce uncertainty for renewable energy developers and financiers and allow local and state governments to develop policies that will enable affected communities to engage more effectively in the highly complex decision-making processes required to site renewable energy facilities so that they are economically, socially, and environmentally beneficial.

This research and service project brings together expertise from the social sciences (including public policy), visualization and geospatial technology, landscape architecture, business management, and fish and wildlife management, for the development of a comprehensive model for addressing siting challenges. The knowledge generated should have significant policy application at the local, state, and national levels. This project is in its early stages, so several options for development will be explored, with decisions made in consultation with the Policy SGA on priorities and directions.

## Integrating Safety, Security and Safeguards in Nuclear Science and Policy

College of Architecture and Urban Studies

- Ariel Ahram (Government and International Affairs/School of Public and International Affairs)
- Patrick Roberts (Center for Public Administration & Policy/ School of Public and International Affairs)

College of Liberal Arts and Human Sciences

- Sonja Schmid (Science, Technology and Society)

### Abstract

This project takes an interdisciplinary perspective on issues of nuclear safety, security, and safeguards. Nuclear energy has great potential as a carbon-neutral, base-load energy source. Yet, nuclear energy also poses grave concerns about a) safety and the risk of a severe nuclear accident; b) security and the risk that a terrorist or non-state actor might steal nuclear materials; and c) safeguards and the risk that nuclear programs might be used to develop weapons. Safety, security, and safeguards are closely interconnected, but often evaluated as distinct elements. Moreover, those involved in overseeing and evaluating safety risks often have little training or understanding of security, and vice versa.

This project proposes an integrative approach to safety, security, and safeguards by developing the idea of nuclear culture, and the way different countries handle these risks and approach international standards and norms for the management of nuclear energy. Through publications, curricular development, programming, and pursuit of external grants, the project aims to bridge gaps between policy-makers and nuclear scientists and engineers, and between those involved in safety versus security and safeguards, to better evaluate risk and its manifestations.

# PLANNING GRANTS

## Sharing Stories: Understanding Place, Identity and Narrative for Policy Change

### College of Architecture and Urban Studies

- Jim Bohland (Global Forum on Urban and Regional Resilience)
- Jennifer Lawrence (Global Forum on Urban and Regional Resilience)
- CL Bohannon (Landscape Architecture Program/School of Architecture and Design)
- Rachel Weaver (School of Visual Arts)

### College of Liberal Arts and Human Sciences

- Katrina Powell (English/Center for Rhetoric in Society) \*
- Katherine Randall (English/Center for Rhetoric in Society)
- Ren Harman, (English/VT Stories)
- Brett Shadle (History)
- Laura McCarter (Political Science)
- Tarryn Abrahams (Science, Technology and Society)
- Rebecca Hester (Science, Technology and Society)

### Other

- Jon Catherwood-Ginn (Moss Arts Center)
- Khaled Hassouna (Office of International Research, Education and Development)

\* Team Leader

### Abstract

Although “big data” and data analytics have gained increasing importance in improving public policy, narratives, stories and face-to-face learning also can be critical elements of policy formation at the urban and community scale. This project seeks to understand community integration and policy implications through community stories for persons seeking refuge. Researchers will collaborate with local refugee organizations in southwest Virginia to provide educational and community building activities. The overall project has four phases: 1) training undergraduates in oral history methodology; 2) planning and implementing community activities and undergraduate research; 3) conducting data analysis and developing policy briefs and assessments for partners organizations as well as developing strategies to improve the integration of oral histories and public art into the formal policy process; and 4) drafting an external funding proposal. Specific planning objectives include establishing an Undergraduate Summer Research Program through Virginia Tech (VT) Stories and developing a proposal for external funding to extend the project. Students in the Summer Research Program will collect, analyze and communicate oral and written histories of displaced persons in the New River Valley of southwest Virginia for the purpose of policy interventions. In addition, project faculty will identify external funding opportunities to support a proposal that draws together elements from oral histories, displaced populations and urban policy change.

## Civilizing Public Discourse in Environmental Policy Disputes

College of Liberal Arts and Human Sciences

- John Tedesco (Communication)

College of Natural Resources and Environment

- Marc J. Stern (Forest Resources and Environmental Conservation) \*
- R. Bruce Hull (Forest Resources and Environmental Conservation)

College of Science

- Danny Axsom (Psychology)

\* Team Leader

### Abstract

The worsening paralysis and polarization of political discourse demands a response from institutions of research and higher education. The goal of this project is to build capacity to help improve civil discourse around heated public policy issues. We will conduct experimental research to engage people in open-minded processing of environmental messaging. Moral Foundations Theory (Haidt, 2012) and Self-Affirmation Theory (Cohen & Sherman, 2014) hold tremendous potential that has yet to be tested in combination in the policy arena. We have developed specific interventions based on both theories together that we hypothesize will enable stakeholders to process information in a more open-minded and less biased manner. We will implement an online survey that will expose people along the entire political spectrum to different combinations of our interventions and assess how participants process subsequent messages about environmental policy. The results may reveal specific techniques that enable people to more calmly and rationally process counter-attitudinal messages that would normally provoke a hostile or defensive response (known as identity-protective reasoning), which precludes the opportunity for productive learning and deliberation on the merits of the arguments. The research program could ultimately extend to implications for civil discourse training in diverse educational settings. Project outcomes will include completed analysis of our first survey experiment, design and implementation of the survey with the broad spectrum of Americans and a draft manuscript describing study findings.

