



DUSP



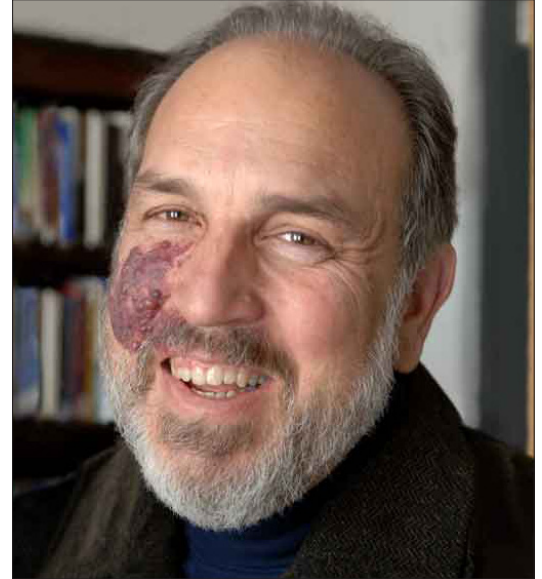
**Massachusetts
Institute of
Technology**

Design by
Takeo Kuwabara

A Message from
Larry Susskind

Dear EPP colleagues and friends,

Welcome and welcome back! While EPP has lost two faculty mainstays over the past several years — Professors JoAnn Carmin and Judy Layzer -- we are excited to have four new faculty members joining the group this fall: Janelle Knox-Hayes, David Hsu, Mariana Arcaya and David Steil. Returning and entering MCPs and PhDs, as well as new undergraduate majors and minors, will be working with the faculty to chart EPP's future direction. Teaching, research and service are all up for discussion.



We will have weekly Tuesday lunches devoted to open informal conversations about important environmental topics. Our EPP blog will feature the exciting thesis and dissertation findings of our 2015 graduates. And, as you will see in this issue of the EPP Newsletter there are a number of research initiatives being launched that you may want to join. We expect DUSP as a whole to focus on climate change this Fall as the UN Climate Change Conference (COP 21) meets in Paris. And, we will be working with the other groups in DUSP to link environment, development, technology and design in new and exciting ways.

Please look carefully at the list of subjects we are offering this Fall. You might find something that surprises you. And, if you have additional news items to add, be in touch with Mr. Takeo Kuwabara, EPP Administrator, so we can feature them in the next issue of the Newsletter.

I hope I have a chance to talk with each of you in the coming weeks!

A handwritten signature in black ink that reads "Lawrence Susskind". The signature is written in a cursive, flowing style.

Larry Susskind
Head, Environmental Policy and Planning Group

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Environmental Policy and Planning Group Overview

The Environmental Policy and Planning Group (EPP), located in the Department of Urban Studies and Planning (DUSP) at MIT, seeks to improve the way society conserves and manages natural resources and pursues sustainable development, particularly (though not exclusively) in urban and metropolitan settings around the world. Some specific areas of research and teaching include the adoption and diffusion of technologies that aim to mitigate or remediate environmental problems, particularly renewable energy, energy-efficiency, and water-conservation technologies; the efficacy of efforts to prevent and reduce air and water pollution and manage the disposal of toxic and hazardous wastes; the prospects for international, national, state-level, and local strategies for mitigating and adapting to climate change; the resolution of conflicts surrounding facility siting and the allocation of transboundary water resources; the pursuit of environmental justice; and the development of more flexible forms of urban infrastructure.

We invite talented undergraduate and graduate students to work with our world-renowned faculty to become problem-solvers and leaders in the public, private, and nonprofit sectors. Our diverse community of scholars and activists share a commitment to the development of sustainable and resilient urban regions, as well as a thoughtful integration of science and values into environmental planning and policymaking. Our aim is to find better ways of harmonizing science, policy and politics.

In addition to working with faculty on research and planning projects, EPP students are welcome to sample from the array of courses and resources available across MIT and at other Boston-area universities. Many students also play critical roles in environmental initiatives on the MIT campus and in Cambridge, Boston, or other nearby cities and regions around the globe. In the process, they gain a deeper understanding of the complexities they will face in the course of their careers and learn to become reflective practitioners.



Municipal Curbside Compostables Collection What Works and Why?
Judy Layzer and Alexis Schulman 2014



New England Climate Adaptation Project
Lawrence Susskind and Danya Rumore 2015

In Memory of a Friend and Colleague

Judy Layzer

We lost our colleague and friend Professor Judy Layzer on May 28, 2015.

Judy had been on the faculty of MIT's Department of Urban Studies and Planning (DUSP) since 2003, and had served as associate head of the department since 2014.

Judy explored the politics of environmental policies and the role of science in shaping public debate on these matters. Scientific evidence, as she detailed in many of her writings, provides a powerful foundation for environmental advocacy — but policies do not always simply follow from that science, she noted, since disputes over the environment are often contested between groups with differing or opposing values.

Within the field of environmental policy and politics, Judy's work ranged widely across topics, including clean air and clean water regulations, land protection, species conservation, and climate change. She had also become increasingly focused on issues of urban sustainability, including studies of food systems. Her most recent work focused on constructing and implementing successful composting programs. Judy's colleagues remember her as a person driven by a strong sense of ethics and possessing exceptional intellectual abilities.

At an informal memorial students and faculty alike remembered Judy as brilliant, kind, passionate, driven, tough and incredibly joyful and funny. Unanimously, all felt especially blessed to have benefited from their interactions with her, as their advisor and as students in her highly-regarded classes. Most importantly, we all valued her as a friend.

Judy's thesis research became part of her first book, **The Environmental Case: Translating Values into Policy** (CQ Press, 2002), an influential work now in its third edition; Judy added considerable new material, on climate change and other topics, to the later editions.

Her second book, **Natural Experiments** (MIT Press, 2008), examined whether recent approaches to conservation across the U.S. have been effective; she concluded that some of these programs are less likely to produce environmental improvements than policies enacted through traditional top-down political means.

In her 2012 book, **Open for Business** (MIT Press), Judy examined how conservatives sometimes have succeeded in environmental debates by tapping into, among other things, public mistrust of regulation to argue for opening up federal lands for further development.



Environmental Policy and Planning

Mariana Arcaya

Assistant Professor

Mariana's work, at the intersection of public health and urban planning, explores dynamic relationships between place and health. Mariana's scholarly research investigates how the environment -including built, social, and economic conditions- affects health. Reciprocally, she also explores how health shapes socioeconomic outcomes for individuals and communities. Her applied and translational research on the social determinants of health tackles the ways in which urban policy and planning decisions shape health risk factors. In both her scholarly and applied work, Mariana maintains a focus on health disparities, social justice, and environmental sustainability. Methodologically, she uses quantitative approaches, including multilevel modeling, spatial statistics, and latent variable modeling, to better understand place and its affect on health.



Prior to joining the EPP faculty, Mariana completed a post-doctoral fellowship at the Harvard Center for Population and Development Studies. She holds a Doctorate of Science from the Harvard School of Public Health, and a Master of City Planning from DUSP. Mariana's professional work experience includes instituting and managing a Public Health Division within Metropolitan Boston's regional planning agency, designing and overseeing the implementation of municipal-level healthy urban planning strategies, and developing a Health Impact Assessment program at the Harvard Center for Population and Development Studies.

