Fall 2009

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The Environmental Policy and Planning Group is a group within the Department of Urban Studies and Planning
School of Architecture and Planning
Massachusetts Institute of Technology

http://web.mit.edu/dusp/epp

Inside This Issue

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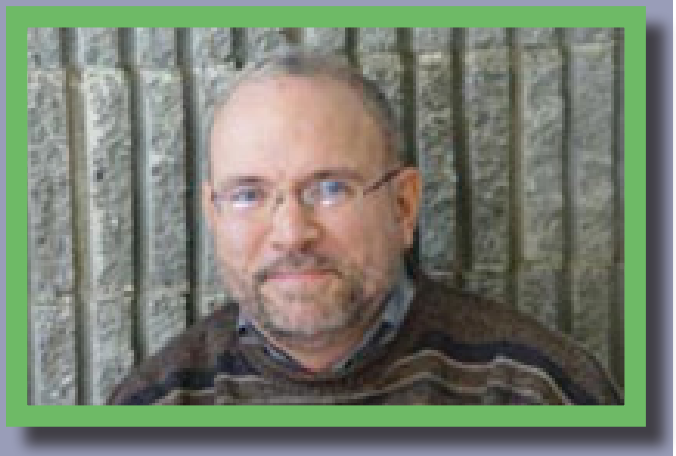
EPP WELCOMES STEWARD PICKETT

by Amanda Martin

This fall, the Environmental Policy and Planning group welcomes Dr. Steward Pickett as a Martin Luther King, Jr. Visiting Professor at DUSP. Dr. Pickett, a Plant Ecologist with the Cary Institute of Ecosystem Studies, brings a wealth of ecological knowledge to the Department.

No stranger to urban issues, Dr. Pickett directs one of the largest projects on urban ecosystems in the United States. The Baltimore Ecosystem Study (BES) is one of two National Science Foundation Long Term Ecological Research Programs that focus on cities. BES engages natural scientists, social scientists, and non-academic partners to develop understandings of material and energy flows through urban systems and the interaction of social and economic structures and ecological systems. As Dr. Pickett describes it, BES conceives of the city as a series of linked ecological and social landscapes, an approach that provides direction for researchers of different disciplines to work together.

During his tenure at DUSP, Dr. Pickett looks forward to interacting with members of the planning discipline. He explains that "the farther you get from your own discipline, the more quickly you get confused, and that can be a good thing." He sees great potential in articulating the linkages between social sciences and ecology and developing vocabularies of "common language" and "common meaning." As an ecologist, he is interested in bringing the discussion of ethics and values that is often more explicit in planning to scientific inquiry. He also sees the significance of bringing perspectives from contemporary ecological research to design and planning. **(cont'd on page 4)**



Alumni Profile

by Sarah Hammitt

Associate Justice James R. Milkey

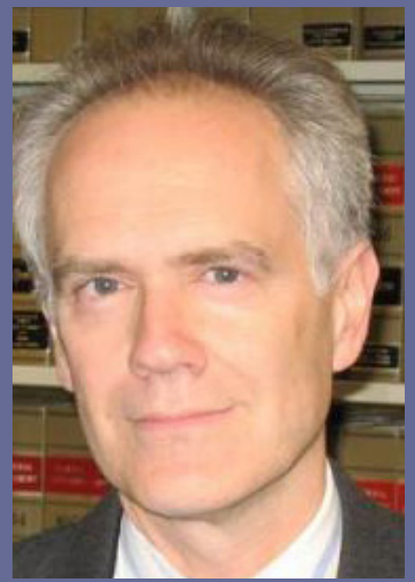
When Justice James Milkey enrolled dually at Harvard Law School and MIT Department of Urban Studies and Planning, he envisioned his career as an urban planner with a law degree. Upon graduating from the programs in 1983, however, equipped with a J.D. and a Master of City Planning, he realized that he was destined to be a lawyer with an urban planning degree.

In 1984, Milkey started a long career at the Massachusetts Attorney General's Office in the Environmental Protection Division. By 1996, Milkey became Chief of the Division. In 2006, in his most notable case to date, Milkey successfully argued on behalf of the state of Massachusetts in Massachusetts v. Environmental Protection Agency, in which the state challenged the agency's refusal to regulate greenhouse gases under the Clean Air Act.

Milkey grew up in Connecticut and New Hampshire and always enjoyed the outdoors. This enjoyment grew into an interest in how people are influenced by and use the environment. His interest in the law grew out of a high school class on using the law and government for social change. In college Milkey worried that a career as a lawyer would be "boring." So he came up with the idea of a joint degree so that he would always be "more than just a lawyer."
Milkey says that the law and city planning programs were "extremely complementary." Harvard is "more of a factory if you will, with large classes and intense pressure to work for big firms." On the other hand, DUSP was an "incredibly supportive environment, with just 40 people in a class full of the most interesting people, and great support to do something different." MIT provided "time away from law school to think about law school differently and be surrounded by people doing all kinds of different, inspiring things."