## Ethical Decision-Making Under Ambiguity

College of Science

- Adam Dominiak (Economics)
- Sudipta Sarangi (Economics)

College of Liberal Arts and Human Sciences

- Michael Moehler (Philosophy)
- Thomas Rowe (Philosophy) \*

\* Team Leader

### Abstract

Policy makers are often called upon to make significant decisions regarding issues like health care and national security under severe uncertainty about how their decisions will affect specific members of society and society as a whole. This research project will empirically investigate how individuals and collective agents, such as policy makers, make ethical decisions under conditions of ambiguity. In the context of policy-making, ambiguity refers to the situation in which decision-makers do not know the probabilities associated with potential policy outcomes. The interdisciplinary research team combines expertise in economic methodology, decision-making under uncertainty and behavioral economics with ethical theory and rational choice theory. Researchers will conduct an experiment in the Virginia Tech Economics Laboratory to establish how individuals act in scenarios where there is a lack of probabilistic information as well as how they react to the fairness of different alternatives. Outcomes of the planning grant will include completion of the experiment, drafting a paper outlining the methods, results and impact of the experiment and developing transdisciplinary research expertise related to public policy.



## Policy for Active Aging: WHO's Global Age Friendly Initiative

College of Agriculture and Life Sciences

- Susan Chen (Agricultural and Applied Economics)

College of Architecture and Urban Studies

- Max Stephenson (Institute for Policy and Governance/School of Public and International Affairs)

College of Liberal Arts and Human Sciences

- Nancy Brossoie (Center for Gerontology)
- Eunju Hwang (Apparel, Housing and Resource Management) \*

\* Team Leader

### Abstract

The World Health Organization's Age Friendly Initiative's (AFI) age-friendly communities are committed to developing the core infrastructure needed to support physical, social, and economic environments that promote quality of life. Over 500 communities worldwide, including 194 U.S. cities have adopted the AFI because the numbers of older adults in their populations are rapidly rising. Preliminary efforts towards policy transformation and developing strategies for change have occurred in large urban areas but are not aligned with the needs and infrastructure found in rural American communities. The goals of this project are to develop a process for evaluating a rural community's readiness to engage in the AFI and identify tools to measure health outcomes in rural communities. We will build research capacity to address the policy and health impacts of the AFI in rural Virginia. Building on the synergetic strengths of our transdisciplinary research team, we will conduct user-driven research, linking community policy and practice with residents and supporting older adults' ability to remain in their own communities. Outcomes of the project will be the development of two brown bag seminars for the Virginia Tech community and an assessment matrix for AFI communities.

## External Panel Participant – Biography

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**Anand Desai** is a professor of public policy analysis at the John Glenn College of Public Affairs at Ohio State University. He has taught courses on evaluation research, information systems, logic of inquiry, policy modeling, simulation, statistics, and wicked problems. His research interests include evaluation and policy analysis methods, policy modeling, and complex systems. In addition to his publications on these topics in scholarly journals, he has co-authored a book on wicked environmental problems and edited and contributed to a book on the use of simulation for policy analysis. Currently he is on an assignment at the National Science Foundation as the head of the Evaluation and Assessment Capability section in the Office of Integrative Activities. He studied mathematics, mathematical statistics, and operations research at Delhi, Leicester, and Cambridge universities before obtaining his Ph.D. in public policy analysis at the University of Pennsylvania.

## Policy SGA Stakeholder Committee

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### Members

**Sue Ge**, Economics

**Navid Ghaffarzadegan**, Industrial Systems Engineering

**Karen Hult**, Political Science

**Anne Khademian**, **PSGA Co-Chair**, School of Public and International Affairs

**Douglas Lind**, Philosophy

**Valerie Ragan**, Population Health Sciences

**Wornie Reed**, Sociology

**Karen A. Roberto**, **PSGA Co-Chair**, Institute for Society, Culture and Environment

**Sonja Schmid**, Science and Technology in Society

**Anju Seth**, Management

**Wen You**, Agricultural and Applied Economics

### Program Manager

**Isabel Bradburn**, Institute for Society, Culture and Environment

### Staff Support

**Yancey Crawford**, Institute for Society, Culture and Environment

## Research Committee

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**Douglas Lind**, Co-Chair, Philosophy

**David Orden**, Co-Chair, Institute for Society, Culture and Environment

**Mark Orr**, Biocomplexity Institute

**Anju Seth**, Management

**Tammy Trimble**, Virginia Tech Transportation Institute

**Wen You**, Agricultural and Applied Economics

## Curriculum Committee

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**Sue Ge**, Economics

**Navid Ghaffarzadegan**, Co-Chair, Industrial Systems Engineering

**Karen Hult**, Political Science

**Anne Khademian**, School of Public and International Affairs

**Gary Kirk**, School of Public and International Affairs

**Shyam Ranganathan**, Statistics

**Todd Schenk**, Co-Chair, Urban Affairs & Planning, School of Public and International Affairs