Environmental Policy and Planning

David Hsu

Assistant Professor

David's research and teaching areas focus on urban environmental policy and planning. Planners and practitioners and scholars in other disciplines have more tools than ever in terms of technology and policy, but often have to contend with large, embedded, and often highly technical infrastructure systems that may be the product of decades or even centuries of previous development. David's approach is to identify and exploit opportunities to change these systems using relatively simple policies and tools, and to build the understanding and capacity of planning graduates to affect the development of large urban systems.

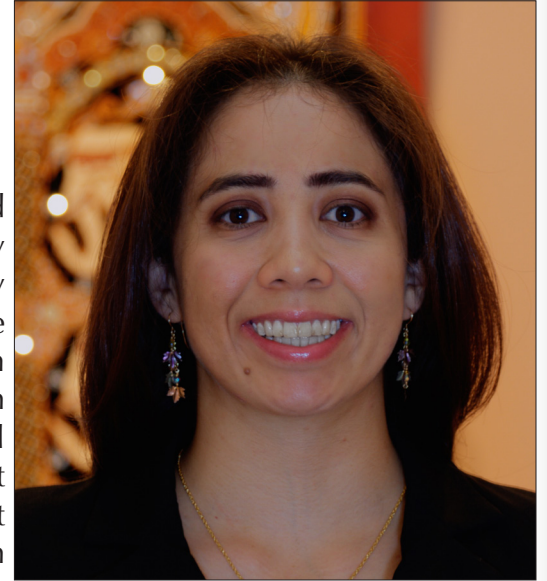


Topics of particular interest include energy and water networks, green infrastructure, information policies to encourage efficient resource use, and data analysis. Current projects include studies of how information affects energy efficiency in commercial buildings, funded by the US Department of Energy; policies and tools for green infrastructure planning, funded by the US Environmental Protection Agency; and smart infrastructure, funded by the National Science Foundation.

David previously taught at the University of Pennsylvania and New York University, and worked in engineering, finance, and in the municipal governments of New York and Seattle. He holds degrees from Yale and Cornell in Applied Physics, and from the London School of Economics and Political Science and the University of Washington in Seattle in Urban Design and Planning.

Environmental Policy and Planning
Janelle Knox-Hayes
Associate Professor

Janelle holds a Master's degree in Environmental Policy and Doctoral degree in Economic Geography from the University of Oxford. Her research revolves around the political economy of environmental management. She has conducted extensive research in the United States, Europe and the Asia-Pacific on the use of market mechanisms to govern climate change. In addition to empirical studies, the project explores a theoretical investigation of the nature of resource valuation. Janelle argues that economic systems have not been designed to adequately account for the spatial and temporal materiality of the natural world. In particular, economic mechanisms like emissions markets are built from theories of exchange value. To adequately assess natural capital, theories of use value are needed. Attuned with her interest in valuation, she also examines the ways in which social and cultural values shape environmental policy in different regions.



In the spring of 2016 Janelle will reside in Iceland on a Fulbright fellowship to examine the influence of cultural values on decision-making and policy with respect to sustainable development in the Arctic. The project is designed to investigate the dynamic tensions of sustainable development at the interface of culture and political economy. It will examine the meanings and practices of sustainability as they are mediated through initiatives that operate across global and local scales. Through in-depth fieldwork, interviews, surveys and GIS visualization, Janelle will study how cultural, political and economic institutions influence concepts and processes of sustainability. One of the goals of the study is to identify core values of sustainable development as well as potential bridge concepts, terms that bridge scientific rational and normative value. Bridge concepts are essential to the creation of new metrics of valuation. Using surveys and GIS techniques, these concepts will then be compared across socio demographic characteristics and geographically mapped. By addressing the transmission and syncretic internalization of sustainability within cultural context, the project provides a basis for building flexibility into international environmental discourses and agreements as well as a path towards the creation of more sustainable mechanisms of valuation.

Environmental Policy and Planning

Justin Steil

Assistant Professor

Justin's research focuses on the intersection of law and urban policy, particularly as they relate to social stratification and spatial dimensions of inequality. In recent publications, he has explored the relationship between space, power, and inequality in the context of immigration federalism, residential segregation, lending discrimination, environmental justice, and mass incarceration.

Both an urban planner and a lawyer, Justin clerked for federal trial and appellate judges where he worked on civil and criminal cases in wide variety of areas, from civil rights to national security, from financial regulation to environmental protection. Before graduate school, Justin worked as a community-based planner for an environmental justice organization focusing on brownfield redevelopment, as the advocacy director for a non-profit fighting predatory lending practices, as the program manager for a project bringing youth and prisoners into critical dialogues about justice, and of the trainer for a domestic violence crisis center instructing police in Ciudad Juárez how to support of survivors of sexual assault.

Building on his book chapter, "Can the just city be built from below: brownfields, planning, and power in the South Bronx," Justin is currently working on a project that examines the extent to which New York State's Brownfield Opportunity Area (BOA) program reconfigured the organizational networks of community-based environmental justice organizations and community development corporations that received brownfield planning grants. For each BOA grant recipient, the analysis compares the composition and structure of the recipient's partner organizations in the BOA program with the composition and structure of that recipient's network outside of the program. In so doing, it seeks to estimate the network effects of the policy, highlighting the role of different types of brokerage. It also uses qualitative data gathered from semi-structured, open-ended interviews within the organizations to contextualize the network findings.

Justin's other projects include work on local government responses to immigration, research on the effect of contemporary racial residential segregation on socio-economic outcomes for native-born young adults, investigation of the mechanisms of racial discrimination in mortgage lending, and historical analysis of early 20th century racial zoning laws and their impact.



Environmental Policy and Planning

New Students

Valeria Alvaredo



MCP Candidate, Valeria Alvaredo

Valeria is originally from Lima, Peru. She was exposed to the experience of land tenure regularization in informal settlements through her mother's work as a Land Title Registration Manager. She graduated from Northeastern University with a BA in International Affairs and minors in Law and Business. Valeria has interned for organizations such as Habitat for Humanity International, A.C.T. Consulting, University of Economics-Prague, United Nations, Harvard Law School and The Office of the Prime Minister of Peru. These experiences increased her passion for learning different models of urbanization; she hopes to be part of the decision-making process of sustainable urban development around the world. About a year ago, Valeria founded Ciudades Futuras, Peru, an organization that works to engage young people and empower them to co-create solutions with the government. Valeria was drawn to the flexible customized curriculum that DUSP offers, especially combining class work with IAP's trips and summer internships. In her free time, Valeria enjoys traveling and going on bike rides.

Andrea Beck



PhD Candidate, Andrea Beck

Originally from Germany, Andrea has a background in International Relations and Bioresource Engineering. She studied at the Free University of Berlin, King's College London and McGill University. Before joining MIT, she worked as a research assistant at the Hebrew University of Jerusalem and as an advisor for the German International Cooperation (GIZ) in a water management project in Tanzania. She supported the development of an Integrated Water Resources Management Plan as well as a climate change communication strategy for the water sector. Her research interests lie at the intersection of natural resources management, public policy and diplomacy.

Shin Bin



MCP Candidate, Shin Bin

Shin Bin is from Singapore. She has about seven years of experience working as an urban planner in Singapore, and two years working in Singapore's national university as a public policy case writer. She is most interested in issues related to urban sustainability, as well as geospatial data analytics. Shin Bin wanted to join DUSP to both hone her geospatial analytical skills and broaden her intellectual horizons, and through that, better contribute back to her community. For fun, she loves cooking, running and doing anything art or music related.