MIT has influenced his career, Justice Milkey says, in important, but subtle ways. At MIT, he learned "how to think about organizations and institutional interests and to understand how people are influenced by the structural factors that surround them." He found this understanding to be particularly valuable in environmental protection work, which he notes is really about trying to move organizations. "I really do think that made me a more effective advocate for change," he says.

Of course the most significant reward for his time at MIT was his wife, Cathie Martin, '87 MIT Ph.D. in Political Science, whom he met through his DUSP classmate, Kari Moe '82. However, he says, "I carry a deep fondness for my short time at MIT and my classmates, and not simply because I found my wife."



Alumni Profile

by Sarah Hammitt

Andres Flores Montalvo

Andres Flores Montalvo blazed his own path at MIT and accomplished more than most. From 2001-2005, he enrolled in MIT's Technology and Policy Program and earned a Master of Science from MIT's Department of Earth, Atmospheric and Planetary Sciences, or EAPS, (his third Masters degree to date). He also earned a PhD from DUSP. His studies focused on energy, economics atmospheric science, and environmental science. He studied under Nobel Prize winner Mario Molina in EAPS and Larry Susskind, Head of the EPP program and Vice Chair of the Program on Negotiation at Harvard Law School.

In 2005, Montalvo returned to his home country of Mexico and currently works on climate change research policy at the Ministry of the Environment. As Director of Climate Change Research in the independent National Institute of Ecology, Montalvo supervises research on climate change and contributes to negotiations for international policy summits. This year marks Montalvo's fifth year participating in the UN Framework Convention on Climate Change.

Montalvo's interest in the environment evolved from an original interest in economics. Originally from Matamoros, Mexico, a northern border town close to the Gulf of Mexico, Montalvo moved to Mexico City to study at the National University. He earned his B.A. in Economics, then earned a Masters degree in Economics from Monterrey Tech. Still unsatisfied, Montalvo earned a second Masters degree in Environmental Technology from the Imperial College of London. As his research moved into an interdisciplinary mix of air quality, environmental economics, and policy analysis, MIT was a logical next move.
Montalvo was impressed by MIT's "high-caliber professors, the exposure to high-level research, and the facilities." Today he values the analytical skills, the hands-on experience, and the negotiation training that he gained at MIT. His classmates and professors at MIT were from all over the world, which has proven to be an asset as Montalvo travels the globe reporting and negotiating on behalf of Mexico. In addition, his understanding of technical information, though difficult during his time at MIT, has proven useful time and again. What else does Montalvo miss about MIT? Anna's Taqueria!

Montalvo regards planning as critical to cities and countries both mitigating and adapting to impacts of climate change. His goal for Mexico is for his country to take a long-term view, in addition to the short and mid-term, and for climate change to be taken into consideration in every planning decision. Although his current position is influential for decision-making and informing society, Montalvo hopes to move to a position of increasing international responsibility in which he can have more impact on policy making.

PREPARING CITIES FOR CLIMATE CHANGE

by JoAnn Carmin

Whether they are situated in coastal or mountainous areas, in the global north or south, cities throughout the world have begun to experience the effects of climate change. Some cities, for instance, presently are coping with water shortages while others are dealing with storm surges and rising sea levels. Over time, it is anticipated that the emergence of new weather patterns will increase the frequency and intensity of extreme events, put pressure on infrastructure, threaten urban plant and animal life, alter the habitability of many buildings, and stress human and municipal services.

As climatic conditions change, it is increasingly important that urban planners understand how to minimize the impacts that climate change will have on cities and their inhabitants. It is with this goal in mind that Professor JoAnn Carmin has been conducting research and teaching courses in DUSP on urban climate adaptation. With support from the Infrastructure and Extreme Events Program of the National Science Foundation, Professor Carmin is conducting case study and survey research in cities around the world to understand the types of adaptation plans being adopted, factors associated with differences in the approaches urban municipalities are taking toward climate adaptation planning, and the ways that the efforts of nongovernmental and community-based organizations complement, circumvent, and replace government adaptation initiatives. The field research will be initiated over IAP when Professor Carmin and students from DUSP will travel to cities in South Africa and Namibia where they will conduct interviews with elected officials, municipal representatives, and leaders of NGOs.

This spring, EPP will offer a course on urban climate adaptation. The course examines the challenges cities in both developed and developing countries are facing as they seek to promote urban resilience and social equity. Throughout the semester, students learn how to assess urban climate vulnerabilities. Drawing on case studies, examples, and guest lectures, they also examine current developments in adaptation policy and financing and the approaches cities have taken to designing and implementing adaptation programs. The course is anchored in a project that supports the adaptation efforts of urban government agencies.

