THAYER SCHOOL OF ENGINEERING AT DARTMOUTH

IMPRESSIONS

RAND CORPORATION

engineering.dartmouth.edu/sedg
&
rand.org/international/pardee.html

Dartmouth & RAND

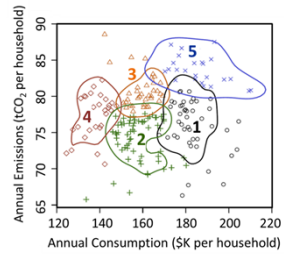
WHO WE ARE

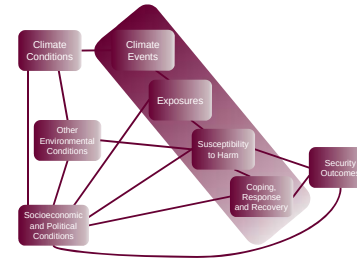
The *Thayer School of Engineering at Dartmouth* has one of the oldest professional schools of engineering in the US and features a single unified department of engineering sciences that fosters cross-disciplinary innovation in research and teaching. Thayer School is advancing innovation in three focus areas that crosscut traditional engineering disciplines and address critical human needs: Engineering in Medicine, Energy Technologies, and Complex Systems. At the intersection of Energy Technologies and Complex Systems, the *Sustainable Environmental Decisions Group (SEDG)* focuses on the development and application of engineering-based methods and models for the integration of quantitative information on natural, socio-economic and technological systems. The work of SEDG is driven by the following three objectives: (1) To develop tools for integrating data into decision-making; (2) To advance the ability of organizations, governments and individuals to make decisions that account for risk and uncertainty; and (3) To guide long-range environmental policy by developing quantitative models that integrate technical, economic, political and social factors.

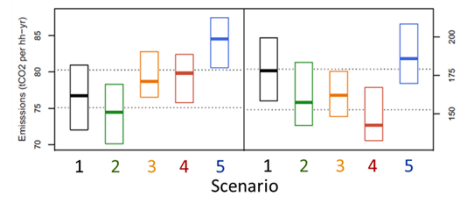
The *RAND Corporation* is a nonprofit organization with offices throughout the world. The mission of RAND is to help improve policy and decision-making through research and analysis. RAND researchers combine theory with real-world experience. Approximately 1,700 people from more than 50 countries work at RAND, hailing from academia, government, and industry, The *RAND Pardee Center for Longer Range Global Policy and the Future Human Condition* aims to enhance the overall future quality and condition of human life by aggressively disseminating and applying new methods for long-term policy analysis in a wide variety of policy areas where they are needed most.

WHAT OUR EXPERIENCE IS

- Quantitative long-term policy analysis;
- Development of agent-based models of the linked energy, economic, and climate systems;
- Techniques for scenario discovery and analysis;
- The role of risk exposure and attitude in the social cost of carbon;
- Applications of uncertainty analysis to integrated environmental models;
- Decision-making under conditions of deep uncertainty, with an emphasis on climate change, energy, and the environment;
- Methods of forecasting under uncertainty.







WHAT WE DO IN IMPRESSIONS

- As participants from a non-International Cooperation Partner Country, Dartmouth and RAND will act as advisors, keeping up to date with project developments and offering guidance, as appropriate.
- In particular, Dartmouth and RAND will work with the Sant'Anna School of Advanced Studies to develop a family of agent-based models for evaluating the magnitude and distribution of the costs and benefits of adaptation from a complex system perspective.
- We will also advise on the use of robust decision making and scenario discovery methods in the analysis of these models.

WE ARE ALSO INVOLVED IN

- Water resource management;
- Water quality modeling;
- Modeling of material and energy systems;
- Measuring the sustainability of anthropogenic systems.

Mark Borsuk

- Associate Professor, Thayer School of Engineering at Dartmouth
- Group Leader, Sustainable Environmental Decisions Group (SEDG)

Michael Gerst

- Research Assistant Professor, Thayer School of Engineering at Dartmouth
- Associate Fellow, Tellus Institute

Rob Lempert

- Senior Scientist , RAND
- Director, Frederick S. Pardee Center for Longer Range Global Policy and the Future Human Condition
- Professor, Pardee RAND Graduate School