Kelly Blynn



MCP Candidate, Kelly Blynn

After working in international climate change advocacy with 350.org for five years, Kelly Blynn decided to turn her attention to her local community. For the past three years, she has worked with DC's regional smart growth organization advocating for improved transit, biking and walking connections, and affordable housing in the affluent yet changing Maryland suburbs. She is interested in cutting transportation emissions, retrofitting the suburbs, housing affordability, and the common solutions to these issues. In her spare time, she loves to garden, play ultimate frisbee, and attend community meetings. Kelly just finished her first silent meditation retreat.

Anna Doty



MCP Candidate, Anna Doty

Born and raised in the Bay Area, Anna is excited to join DUSP and the community of planners working toward climate justice and disaster resilience in US cities. In her work and research, Anna is dedicated to the use of participatory planning and ecosystem services principles to create more resilient, accessible, and ecologically vibrant urban coastlines. Prior to joining DUSP, Anna worked at the Environmental Defense Fund lobbying for strong state climate and clean energy policies and volunteered with a network of Bay Area organizations providing anti-oppression education and organizing for racial and economic justice. Anna is also a singer, runner, bookbinder, lover of dystopian science fiction, and occasional vegan.

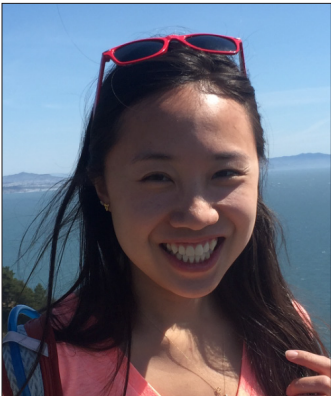
Eilse Harrington



MCP Candidate, Eilse Schley Harrington

Eilse grew up in Berkeley, CA and studied Architecture and Environmental Studies at the University of Pennsylvania. Most recently, she worked as a research assistant for the Kleinman Center for Energy Policy and on green infrastructure policy at PennDesign's Green Cities Lab. Prior to that, Eilse helped manage and conduct research at the Energy Efficient Buildings Hub where her work focused on encouraging municipal energy conservation. Eilse is interested in institutional decision-making and resource management, with an emphasis on distributed energy and water infrastructure. In her spare time, Eilse enjoys spending time outdoors, making ceramics, and cooking.

Emily Long



MCP Candidate, Emily Long

Emily is native to Boston and has been working at the Harvard T.H. Chan School of Public Health as a program coordinator in the epidemiology department. Prior to that she worked at the Conservation Law Foundation for three years and assisted in advocacy and research on issues related to climate change, environmental justice, and healthy and sustainable communities. This work prompted her to pursue a degree in urban planning. She holds a BA in neuroscience from Colgate University. She prefers to spend her time outside, whether it be in the woods, on the water, or on her bike.

Fernando Madrazo



MCP Candidate, Fernando Madrazo

Fernando Madrazo is 31 years old and has lived most of his life in Mexico City. For the past 6 years he managed a biological waste treatment company called ICAP BIO-ORGANIC. His main research interest is the energy industry, particularly energy planning for cities and countries to reach their sustainability and emission reduction targets while accounting for the current economic and social dependency on oil & gas. Fernando joined DUSP because he believes it offers the best combination of the technical, social and economic aspects of the field he is interested in. His hobbies include any and all sports, in particular: soccer, alpine mountaineering, surfing and 24 hour mud races.

Scott Middleton



MCP Candidate, Scott Middleton

Scott Middleton is a first-year MCP student who is also pursuing an MS in Transportation degree. Before coming to MIT, Scott worked as a community planner at the USDOT's Volpe Center in Cambridge, MA. Scott is interested in high-speed rail and the environmental impacts of passenger and freight transportation. Outside of research and education, Scott is an avid cyclist, amateur historian, and passionate traveller.

Sabah Usmani



MCP Candidate, Sabah Usmani

Sabah was born in London and grew up in Nepal, India and the United States. She completed a Bachelors in Civil Engineering with a minor in Architecture from Columbia University. For the past two years, she has worked in areas related to environmental sustainability of greenfield urban development projects across India. She is interested in climate change mitigation/adaption in developing country cities and also the ways in which urban design and policy can promote gender equality. She loves biking - even in crowded cities with no bike lanes.

Sonja Boet-Whitaker



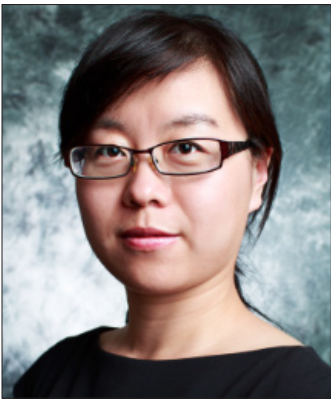
MCP Candidate, Sonja Boet-Whitaker

Sonja Boet-Whitaker is thrilled to return to Boston after a four year exile in New York City where she worked for the Department of Transportation (NYCDOT). She began there as a GIS intern and ended up managing the finances of the NYCDOT's sustainability (PlaNYC) and safety (Vision Zero) programs. Her interest in city planning began at Brown University, which she graduated from in 2011 with a degree in Urban Studies and a Built Environment focus. Sonja is interested in resiliency planning related to transportation infrastructure, and also plans to pursue a Sustainability Certificate from Sloan while at DUSP. This summer, Sonja has been living in Davis Square and working as a baker at Petsi Pies. She also plans to learn how to drive.

Environmental Policy and Planning

Post Doctoral Associates

Ting Meng

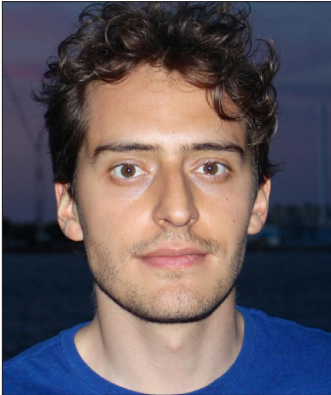


Post Doctoral Associate
Dr. Ting Meng

Dr. Ting Meng is a postdoctoral associate in the Environmental Policy and Planning group, DUSP. Before joining DUSP, she worked as a postdoctoral fellow in City and Regional Planning Department, University of Pennsylvania. She earned her PhD degree in Agricultural and Applied Economics, University of Georgia, where she also received her Master degree in Statistics. Her research

interests include environmental economics with specialty on energy and water resources, consumer demand and market, as well as applied econometrics. She is interested in environmental economics because it is truly a multi-discipline study on examining costs and benefits of environmental policies to deal with issues such as pollution, water quality, solid waste, and natural resource protection. Currently, she is engaged in two grant projects lead by Professor Hsu. The first is a Department of Energy & Consortium of Building Energy Innovation project on building energy consumption and benchmarking policy with the aim of providing insights to multiple stakeholders to improve energy efficiency. The second is a National Science Foundation grant project on smart green stormwater infrastructure services with a focus on market potential and new technology adoption.

Bruno Verdini



Post Doctoral Associate
Dr Bruno Verdini

Bruno Verdini recently received an Interdisciplinary Ph.D. in Negotiation, Communication, Diplomacy, and Leadership under the mentorship of faculty from MIT's Department of Urban Studies and Planning, the Program on Negotiation at Harvard Law School, MIT's Department of Political Science, and the Harvard Kennedy School of Government.

His research explores the skills and strategies by which transboundary resource management practitioners focusing on water can increase river-basin supply, re-think the possibilities of irrigation and storage infrastructure, and restore ecosystems and habitats. Additionally, he has worked to present insights for energy resource management in order to enhance coordination between publicly traded and state owned energy companies, improve energy security, and re-define the scope and impact of diplomatic partnerships.