EPP WELCOMES STEWARD PICKETT

(cont'd from page 1)

This year, Dr. Pickett is revising his 2001 paper, "Urban Ecological Systems: Linking terrestrial ecological, physical, and socioeconomic components of metropolitan areas," published in *The Annual Review of Ecology and Systematics*. Since 2001, the number of disciplines that have contributed research to our understanding of urban ecological systems has multiplied. After adding the perspectives of ecological economics, agent-based spatial analysis, watershed contamination management, and yes, urban planning, the manuscript resembles a tome. Interest is growing in the cross-disciplinary linkages embodied in urban ecological systems, and Dr. Pickett's editor has assured him that there is no page limit for his article. The revised paper will eventually be published in *The Journal of Environmental Management*.

Massachusetts Climate Change Adaptation Project Update

by Evan Paul

Throughout the fall, Evan, Tyler, and a team of four undergraduate UROP students have been conducting interviews of city and state officials and stakeholders as part of a MUSIC project to assess and support climate adaptation planning efforts in Massachusetts. The intention of these efforts is to better understand the state of climate adaptation in Massachusetts, and support adaptation planning over the next few years.

On the heels of a stakeholder engagement project on climate adaptation planning in Maryland last year, Larry met with the Barr Foundation last Spring and Summer to ask for their support in bringing the lessons learned to Massachusetts. After an initial kick-off presentation on September 18th, Evan and Tyler developed a project workplan, selected UROP interns, and began interviewing various people to get background on adaptation efforts to date. Evan and Tyler also worked early on with Larry to develop an outline for an interim report summarizing this fall's work to be published at the end of the fall semester. Our Field Research Team now consists of Evan Paul (MCP, '10), Tyler Corson-Rikert (MCP, '11), Cristen Chinea (Undergrad Architecture, '10), Susan Schwartz (Wellesley, Undergrad Economics, '11), Jessica Agatstein (Undergrad DUSP, '12), and Fioni Cheung (Undergrad Civil And Environmental Eng, '12).

In late September, the team began reviewing existing literature on the climate change risks facing MA and writing summaries of the potential impacts in 20 of the 39 cities in Massachusetts. We have focused particulary on five case study cities - Fall River, New Bedford, Gloucester, Lynn, and Boston. Stakeholders have included elected officials, planners, Chambers of Commerce, environmental NGOs, real estate interests, and academics. Additionally, the team has compiled images and maps to use to visually explain the vulnerabilities and prospects for adaptation in each place. Tyler has been coordinating his Boston outreach efforts with MUSIC's Cities and Climate Change team who is also working in Boston.

The project is going well and we have written drafts of nearly all of the impact summaries and case studies. We are still compiling the results, but some of our preliminary findings are quite interesting. It seems as though the cities thinking the most about adaptation are the cities that have done the most on climate mitigation, not necessarily those most at risk from climate impacts. Short-term priorities such as reducing crime and increasing employment are, understandably, capturing the attention of many policy-makers. Development in at-risk areas is still proceeding.

The team has been meeting weekly to compare lessons learned and sketch plans for next spring. Both Boston and Cambridge are organizing their own climate adaptation efforts and several MUSIC students may be involved. We are also anxiously awaiting publication of the state's adaptation plan (scheduled to be relesed at the beginning of the new year). This will help us identify areas where MUSIC might add value in supporting adaptation planning in the next few years.

Evan has begun conversations with Pat Field at the Consensus Building Institute about using the research from the report to develop teaching materials that can be used as part of local trainings on climate adaptation planning. CBI and the Lincoln Institute for Land Policy held the first such training on October 29th and 30th. This three day short course for public officials and community leaders utilized the Maryland Climate Adaptation negotiation simulation developed by Evan Paul and Nathan Lemphers last year. That game (based on our work in Maryland) enabled people to learn a lot about climate adaptation planning very quickly. However, it was clear that several smaller exercises – on framing, stakeholder identification, scenario-based planning, multi-stakeholder negotiation – would also be helpful. Evan, Tyler, and Larry will be working with CBI throughout the spring to create these new teaching tools.

Boston: The Future 100-Year Flood under the Higher-Emissions Scenario

ENERGY STUDIES IN DUSP

by Larry Susskind

The MIT Energy Initiative (MITEI) has attracted many millions of dollars of research funding (from industry and government) over the past few years. A new undergraduate Energy Minor was approved last year. MITEI has invested in various educational initiatives, including the development of a new undergraduate course on the Politics of Energy and Environment in DUSP, Harvey Michaels' work on energy efficiency and Jonathan Raab's energy policy class. MIT undergraduates and graduate students can now choose among more than three dozen subjects offered across the campus dealing with different sourcesof energy, the scientific and engineering foundations of energy, and some of the social science and business questions that surround energy policy-making.