As a Program Director of the MIT-Mexico Negotiation Program, in collaboration with Professor Lawrence Susskind, Bruno will develop and present an Executive Negotiation Teaching and Training Program for Mexico's resource management sector. The purpose is to collaborate with a number of universities in Mexico to build a training program that will enhance the skills of public and private sector managers involved in domestic and international water, energy, and environmental negotiations. The primary focus will be to support the efforts of Mexico's Ministry of Energy, Ministry of the Environment and Natural Resources, and the Ministry of Foreign Affairs, to negotiate effectively on behalf of the resource management interests of Mexico.

Mexico's National Council on Science and Technology, Fulbright, Goldman Sachs, and the Ford Foundation, MIT's Science and Technology Initiative, Harvard Law School, and France's National Foundation of Political Science, among other institutions, have supported his work. A Mexican and French citizen, and former Deputy Director for International Affairs at Mexico's Ministry of Energy, Bruno has collaborated with partners in Washington D.C., Paris, London, Tokyo, Buenos Aires, Geneva, Stockholm, and Vienna.

Environmental Policy and Planning
Visiting Post-Docs and
Doctoral Students

Christian Downie



Dr. Christian Downie

Dr. Christian Downie is a Vice Chancellor's Postdoctoral Fellow at the University of New South Wales and a Visiting Fellow at the Australian National University. Christian was foreign policy advisor to the Australian Government's Department of the Prime Minister and Cabinet and a climate policy advisor to the Department of Climate Change. Christian holds a PhD in International Relations and Political Science from ANU, having graduated from the University of Sydney with first class honors in Economics. He has taught or researched at MIT, the London School of Economics and Political Science and the University of Chulalongkorn, and he has worked in policy think tanks in Canberra and Washington D.C. His first book, *The Politics of Climate Change Negotiations*, was published in 2014.

Alina Hossu



Fulbright Fellow, Dr. Alina Hossu

In 2014 Alina successfully defended her Ph.D. dissertation on locational and landscape conflicts in contemporary Romania at the University of Bucharest, Romania. During her PhD studies, she won a one-year fellowship at the Swiss Federal Research Institute for Forest, Snow and Landscape Research, WSL. Alina is currently research assistant at the Center for Environmental Research and Impact Studies, Bucharest, Romania where she is conducting research focused on the resolution of environmental conflicts and the analysis of the landscape patterns and processes in order to facilitate sustainable spatial planning. Her other research includes studying landscape changes and participatory mapping techniques in mountainous areas.

Jannes Willems



Visiting PhD Candidate
Jannes Willems

Jannes Willems (Nijmegen, 1990) is a PhD researcher in infrastructure planning at the Department of Spatial Planning & Environment, University of Groningen (the Netherlands). His research focuses on the required institutional design to adequately deal with the issue of infrastructure redevelopment, in which there is space for concepts related to adaptive planning, such as continuous learning. The research is funded by the Dutch agency Rijkswaterstaat, the executive arm of the Ministry of Infrastructure & the Environment. Jannes has gained research experience by participating in several projects for this agency as well as in international projects, most notably in Belém (Brazil). He obtained his Research Master in Regional Studies (with honours) at the University of Groningen.

Environmental Policy and Planning
Current Research

Malaysia Sustainable Cities Program



From the Exhibition Female Faces in Sustainable Places | 2015

Malaysia has an explicit goal of transforming itself from a developing to a developed country. Even in the face of substantial ethnic, racial and religious differences, the population has made enormous strides in this direction through a national planning effort that has promoted sustainable city development and a shift from agrarian to high-tech investment. In conjunction with our partners at Universiti Teknologi Malaysia (UTM) and Iskandar Regional Development Agency, the Science Impact Collaborative (SIC) and the MIT Community Innovators Laboratory (CoLab) have begun to document the ways in which this Muslim democracy has used its oil and gas revenues to promote universal education, investments in large-scale integrated infrastructure systems and entrepreneurship (especially for women). Ten visiting scholars from developing countries spend half a year at UTM and half a year at MIT to transform their research findings into online teaching materials that can be used throughout the developing world to share what Malaysia has learned about sustainable city development.



2015 IAP Malaysia Practicum and 2014-2014 Visiting Scholars



Kampung Bahru in Kuala Lumpur |Marcel Williams 2015

MIT-UTM MALAYSIA SUSTAINABLE CITIES PROGRAM

RESEARCH AGENDA 2015-2016
REPORT OF THE MIT-UTM
2015 PRACTICUM




Figure 1. Traditional Malay house contrasted with high-rise development in Kuala Lumpur. Photo by Marcel Williams.

MIT CoLab UTM ISI

2015-2016 Research Agenda

Developing Water, Energy and Environmental Negotiating Capabilities in Mexico



Gulf of Mexico Sunset | Creative Commons 2015

Over the next three years, the MIT Science Impact Collaborative will help to develop and present an Executive Negotiation Teaching and Training Program for Mexico's resource management sector. Our goal is to work with a number of universities in Mexico to build a training program that will enhance the skills of government and private sector managers involved in transboundary water, energy and natural resource management negotiations.

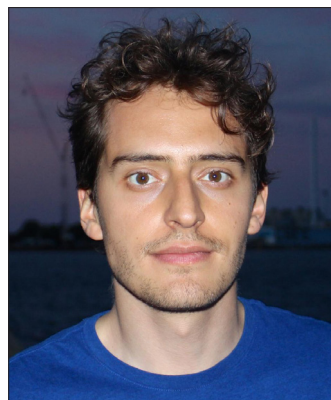
Led by Professor Larry Susskind, Director of the MIT-Harvard Public Disputes Program (based at Harvard Law School) and the MIT Science Impact Collaborative and Dr. Bruno Verdini (MIT '15), Program Director, the primary focus will be on supporting the efforts of Mexico's Ministry of Energy, in collaboration with the Mexican Ministries of the Environment and Natural Resources and Foreign Affairs, to negotiate effectively on behalf of the resource management interests of Mexico.

Specialized training modules, with tailored role-play simulations, will be developed in collaboration with faculty from multiple universities in Mexico City, and will focus, at the outset, on offshore energy development, water conservation, infrastructure investment, energy transitions, climate change adaptation, hazardous waste management and environmental restoration.

The program is intended primarily for public sector leaders working to resolve energy, water, and environmental resource management conflicts. The principles and strategies they learn, however, may prove useful in public-private negotiations as well. Skill building will range from negotiation preparation, to face-to-face interaction, to resolution of disputes that arise during the implementation of agreements. The first joint workshop is planned for October 2015.



Glenn Cannon Dam | Romain Guy 2014



Dr. Bruno Verdini

Managing the Public Health Impacts of Climate Change in Cambridge



Harvard Square, City of Cambridge | Wiki Commons 2015

The City of Cambridge faces daunting climate change-related risks. The health impacts of local climate changes are likely to be devastating if no action is taken to prepare. A team led by Professor Lawrence Susskind is investigating new ways of helping the city formulate public health risk management plans. Research Assistants, Hannah Susan Payne and Genea Foster, have created a new role-play simulation that the Science Impact Collaborative team will use to engage numerous stakeholder groups. The team expects to use a new tool called Justify — created by faculty and research staff at the MIT Media Lab — to engage business leaders, university administrators, religious leaders, environmental activists and other organizational players in Cambridge in a careful review of various strategies for dealing with rising temperatures and heat island effects. If the role-play simulation using Justify proves effective, the SIC team will work with the Massachusetts Department of Public Health to engage other cities and towns in preparing climate health impact assessments and health risk management plans.



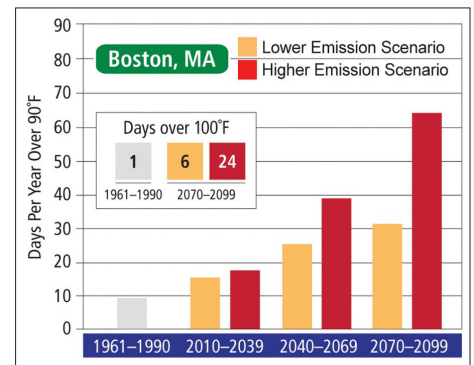
Massachusetts Institute of Technology and the City of Cambridge | Wiki Commons 2015



Genea Foster, MCP 2



Hannah Payne, MCP 2



Boston Days Over 100°F | USGCRP 2009

The Sacred Lands Project



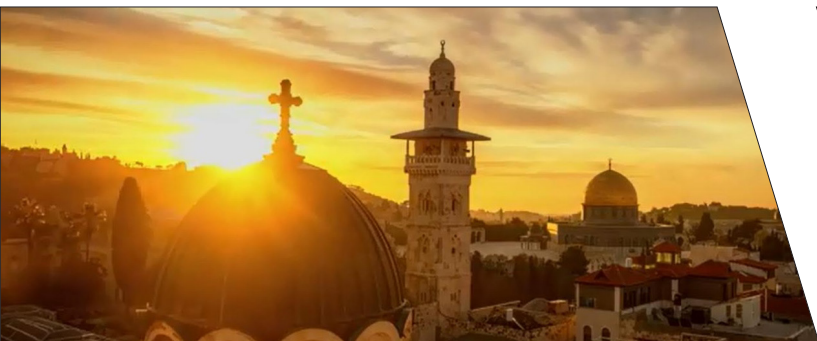
San Francisco Peaks | Creative Commons 2015



Susan Podziba
Director, Sacred Lands Project

The Sacred Lands Project (SLP) of the MIT-Harvard Public Disputes Program explores the idea of sacred lands disputes as a subset of public conflicts. We expect that mediators need to have an understanding of and sensitivity for the concept of sacred lands, the symbols that attach, the roles of religious leaders as protectors of sacred space and as spiritual as well as political leaders, and the roles and relationships of secular political leaders to religious leaders including how they may or may not politicize protections of and threats against sacred lands. Our hope is to develop a set of teachable practices for mediators working in the context of sacred land conflicts specifically as well as when sacred land disputes are embedded in larger conflicts.

SLP will explore theoretical questions of the sacredness of land and the intersection of religion and politics as well as practical questions concerning the mediation of conflicts over sacred lands. SLP will initiate discussions among academics and practitioners to explore the uniqueness of sacred land disputes, to generate ideas about constructing particular approaches for addressing these conflicts, and to develop strategies and tactics for mediating conflicts over sacred land. Many mediators work on disputes related to sacred spaces but have not considered the unique aspects of such conflicts. We expect that mediators who have worked in Indian Country and in the Middle East and other international settings will appreciate the opportunity to think specifically about and develop strategies for this component of conflicts.



Jerusalem | National Geographic *Jerusalem* 2013



Wao Kele O Puna Lava | Bryan Lowry 2014

Learning from the Experience of Chinese Real Estate Interests Operating in Malaysia



Development Model, Johor Bahru | Kelly Heber Dunning 2015

The massive Forrest City mixed use project, located in Johor Bahru, Malaysia is being developed by one of China's largest real estate developers, Country Garden Holdings, Ltd. Possible environmental, social and economic impacts of the project have generated substantial controversy, within Malaysia, and internationally, specifically with neighboring Singapore. A team led by Professor Lawrence Susskind is preparing an in-depth case-study of the political, social, ecological and economic aspects of the Forrest City project and the ways in which Country Garden Holdings has responded to demands that it take sustainability concerns more seriously. MIT students Kelly Heber Dunning, Marcel Williams and Libbie Cohn, are interviewing relevant stakeholders in Malaysia and China. The case study will be accompanied by a role-play simulation that will help real estate students learn how to better account for sustainable development concerns and interact with angry stakeholders at the local, regional, national and international levels.



Straits of Johor | Marcel Williams 2015



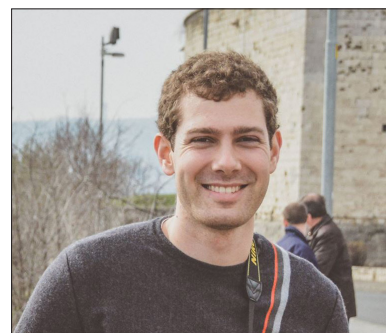
Construction in Johor Bahru | Andrew Binet 2015



Kelly Heber Dunning | PhD Candidate



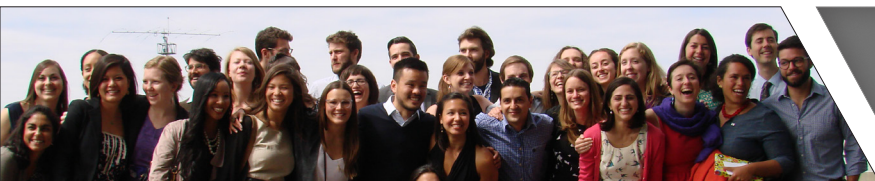
Libbie Cohn | MCP 2



Marcel Williams | MCP 2

Environmental Policy and Planning

Recent Alumni



DUSP Commencement Breakfast | Chris Santos 2015

Theses

Katie Blizzard



Tysons Corner Underconstruction | VDOT 2012

The Tysons Tunnel Decision: A Case Study of Suboptimal Decision-Making in Major Transit Investments

Washington D.C.'s 2014 Metrorail expansion runs, on elevated track lines, through the sprawling and auto-oriented Tysons Corner. Originally conceived as a means of urban transformation for Tysons Corner to a true urban downtown with high walk-ability, the Silver Line's expansion became mired in the fight over underground vs above ground line. Katie examines the history of this contentious debate, analyzes the optimal possibilities and the suboptimal result given the policies and politics of the project and the region. She presents strong evidence supporting a conclusion of a flawed federal funding criteria, the costs associated with high-level politician disagreement and the constraints of an uncompetitive contracting process.

Brian Bowen



Nest Thermostats | Nest.com

Climate Control: Smart Thermostats, Demand Response, and Energy Efficiency in Austin, Texas

Since 2000, Austin Energy has attempted to bridge their energy efficiency goals with increasing demand through a managed residential demand response program centered around the incorporation of thermostats. However, by 2012 only an estimated third of thermostats were being used as intended. In 2013 smart-thermostats with remote controls were introduced along with enrollment incentives rather than subsidized units. Brian analyzes the efficiency of the new program through enrollment rates and participant performance during demand response events. He affirms the efficiency of smart thermostats during peak demand period but also lays out a convincing argument for the limited long-term energy efficiency potential of smart thermostats in the study population.

Ellen Chen



Popek-Popek Sex Education Show | June Low PopTeeVee 2015

Building Blocks of a New Economy: Emerging Roles for Female Entrepreneurs in Malaysia

The Malaysian government's policies of sustainable growth through innovation have seen an increasing policy focus on the inclusion of women in entrepreneurial goals. Ellen conducted 30 interviews with local entrepreneurs to assess the outcomes from the provision of opportunity by the government. She utilized these interviews to write a thesis assessing the effectiveness of the government's attempts to promote women in the entrepreneurial market and to understand barriers or incentives for different types of urban and civic innovations. Ellen also produced a **short film documentary element** for her thesis, featuring her interviews. She found grassroots and community level change rather than knowledge or technology transfer produced larger structural change.