DUSP specializes in the environmental and social impacts of energy policy choices including strategies for promoting energy efficiency, ways of increasing our reliance on renewable energy (particularly wind), the difficulties of national and regional energy policy-making, obstacles to the siting of energy infrastructure, new approaches to green job creation, ways of minimizing the climate change impacts of energy development, and the interplay between energy supply, urban design and energy demand. Harvey Michaels offers 11.168/11.379 Enabling An Energy Efficient Society; Jonathan Raab offers 11.369 Energy Policy for a Sustainable Future; Karen Polenske offers 11.165J/11.477 Infrastructure in Crisis: Energy and Security Challenges; Larry Susskind covers Energy Facility Siting in his 11.255 Negotiation and Dispute Resolution in the Public Sector class; and JoAnn Carmin covers aspects of energy and climate change in 11.951 Urban Climate Adaptation as does Herman Karl in 11.375 Sustainability in a Changing Climate. Judy Layzer covers the Politics of Energy and Environment (11.162). This spring, Larry Susskind will offer a project-based class (11.948 The Social and Environmental Impacts of Tar Sands Development in Western Canada). DUSP cross-lists Michael Golay's Sustainable Energy (11.371J), Fred Salvucci's Transportation Policy and Environmental Limits (11.543J), and Nic Ashford's 11.021J/11.630J Environment Law, Policy and Economics: Pollution Prevention and Control and 11.022J/11.631J Regulation of Chemical, Radiation, and Biotechnology.

A variety of urban design classes and studios look at the effects of energy development on city form as well as the ways in which city design can enhance energy efficiency. Almost all of these classes are offered under the auspices of Environmental Policy and Planning (EPP).

Phil Thompson is heavily involved in green job creation (as it relates to energy development) and Amy Glasmeier is building DUSP's research portfolio as it relates to the impact of energy development on various populations (particularly in poorer areas of the country).

As we look ahead, EPP will be trying to (1) emphasize ways of reducing the risks associated with fossil-fuel induced climate change through adaptation (of infrastructure and land use planning); (2) enhancing energy efficiency through urban design and demand side innovation ; (3) ensuring greater reliance on renewable energy sources (i.e. through 20-20 programs at the state level that seek to generate 20% of electricity supply from renewable sources by 2020); and (4) reducing the environmentalimpacts of energy development through green technology innovation, particularly in the developing world, and new approaches to urban sustainability.

Do You Support a New Undergraduate Minor and a New Certificate Of Advanced Gradauate Study in Environment and Sustainability?

by Larry Susskind

The MIT Faculty Environmental Network for Sustainability (FENS) -- more than 100 faculty members from every part of the Institute -- is proposing an undergraduate Minor in Environment and Sustainability and a Certificate of Advanced Graduate study in Environment and Sustainability. The goal of both campus-wide programs is to make it easier for MIT students in any department to pursue interdisciplinary environmentaland sustainability studies and to integrate the many courses scattered across the Institute. See web.mit.edu/fens for all the details.

Both programs, if adopted by the relevant MIT committees and voted on by the full MIT faculty this spring, will create new "core subjects" and organize a range of sub-specialties (like "urban sustainability," "water resources," "climate change and global change science," "marine resources," "transportation and the environment," "design and management of sustainable systems," "law and political processes," and "environment, history and culture") that weave together existing subjects. The FENS is also proposing to create a campus-wide Environment and Sustainability Council, appointed by the Deans in the five schools and Woods Hole Oceanographic Institute, to administer the Minor and the Certificate.

You'd think that everyone at MIT would be pleased The student-run Sustainability@MIT recently released the results of a questionnaire (returned by 437 graduate students and 251 undergraduates). Almost 40% of both groups reported that "program restrictions" (i.e. prerequisites) and schedule conflicts made it difficult for them to pursue their interest in sustainability. Better than 60% of the undergraduate respondents indicated that they would be interested in enrolling in the proposed undergraduate Minor. More than one-third of the graduate respondents indicated that they had a core interest or a strong interest in taking sustainability courses at MIT. The key sub-specializations of greatest interest are "sustainable energy and energy efficiency," "urban sustainability," "business and sustainability," "green technology," and international sustainable development." So, will the proposed programs be approved? It's no slam dunk.

Some departments are worried that the new programs might compete with majors and minors
they already offer. Some in the Institute are concerned that the new minor might draw students away from the recently approved Energy Minor. At least a few faculty are suspicious of all campus-wide interdisciplinary programs of study (that don't require students to go deeply enough into a single department or field). Finally, MIT doesn't have a history of interdisciplinary graduate or undergraduate programs administered by more than one or two schools.