Julie Curti



Flooding in Cranston | NOAA 2012

Strategies for Equitable Climate Change Adaptation: Lessons from Buyback and Elevation Programs in Rhode Island

Many coastal and riverine communities will face increasingly severe flooding from climate change sea level rise and the increased frequency of heavy storms. Julie focused on the Rhode Island communities of Cranston and Westerly, studying their buyback and elevation programs in response to increased flooding. She found the merging of short term disaster mitigation program funds with the long term hazard mitigation of climate change presented problems for climate change adaptation. Julie suggests moving away from this model, which can lead to incremental and disaster dependent planning, to an approach which prioritizes justice-oriented distributional and procedural equity at the local level.

Melissa Deas

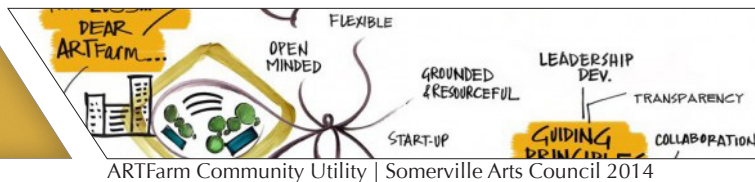


California Drought | David McNew, Getty Images 2015

Cal-Adapt and the Usability of Climate Adaptation Tools

Faced with the reality of the impacts of climate change, many communities have begun using map-based visualizations with downscaled data to ease consumption barriers and plan for adaptation efforts. Melissa examines if these models, particularly because they are based on downscaled data, inform decisions with increased community resiliency. Her case study is Cal-Adapt, a state mandated tool to deliver data to individuals in California. This ambiguous policy objective has caused Cal-Adapt to fall short of its true potential. In contrast, two web-based tools, which utilized a collaborative approach with stakeholders, scientist and decision-makers have proven for more useful in the creation of usable data when pursuing climate preparedness.

Allegra Fonda-Bonardi



Integrating sustainability into arts-focused neighborhood development on contaminated sites in “hot” real estate markets

Can and how do cities with rapidly intensifying real estate markets and growing creative economies promote the re-development of industrial legacy sites into neighborhood scale arts-oriented projects. Allegra utilizes the ARTFarm, a brownfield clean up, environmentally sustainable and arts-based development project, in Somerville MA. She identifies challenges ARTFarm faces because of its mutually reinforcing goals and because of its geo-economic position. She then charts several preliminary future directions for the site and for the success of three-way policy integration.

Mia Goldwasser



Flooding in Somerville | Lauren Ostberg 2010

Linking Adaptation and Mitigation in Local Climate Change Planning

Forward-thinking planners are trying to connect and integrate local climate mitigation and adaptation planning rather than pursuing them as independent planning processes. Mia studied Somerville, MA as a case study where city planners intend to link mitigation and adaptation in the first city climate change plan. She argues this link increases the community development and social equity focus, thereby broadening stakeholders engaged in climate action and increasing political support. She offers recommendations for increasing municipal responsibility, integrating climate action into citywide planning, increases to social equity, community development as well as public health, greater stakeholder engagement and communicating climate resilience.

Elizabeth Irvin



Boston Traffic | Matt Stone, Boston Herald 2013

Driving Down Emissions: Finding a Workable Path to Vehicle Miles Traveled Reduction Policy in Massachusetts

Massachusetts Global Warming Solutions Act, passed in 2008, set aggressive goals for reduction in carbon emissions. However, these reductions have been unevenly distributed, noticeably vehicle miles traveled are projected to increase. Elizabeth explores the possibility of a revenue-neutral carbon tax levied against fossil fuel consumption. Through spatial analysis of driving patterns, a case-study of British Columbia’s successful tax and an analysis of the current MA political dynamics, she offers recommendations for advocates in the political, technical and equity-based construction of the purposed carbon tax.

Elisabeth Rutledge



Transformer and Sunset | Electric Companies 2013

How do CSR Rating Schemes Influence Corporate Behavior?

Lessons from the Utility Industry

Despite large voluntary participation in corporate social responsibility (CSR) rating schemes, the correlation between responding to these rating schemes and taking meaningful minimization action is unclear. Lea focused on the electric utility industry, using the widely accepted Carbon Disclosure Project and the Dow Jones Sustainability Index. She found the CSR schemes succeeded in encouraging companies to gather and centralize important data and drives corporate pride and participation. However, an over emphasis on reporting rather than substantive changes has led to mistrust of CSR scores. She argues for restructuring of the rating schemes to increase understandability.

Chloe Schaefer



Lake Powell Water Levels | Creative Commons 2014

Why Utah's Water Managers Continue to Prioritize Supply-side Solutions

Utah faces increasing challenges to water supplies from the effects of climate change and increasing population. However, unlike many of its neighbors, Utah's unique historical, political and cultural relationship with its water supply have prevented aggressive demand-side conservation measures. Chloe examines the precedents for Utah's demand-side water management. She then constructs evidence based policy suggestions to change the dominant water planning mindset of Utah.

Lisa Young



Associated Press | Huffington Post 2014

Building Solidarity and Growing a Movement: The Story Behind the People's Climate March

The 2014 People's Climate March in Manhattan was the largest climate change demonstration in the history of the U.S. It also represented the first time social justice implications of climate change reached parity with environmental policy themes. Lisa studied how the Climate Action and Climate Justice camps were able to align their goals to produce this historic event. She exposes how the two groups can continue to dismantle barriers separating their causes. These coalitions could increase the size and diversity of the climate movement while articulating the voices of the disenfranchised all while calling all the louder for change on the front lines of the climate crisis.



Dr Stokes and Dr Verdini | Jota Samper 2015

Dissertations

Eric Chu



Bhubaneswar, India | Bhubaneswar Buzz, Underground Powerlines 2015

Urban Adaptations Observed: The Politics of Governing Climate Resilience in Indian Cities

An increasing number of international actors are advocating for programs that support both climate change adaptation and urban development. This dissertation chronicles the cases of Bhubaneswar, Indore, and Surat in India and looks at how cities plan, implement, and advocate for locally grounded adaptation and development priorities given such external incentives.

Through a process called street-level resilience making, the Eric finds that adaptation planning and governance relies on the experimentation and co-creation of adaptation options between urban actors. However, this process also creates more opportunities for cities to exclude certain populations in decision-making, to co-opt power, and to entrench urban injustices. In response, the dissertation concludes with a framework for evaluating climate justice from below, which argues that the ability to mitigate power imbalances rests on the restructuring of governance arrangements available to marginalized communities to advocate for their own interests in the street-level resilience-making process.

Danya Rumore



Storm Surge Wells, ME | NECAP Staff 2012

Enhancing the Readiness of Coastal Communities to Adapt to Climate Change Through Role-Play Simulations

In her dissertation, Danya tests the effectiveness of tailored, science-based role-play simulations as a tool for transformative civic education and engagement around science-intensive environmental issues. She does so by studying the results of the New England Climate Adaptation Project, a participatory action research project that engaged 555 diverse stakeholders across four partner coastal New England municipalities in climate change adaptation role-play simulation workshops. Data were collected through pre- and post-workshop questionnaires, follow-up interviews with 30 percent of participants from each workshop, and observation. Statistical and qualitative results show that science based role-play simulations offer a powerful approach for transformative learning and civic engagement around complex science-intensive environmental issues like climate change adaptation. Further, they can be effective across demographics and appear to be particularly impactful for people who are in the “undecided middle” in terms of their perspectives on the issue of interest. The results of this study have significant implications for our understanding of how to affect transformative learning in a public policy context, as well as for the use of serious games as a civic engagement tool.