We're estimating that as many as 80 undergraduates and 50 graduate students will apply for the Minor and the Certificate. The new campus-wide Council will make sure that students writing a thesis or a dissertation can find an additional faculty advisor from outside their home department to help them add an environmental or sustainability dimension to their work.

The FENS is asking the MIT administration to provide funds, even in this difficult financial climate, for two new campus-wide faculty appointments to help fill gaps in the teaching
resources currently available at the Institute. We are hoping that alumni donors who realize the importance of the Minor and the Certificate will want the Institute to apply their gifts to support these appointments.

Students have an opportunity to express their views on the proposed Minor and Certificate by going to the FENS web site (web.mit.edu/fens) and posting their comments on the FENS Forum.

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by Herman Karl

USGS Team Reviews MUSIC

The five-year cooperative agreement between MIT and USGS that established MUSIC in 2004 ended August 31, 2009. Other USGS/university science impact centers were established at the same time as MUSIC. With the termination of all the cooperative agreements, USGS is conducting a strategic review of the science impact centers before renewing multi-year agreements. However, so that we could admit new MUSIC interns in September 2009, a conditional year-by-year agreement was signed and funds for the academic year 2009-2010 transferred from USGS to MIT. USGS and other federal agencies have invested more than 2 million dollars in MUSIC over the past five years. The USGS team is evaluating the return on that investment and how MUSIC might evolve to align more effectively with the nascent USGS Science, Decisions, Policy—Sustainability office and the USGS strategic science plan. The USGS team reviewed MUSIC November 19 and 20 and will announce their findings and recommendations by the time this newsletter is published.

NEWS

MUSIC Assistant Director **Juan Carlos Vargas-Moreno** has been selected as one of the "40 emerging leaders under 40 years old of Costa Rica." This selection is conducted annually by expert nominations and developed by El Financiero, Costa Rica's top business, technology and development newspaper. Congratulations, Juan Carlos!

P. Lynn Scarlett, former Deputy Secretary of the Department of the Interior, will co-teach 11.375, "Sustainability in a Changing Climate," with MUSIC Co-Director Herman Karl spring 2010. This seminar will explore the challenges for scientists, politicians, planners, managers, and people to develop and implement new processes and institutions to inform decisions in a changing climate. In the seminar students will discuss relevant theoretical ideas, but the foundation of the seminar is that of a problem-solving workshop based on experiential learning and practice.

MUSIC Interns and Affiliates

MUSIC welcomed four new MCP interns in September—**Deborah Lightman, Stephen Lloyd, Amanda Martin, and Tyler Corson-Rickett**. The number of applicants to EPP specifically requesting to work with MUSIC significantly increased over previous years. Selecting the four awardees for internships was especially challenging with so many outstanding applicants. We are very pleased to have Deborah, Stephen, Amanda, and Tyler working with us. Deborah is working with Tijs Van Maasakkers on the Atchafalaya

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project. Stephen is working on the Everglades project. Amanda is working on the Communities and Climate Change project. Tyler is working on the Massachusetts Climate Change Adaptation project. Our five returning second year interns are **Linda Cielsielski, Kim Foltz, Sarah Hammitt, Chris Horne, and Evan Paul.** Linda and Chris are working on the Everglades project. Kim is working with Prof. Judy Layzer on her Urban Sustainability project. Sarah is working on the Communities and Climate Change project. Evan is working on the Massachusetts Climate Change Adaptation project.

Eric Mackres, Wietske Medema, Holly Moeller, Vanessa Ng, Noah Raford, and Shoko Takemoto are MUSIC affiliates volunteering to work on MUSIC projects. Vanessa, Shoko, and Eric are MCP students. Vanessa and Holly, a WHOI doctoral student, are working on the Everglades project. Shoko and Eric are working on the Communities and Climate Change project. Wietske is a Dutch national living in the U.S. She is working on the Communities and Climate Change project; we are hoping to obtain postdoctoral research funding for her. Noah is an MIT doctoral student supervised by Prof. Mike Flaxman. Noah is conducting research in Broward County, Florida as part of the Everglades and Communities and Climate Change projects.

MUSIC PhD Students

Todd Schenk is beginning his first year as a MUSIC doctoral student. Todd is working with the Communities and Climate Change project. Todd won an MIT Presidential Award and is being supported by TNO, the Netherlands applied science organization, and USGS. **Tijs Van Maasakkers** is continuing has research on the Atchafalaya Basin in Louisiana. TNO and USGS are also supporting Tijs. Tijs has secured a grant from the Audubon Society to develop a role-play simulation as part of his research. **Beaudry Kock** is finishing his research developing an agent based simulation model in the Arkansas Basin, Colorado. He has begun writing his dissertation and expects to graduate in May 2010. We are hoping that Beaudry will be able to get postdoctoral research associate funding to work on the Communities and Climate Change project.

MUSIC Scholars-in-Residence

Eduardo Perez-Molina is one of the MIT-USGS Science Impact Collaborative Researchers-in-Residence for the Fall term and has been, since 2006, an Associate at the Research Program for Sustainable Urban Development, University of Costa Rica. As such, he participated in municipal regulations formulation in Costa Rica and in the urbanism and housing analysis for the proposed Regional Plan for the San Jose Metropolitan Region. His in a Civil Engineer and land use/transportation researcher from University of Costa RIca. His main research interests center on the environmental impacts of urban systems, with particular emphasis on transportation, and urban economics applied to housing and urban development.

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MUSIC Projects

Everglades Restoration—Addressing the Challenge of Climate Change Through Strategic Habitat Conservation: A Stakeholder-based Approach

The project is an applied research effort that aims to explore comprehensively some of the most important challenges climate change imposes on conservation planning efforts in the Greater Everglades Ecosystem through a systematic understanding of regional landscape dynamics, including urbanization, hydrology, and policy changes, this project will help inform future strategic habitat conservation (SHC). Overall, the project has two primary approaches: 1) Stakeholder-Based & Participatory: In cooperation with a wide range of collaborators from different sectors (scenario team), understand the major challenges, and the possible actions affecting Southern Florida and its adaptation and mitigation capabilities to climate change. 2) Scenario-Based Planning and Exploration: Recognizing that there is not one-master plan that could address climate change, MIT proposes a scenario-based approach, where scenarios are employed as tools for collaboration and exploration among interested parties. The latest efforts of the project team has been to create a series of spatially explicit computer models which based on the input from several previously conducted stakeholders workshop simulate a range of possibilities for attractiveness and allocation of urban and conservation land uses. These models will allow us to represent the different land use arrangements under different assumptions and variables for each of the top nine future climate change and regional land use scenarios. Simulation models results will be revise and further develop with the project core stakeholder group in a workshop at the end of January 2010.

Communities and Climate Change

MUSIC has established an international partnership to conduct research on the vulnerability and resiliency of communities to the impacts of changing climate. The intent is to develop and implement climate change adaptation plans. Principal partners are the Dutch applied science organization, TNO, the Dutch Bureau of Environmental Assessment, the University of Amsterdam, the French environmental organization, Cemagref, the non-profit Battelle, and the U.S. Army Corps' Engineer Research and Development Center. The inaugural communities are Boston, MA, Broward County, FL, Amsterdam, the Netherlands, Montepelier, France. This research addresses two fundamental questions: how does climate change influence vulnerability of a community as a system (social, ecological, and economic) and how can interventions (adaptation strategies) be developed in order to reduce vulnerability? How can adaptive processes and strategies help to make cities more resilient to climate change? The underlying premise of this project is that collective action, at all scales and levels of society, is needed to address the impacts of climate change to achieve sustainable societies and ecosystems, because current decision making processes and institutions are not adequate to deal with changing climate.

The Massachusetts Climate Change Adaptation Project

MUSIC is working with a number of NGOs in Massachusetts to increase public awareness of the risks associated with climate change and the need to reduce the vulnerability and enhance the resilience of coastal communities through adaptation planning. MUSIC seeks to engage public officials, corporate leaders, environmental action groups and neighborhood advocates in the assessment of climate change risks and the implementation of risk management strategies. We are particularly concerned about the disproportionate impacts that poor communities and communities of color are likely to experience as a result of sea level rise, storm intensification, coastal erosion, changes in precipitation patterns, creation of heat islands, and threats to infrastructure, water supplies and endangered habitats. MUSIC emphasizes the creation of role-play simulations, scenario casting and joint fact-finding to identify "no-regrets" investments and policy shifts.

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Assessing Costa Rica's Metropolitan Area Carbon Neutral Futures

Given the current Costa Rican public policy goal of achieving carbon neutrality by 2021, the project will estimate the net CO2 emissions contribution of the urban region of San Jose, the capital city and main urban agglomeration in the country. This research investigates carbon dynamics (emissions and sinking) under different set of scenarios that represent a range of future conditions, depending on the outcome of different and often conflicting trends and policies. The scenarios will be spatially explicit in order to better assess the environmental focus of diverse actions. Basic relationships between transportation, land use change, and energy demand will be developed. These will be used to simulate the combined possible results of trends, restrictions, and investments that guide urban development in the region. Specifically, the proposed regional "Plan PRUGAM" will be broken down and used as a basis for future expected emission estimates, depending on partial fulfillment of policy goals and underlying tendencies. On this basis, CO2 emission estimates will be computed. Different estimates will be thus linked to specific scenarios determined by policy attainment, as defined by the achievement of goals identified in the regional plan, as well as trends and physical realities of San Jose.