Bruno Verdini Trejo



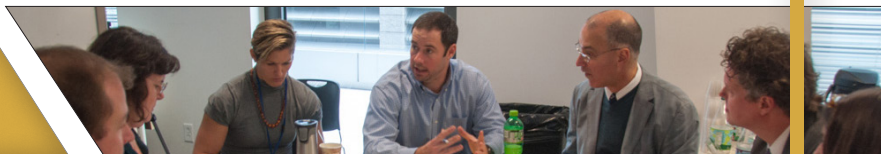
Colorado River | Jurgen Matern 2010

Charting New Territories Together: Laying the Foundations for Mutual Gains in United States

- Mexico Water and Energy Negotiations

For over seventy years, pursuing unilateral development, the U.S. and Mexico alternated between deadlock and confrontation, over the management of the shared hydrocarbon reservoirs in the Gulf of Mexico, and the shared waters of the Colorado River. However, they were able to buck this trend in 2012, reaching two significant agreements. For the first time, the two sides have established a binational framework through which to co-develop and jointly manage these transboundary natural resources, as partners. With interviews with over 70 negotiators in the U.S. and Mexico, including every one of the chief negotiators who had decision-making authority at the negotiating table, the dissertation draws negotiation and leadership advice that may be useful in other international resource management disputes, particularly between developing and developed countries. As such, it aims to highlight how stakeholders can move beyond hard-bargaining tactics and avoid the ultimatums that accompany the presumption that there are not enough resources to go around, and that one side must win and the other must inevitably lose.

Todd Schenk



Role Play Simulation | Todd Schenk 2015

Institutionalizing Uncertainty: Exploring How Infrastructure Stakeholders Can Collaboratively Prepare for Uncertain Climate Futures

Todd's dissertation examines how infrastructure stakeholders are likely to make project-level decisions in practice as they adapt to climate change, and how we can support better processes. It considers the implications of using multiple scenarios as a way to frame uncertainty, and of bringing multiple stakeholders together for decision-making. It is also concerned with the similarities and differences across governance regimes, using Boston, Singapore and Rotterdam as cases. The research process featured a role-play simulation (RPS) exercise run with participants as a way to introduce issues and facilitate experimentation.

Todd found that participants favor flexible approaches as a way to proceed despite uncertainties. Unfortunately, there are substantial barriers to their institutionalization. Participants were also positive on the use of scenarios as a way to frame uncertainty. However, there are challenges associated with their use; scenarios encourage users to consider the implications of an uncertain future, but can be difficult to act upon. Another key finding is that adaptation planning efforts are deliberative processes in which facilitation, the behavior of participants, and process design matter. There are important differences in how processes manifest under different governance norms, underscoring the importance of tailoring to context.

Leah Stokes



California, State Capital | Wiki Commons

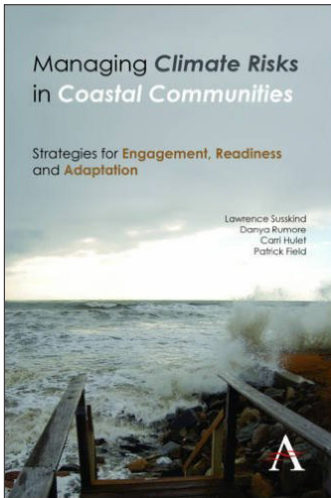
Power Politics: Renewable Energy Policy Change in US States

Addressing climate change requires societies to transition towards renewable energy resources. In the United States, most states have passed renewables portfolio standards (RPS), creating goals for electricity's share of renewables, and instituted net energy metering (NEM) policies, compensating individuals and organizations for supplying distributed energy to the grid. Why have some states, like California, successfully expanded their policies, while others, have failed to enact higher RPS targets or a NEM policy? Why have some states weakened their policies, while others have staved off retrenchment attempts?

Typical explanations for policy change include shifts in partisan control, shifts in public opinion and bureaucratic learning. Leah argues that shifts in the balance of power between supportive and opponent interest groups best accounts for variation across states in repeal efforts' success. Through policy feedback, policy design structures interest groups' relative power. Retrenchment attempts are more likely to succeed when renewable energy opponents are greater in number, profitability or political influence. By contrast, policy expansion is more likely to occur when renewable energy advocates become disproportionately empowered compared to their opponents.

Drawing on comparative case studies, Leah uses process-tracing to construct policy histories, examining how policymaking and implementation shaped later rounds of policy revision. The study compares six cases of renewable energy policy change in US states, developed through over 100 semi-structured interviews with politicians, political staff, utilities, bureaucrats, and interest groups. Advocates and opponents use several strategies to try to change policy. Politicians often come to support or oppose policies as a function of their ties to interest groups. Still, public support for policy matters; accordingly, interest groups construct and present public opinion strategically to try to shape politicians' actions. Finally, how the policy is designed, including its timing and visibility, may condition its capacity to expand or contract over time. In this way, my argument draws from and contributes to policy feedback theory.

Managing Climate Risks in Coastal Communities



Drawing on research from the New England Climate Adaptation Project, Professor Lawrence Susskind, Dr Danya Lee Rumore, Ms Carri Hulet and Mr. Patrick Field, offer a framework for building local capacity to respond to climate change in their new book, **Managing Climate Risks in Coastal Communities: Strategies for Engagement, Readiness and Adaptation**. They argue that most of the responsibility for responding to climate risks must be taken by local (not state or national) stakeholders. The authors maintain that local climate adaptation efforts require collective rather than individual commitments to risk management. However, while collective action is called for, many communities are not ready to take on the challenge, and need enhanced capacity to support climate adaptation planning. To this end, the book offers statistical assessments of a particular strategy – using tailored role-play simulations as part of a broader engagement approach – to enhance the readiness of the local population to deal with climate change risks. It also introduces methods for forecasting local climate change risks as well as for evaluating the social and political context in which collective action must take place.

New Doctoral Alumni Positions



Dr Eric Chu

E.K.Chu@uva.nl

Assistant Professor in Urban Studies, Department of Geography, Planning, and International Development Studies, University of Amsterdam



Dr Danya Lee Rumore

danya.rumore@law.utah.edu

Associate Director, Wallace Stegner Center's Environmental Dispute Resolution Program, S.J. Quinney College of Law
Visiting Assistant Professor, Department of City and Metropolitan at the University of Utah



Dr Todd Schenk

tschenk@vt.edu

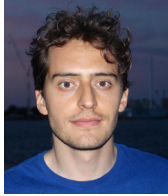
Assistant Professor in the Urban Affairs and Planning program of the School of Public and International Affairs at Virginia Tech



Dr Leah Stokes

leah.stokes@gmail.com

Assistant Professor, Department of Political Science, University of California, Santa Barbara



Dr Bruno Verdini

bverdini@mit.edu

Program Director, Developing Water, Energy, and Environmental Negotiating Capabilities in Mexico, Massachusetts Institute of Technology

EPP Tuesdays Lunches: Talking About the Environment

Each Tuesday from 12:15 - 1:30 DUSP students, faculty and staff are invited to join our ongoing informal discussions about key environmental topics.

The first week's topic (Tuesday, September 14th) is Ecosystem Services: What are they and how should they be valued?

The second week's discussion topic is Climate Adaptation: Whose responsibility?

There are no assigned papers to read or invited speakers. Instead, we will follow a few simple ground rules. First, from the time each lunch session begins until the time it ends, all conversation will be focused on the topic of the week. Anyone is free to speak, although only one person at a time. There is no one in charge. Everyone is asked to limit their comments or questions to no more than five minutes. If you want to nominate a topic for one of the Tuesday lunch sessions, let Takeo know. Lunch will be provided.

We will meet in room 9-451

Environmental Policy and Planning
Fall 2015 Courses

Environmental Law, Policy and Economics
Pollution Prevention and Control

II.021J

Nicholas Ashford
Tuesday, Thursday 3:30-5:00
E51-057

Introduction to important issues in contemporary environmental law, policy, and economics. Discusses

the roles and interactions of Congress, federal agencies, state governments, and the courts in dealing with environmental problems. Topics include common law, administrative law, environmental impact assessments required by the National Environmental Policy Act, and legislation and court decisions dealing with air pollution, water pollution, the control of hazardous waste, pollution and accident prevention, community right-to-know, and environmental justice. Explores the role of science and economics in legal decisions, and economic incentives as an alternative or supplement to regulation. Analyzes pollution as an economic problem and a failure of markets. Introduction to basic legal skills: how to read and understand cases, regulation, and statutes; how to discover the current state of the law in a specific area; and how to take action toward resolution of environmental problems. Students taking the graduate version are expected to explore the subject in greater depth.

The Theory of Participatory Action Research

II.236

Dayna Cunningham
Lawrence Susskind
Tuesday, Thursday 5:00-6:30
9-451

Introduction to the theory of action research and more generally to competing ideas about the uses of social research to promote social

change. Focus will be on the epistemological foundations for action research, knowledge generation in action research, the role of the "friendly outsider," action science and organizational learning, participatory evaluation and arguments for and against phronetic social science. Students will be expected to complete a careful analysis of actual PAR cases.

Sustainable Energy

II.371J

Michael Golay
Tuesday, Thursday 3:00-5:00
32-155

Assessment of current and potential future energy systems. Covers resources, extraction, conversion, and end-use technologies, with emphasis on meeting 21st-century regional and global energy needs in a sustainable manner. Examines various energy technologies in each fuel cycle stage for fossil (oil, gas, synthetic), nuclear (fission and fusion) and renewable (solar, biomass, wind, hydro, and geothermal) energy types, along with storage, transmission, and conservation issues. Emphasizes analysis of energy propositions within an engineering, economic and social context. Students taking graduate version complete additional assignments.

Science, Politics and Environmental Policy

II.373

Susan Solomon
Monday 3:00-6:00
54-842

Examines the role of science in the U.S. environmental policymaking process. Part I examines the methods by which scientists learn about the natural world; the treatment of science by experts, advocates, the media, and the public; and the way science is used in legislative, administrative and judicial decision making. Part II takes up novel approaches to integrating science into politics, such as ecosystem-based management, stakeholder collaboration, local knowledge, adaptive management, and the precautionary principle. Case studies help students compare theory and practice.

Water Planning, Policy and Design

II.378J

James Wescoat
Wednesday 2:00-5:00
5-216

Focuses on water in environmental planning, policy, and design. Draws together faculty and students who are working on water-related research projects to develop and maintain a current perspective on the field from the site to metropolitan and international scales.

Limited to 15.

Malaysia Sustainable Cities Seminar and Practicum

II.384

Lawrence Susskind
TBA
TBA

Introduction to the culture, economics, politics, geography, ecology and history of Malaysia.

A link to the [Report of the 2015 Malaysia Practicum](#). Required preparation for students who will be traveling to the region during the IAP practicum. Applicants for the IAP practicum can be picked up from [Mr. Takeo Kuwabara](#) in 9-330.

Applications for the Malaysia are due by **September 30, 2015**.

Students participating in the IAP practicum will also be required to register for 11.385 (IAP) and 11.386 ([Final Report of the Practicum](#) due before the spring semester begins)

Sustainability, Trade and the Environment

II.466J

Nicholas Ashford
Wednesday 4:00-6:30
E51-376

The Schumpeterian notion of technological innovation as “the engine of growth” is

being challenged as the globalization of trade is increasingly seen as the driving force of industrial economies. With the establishment of the World Trade Organization implementing the GATT, NAFTA, and other trading regimes, serious questions have been raised concerning the effects of global trade on sustainability, which must be viewed broadly to include not only a healthy economic base, but also a sound environment, stable employment, adequate purchasing power, distributional equity, national self-reliance, and maintenance of cultural integrity. Subject explores the many dimensions of sustainability and the use of national, multinational, and international political and legal mechanisms to further sustainable development.

Prerequisites: permission of instructor

Energy and Infrastructure Technologies

II.477J

David Hsu
Tuesday, Thursday 11:00-12:30
9-450A

Examines efforts in developing and advanced nations and regions to create, finance, and regulate

infrastructure from a variety of method-ological and disciplinary perspectives. Explores how an energy crisis can be an opportunity for making fundamental changes to improve col-lapsing infrastructure networks. Introduces the challenges to modern society concerning energy security. Reviews the moral hazard aspects of infrastructure and the common arguments for withholding adequate support to the rebuilding of energy systems. Students taking the graduate version complete additional assignments.

Advanced Seminar in Transportation Finance

II.527

Christopher Zegras
Monday 2:00-4:00
9-450B

Focuses on the theory and practice of transportation system finance, examining the range of relevant topics including basic public finance, politics, institutional structures, externalities, pricing, and the role of advanced technologies. Primarily oriented around land-based, surface transportation, although in their research students are welcome to examine air and maritime modes according to their interests. Explores issues across a range of contexts, including North America, Europe, Latin America, and Asia.

Prerequisites: Permission of Instructor

Introduction to Environmental Policy and Planning

II.601

Lawrence Susskind
Tuesday, Thursday 9:30-11:00
56-167

First subject in the Environmental Policy and Planning sequence. Reviews philosophical debates concerning growth and scarcity vs. deep ecology. Examines the ongoing policy debate concerning “command-and-control” vs. market-oriented approaches to regulation. Considers the debate regarding the importance of expertise vs. indigenous knowledge. Emphasizes environmental planning techniques and strategies. Related topics include the management of sustainability, the politics of ecosystem management, environmental governance and the changing role of civil society, ecological economics, integrated assessment (combining EIA and risk assessment), joint fact finding in science-intensive policy disputes, environmental justice in poor communities of color, and environmental dispute resolution.

Energy Management for a Sustainable Future

II.S195

Harvey Michaels
Tuesday, Thursday 1:00-2:30
56-154

Energy management is a growing segment of the sustainability industry, applying science and business innovations to optimize home and building energy use, incorporating renewable energy and intelligent building-to-grid networks. To address climate change, among our greatest challenges, scientists agree that energy management is the largest single component of an achievable solution. This course explores energy management practice and innovation through: building technologies including systems, analytics and controls, energy/grid economics and policy, strategies: community, social norms, apps and behavior, as well as strategies: management finance and marketing innovations. The skills acquired provide a foundation in this \$25 billion multidisciplinary field for student professional interests, as well as the background to engage in related research and thesis topics.

Prerequisites: advanced **undergraduates** - Junior or Senior