Assessing Ecosystem Sustainability and Vulnerability to Climate Change in the Lower Mississippi Valley

MUSIC is conducting research to assess the potential impacts of changing climate on the trust resources and endangered species -- as well as the sustainability and vulnerability of the ecosystems that support them -- in the Lower Mississippi Valley (LMV). One question we address is, "When most land is privately owned, how can conservation practices at the landscape-scale be implemented?" This is a continuation of our on-going efforts to examine more effective ways of integrating federal and state resource planning efforts that begin with different, but overlapping, geographically-defined boundaries.

Agent-based Modeling for the Lower Arkansas

The build up of salt on agricultural land is a problem faced globally. It threatens food supplies, riparian and aquatic ecosystems, and the broader sustainability of large water systems where irrigated agriculture and domestic supply are closely linked. The lower Arkansas Basin in Colorado provides a case study for our project, which studies the potential for institutional solutions to address the problem of salinization. We have developed a computer model that simulates the decision making of key stakeholders in basin water use and management, as well as the flows of water in the basin and the evolution of salinity in surface and ground water over time. The model has been developed through work with a range of stakeholders in the basin, via collaborative modeling workshops, and individual interviews and online surveys. We are using the model to explore whether one particular institutional solution – a water quality trading market – might be effective in reducing salinity over time, and whether its effectiveness is sensitive to the model's assumptions regarding water user behavior. By applying this model, we hope to help the lower Arkansas Basin community explore alternative solutions for salinization, as well as contributing to the wider literature by going considerably beyond traditional economic models of water use.

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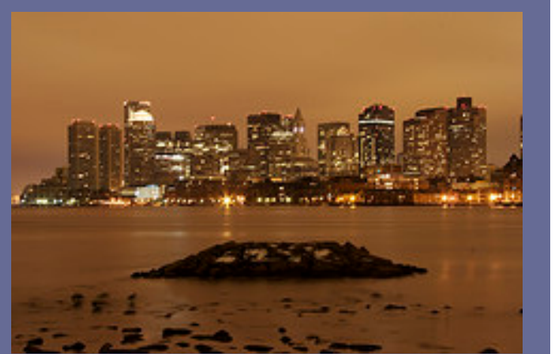
Collaborating with the National Audubon Society to develop negotiation exercise for the Atchafalaya Basin

The Atchafalaya Basin is the largest contiguous cypress-tupelo swamp in the United States and also an important distributary of the Mississippi River. After the completion of the Old River Control Structure in 1973, changes in the flow of the Atchafalaya River led to significant disruptions in environmental processes within the Basin. This led to conflicts over how to manage and restore wetlands. These conflicts are ongoing since the 1980's, and after hurricanes Katrina and Rita the importance of coastal wetlands have moved close to the top of the political agenda. As a sediment-carrying river, the Atchafalaya plays a key role in wetland creation in the Gulf of Mexico. The wide variety of competing interests has complicated effective decision-making and planning for the last three decades. The role-play simulation (RPS) we are developing will provide a tool for involving large numbers of stakeholders in mock decision-making exercises, teaching the advantages of collaboration.

Urban Sustainability (Prof. Judy Lazyer)
(Although this is not a project under the auspices of MUSIC, Kim Foltz is working with Prof. Judy Layzer as an experiment in cross learning in EPP.)

As a result of rapid urbanization, planners have begun to focus on cities as critical battlegrounds in the fight for sustainability. More than 825 U.S. mayors have signed the Mayors' Climate Agreement, which commits them to pursuing the Kyoto Protocol goal of reducing carbon dioxide (CO_2) emissions 7 percent below 1990 levels by 2012. To achieve this goal, cities have instituted a variety of policies and practices. But will cities' efforts succeed in actually reducing Americans' carbon footprint? This project seeks to understand the extent to which efforts by cities to reduce their consumption of carbon-based energy and achieve other sustainability benchmarks are successful. In other words, how effective are US urban policies at getting institutions and residents—and the city overall—to consume less energy, pollute less, conserve more resources, etc.?



Volume XVII Of Papers On International Environmental Negotiation -- On The Road To Copenhagen -- Released

Every year for the past seventeen years, a new volume in the Papers on International Environmental Negotiation series has been published by the Program on Negotiation at Harvard Law School. These volumes present the best papers produced by graduate students from MIT, Harvard and Tufts enrolled each year in 11.364 International Environmental Negotiation. This year, students were asked to use what they were learning in the class taught by Professors William Moomaw (Tufts Fletcher School of Diplomacy) and Larry Susskind (DUSP/EPP) to imagine a more effective global climate change regime. A collection of the best papers from the first ten volumes appeared as Transboundary Environmental Negotiations (Jossey-Bass, 2002). More than a half dozen 11.364 alumni are currently on national delegations (from five different countries) that will be heading to the upcoming climate change treaty negotiations in Denmark.

The papers cover possible strategies for inducing North-South cooperation, offer step-by-step approaches to setting more ambitious greenhouse gas reduction targets, sketch new administrative arrangements for encouraging technology sharing and increasing development assistance, and suggest new roles for non-governmental interests (NGIs).

Authors include:

Mukhtar Amin, Fletcher School of Law and Diplomacy, Tufts University
Post-Kyoto Climate Change Negotiations: The View from the Coalition of One Hundred

Alejandra Maupome Cagigal, Harvard Law School and Diego F. Osorio, Harvard Kennedy School of Government
Revamping the Institutional Framework of CDM

Justin Ginnetti, Fletcher School of Law and Diplomacy, Tufts University
Looking Beyond Kyoto: A Vision for 2050 – And How to Get There

Kyle Glover, Fletcher School of Law and Diplomacy, Tufts University
Pathway, Not Stopgap: Climate as a Down Payment on Sustainable Development

Ines Kapphan, Fletcher School of Law and Diplomacy, Tufts University
A Framework Proposal for a post-2012 Copenhagen Protocol – How to Reach 80% Reduction by 2062

Kwanbo Kim, Catholic University of Korea
The Role of NAMAs in Developing Countries: Including a Registry and Carbon Credit Permits in the New Copenhagen Protocol

Megan Samenfeld-Specht, Fletcher School of Law and Diplomacy, Tufts University
Strengthening the Kyoto Protocol: Accountability, Monitoring and Enforcement

William Smith, Tufts University
Forest Protection and Regeneration in the Post-Kyoto Era

Alexandra Zamecnik, Fletcher School of Law and Diplomacy, Tufts University
From Kyoto to Copenhagen: Breaking Down Barriers Between the North and the South

They are searching for ways to shake up "the system." They are optimistic, and their proposals deserve attention.

Free downloads of individual papers published in Volumes XV - XVII are available from the Program on Negotiation Clearinghouse (www.pon.harvard.edu).

PhD Profiles

compiled by Todd Schenk

Isabelle Anguelovski is working on finishing her dissertation fieldwork this fall in Barcelona, Boston, and La Habana. She is looking at communities of color and low-income communities organizing and mobilizing to improve the long term environmental quality and livability of their neighborhoods. She is particularly interested in understanding the extent to which communities use environment and health projects to achieve broader social and political goals in the city and how their strategies and tactics are impacted by differences in political systems and histories of urbanization.

Kathy Araujo is the graduate student TA for the Environmental Policy and Planning core course this (fall) semester and is helping to design a course called Projects in Energy for the spring semester. She is also part of a team working to bring wind power to campus, and has been supporting Institute curriculum and research development initiatives.

Catherine Ashcraft is teaching in the Environmental Studies and Government Departments at Colby College in Waterville, Maine. She plans to finish her PhD this year and apply for tenure-track positions.

Beaudry Kock is currently finishing up his agent-based model of water use and management in southeastern Colorado, and hopes to soon be running simulations leading to the completion of his dissertation.

Nah Yoon Shin will be presenting her first year paper research on 'Resolving Environmental Disputes at American Bases Overseas' at the Urban Affairs Association's 40th Conference, "Sustaining Cities in a Time of Globalization: Social, Economic and Political Realities" in March.

Todd Schenk is adjusting to life in the PhD program, sorting out his first year paper proposal, which will focus on the notion of representation in climate change adaptation planning, and working with the nascent MUSIC Cities and Climate Change project. Todd also continues to work on campus food and sustainability issues via the Food Initiative and Sustainability@MIT.

Alexis Schulman is preparing a manuscript based on her Masters thesis and first year paper research on local ecological knowledge and resource management science.

Abby Spinak is enjoying the post-exams freedom to research all sorts of new and exciting things, and is working on pinning down one of the - depending on the week - three to ten topics she's seriously considering pursuing as a doctoral thesis. She plans to have less evasive and more coherent things to say at her colloquium, and hopes all of you will come.

Student Awards and Recognitions

Isabelle Anguelovski won the Harold Horowitz Award.

Chris Horne was awarded the Charles Abrams Scholarship Award from the American Planning Association.This represents the second year in a row, and the sixth time in nine years, that an MIT student has won the award.

Melissa Haeffner won a grant from the Council of Arts for her photo exhibit of my summer research in Ghana that will take place in the Rotch Library throughout the month of April.