

Evidence to Action



**PROMOTING GLOBAL DEVELOPMENT
IN A CHANGING CLIMATE**

April 25, 2013 • Berkeley, California



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Book design by Blu Nordgren. Cover photo: “Bangladesh shrimp fry collection” by Oxfam GB / International. Inside cover: “Drying rice and hired jeepney in field site” by Peter Srouji. p4 Daniel Kahn, p6 Silvia Prina, p8 Aude Guerrucci, p9 Glenna Gordon.

SESSION ONE

1:00pm – 1:15pm	Welcome Temina Madon (Executive Director, CEGA) and Mary Ann Bates (Policy Manager, J-PAL)
1:15pm – 1:30pm	Quantifying the Impact of Climate on Human Conflict Marshall Burke (UC Berkeley) and Edward Miguel (UC Berkeley, CEGA, J-PAL)
1:30pm – 1:45pm	Energy Consumption Trends in Developing Countries Paul Gertler (UC Berkeley, CEGA, J-PAL)
1:45pm – 2:10pm	Impact of Stress-Tolerant Rice on Farmer Welfare in India Elisabeth Sadoulet (UC Berkeley, CEGA)
2:10pm – 2:30pm	Environmental Investments on Private Land: Planting Trees in Chipata Paulina Oliva (UC Santa Barbara, CEGA)
2:30pm – 2:35pm	Winners of the Climate Change Research Challenge Carson Christiano (Partnerships Manager, CEGA)
2:35pm – 3:00pm	Coffee Break

AGENDA

SESSION TWO

3:00pm – 3:10pm	Rich Lyons (Bank of America Dean, Haas School of Business), Introduction to Session II
3:10pm – 3:40pm	Keynote Address Tom Steyer (Co-Founding Director, Next Generation)
3:40pm – 4:00pm	Willingness to Pay for “Clean Tech” in Kenya and India Eric Brewer (UC Berkeley, CEGA) and Catherine Wolfram (UC Berkeley, CEGA)
4:00pm – 4:40pm	Making Environmental Regulation Effective: Experimental Evidence from India Michael Greenstone (MIT, J-PAL) with Hardik Shah (Member Secretary, Gujarat Pollution Control Board)
4:40pm – 5:20pm	Behavioral Response to an Appliance Replacement Program in Mexico Lucas Davis (UC Berkeley, CEGA) with Veronica Irastorza (Former Subsecretary at SENER, Mexican Energy Ministry)
5:20pm	Closing Remarks Craig McIntosh (UC San Diego, CEGA, J-PAL)



WELCOME TO EVIDENCE TO ACTION: PROMOTING
GLOBAL DEVELOPMENT IN A CHANGING CLIMATE

Welcome to the fourth annual research symposium of the Center for Effective Global Action (CEGA). This year's symposium is co-sponsored with the Abdul Latif Jameel Poverty Action Lab (J-PAL) and the Energy Institute at Haas (EI@Haas).

Our program explores the critical nexus of economic development and climate change. The challenges are complex: Global temperature changes can exacerbate food insecurity and human conflict, undermining economic growth in less developed countries. At the same time, poverty reduction is rapidly increasing the demand for energy, which promises to accelerate carbon emissions and environmental pollution. How do we address the tensions between climate, environment, and global development?

This symposium is motivated by the recognition that there is too little rigorous evidence regarding the true impacts, costs, and benefits of various policy and technological solutions to climate change. Our affiliated researchers are working to change that. Today you will hear about a series of experiments revealing what works in terms of climate change adaptation and mitigation, what doesn't work, and why. Rigorous impact evaluations like these are transforming the knowledge base and, as you will see today, generating evidence that is already transforming public policy.

Tackling climate change in low-income countries is not a job for academics, policymakers, or the private sector alone. Rather, a synergistic approach is needed to understand the issues and address the challenges facing individuals, communities, industries, and governments. Today's symposium will build a foundation for future research and policy action in this area.

We welcome your comments online at <http://cegablog.org/2013/04/11/evidence-to-action/>

Best Regards,

Michael Greenstone (J-PAL), Ted Miguel (CEGA and J-PAL), and Catherine Wolfram (CEGA and EI@Haas)

ABOUT CEGA



The Center for Effective Global Action (CEGA) is the University of California's premier center for research on global development, with a network of forty faculty extending to Stanford and the University of Washington. CEGA's affiliates use randomized controlled trials and other, quasi-experimental methods to measure the impacts of large-scale social and economic development programs. CEGA is truly inter-disciplinary, integrating business and economic approaches with expertise in agriculture, public health, engineering, education, and the environment.

INNOVATION

To effectively tackle poverty, donors and governments need to know which policies improve economic and social welfare. CEGA works with global funding agencies to develop research challenge initiatives designed to draw researchers into neglected areas of study, thus generating evidence to guide NGOs and governments in creating more effective policy.

COLLABORATION

CEGA is committed to empowering researchers in developing countries and building the capacity of local institutions to undertake rigorous evaluations. CEGA's portfolio of leadership and training programs is conceived and established in partnership with developing country universities and global implementation partners.

IMPACT

To effect social change, evidence must be transformed into better policies and programs. Toward this end, CEGA maintains strong relationships with public and private sector allies committed to evidence-driven development, and incentivizes the scale-up of proven interventions through targeted outreach to NGOs, governments, and foundations.



ABOUT J-PAL

The Abdul Latif Jameel Poverty Action Lab (J-PAL) was established in 2003 as a research center at the Economics Department at the Massachusetts Institute of Technology. Since then, it has grown into a global network of over seventy researchers who use randomized evaluations to answer critical policy questions in the fight against poverty. J-PAL's mission is to reduce poverty by ensuring that policy is based on scientific evidence and research is translated into action. We do this through three main activities:

CONDUCTING RIGOROUS IMPACT EVALUATIONS

J-PAL researchers conduct randomized evaluations to test and improve the effectiveness of programs and policies aimed at reducing poverty. Our work spans several program areas: agriculture, education, environment and energy, finance, health, governance, and youth and labor markets.

POLICY OUTREACH

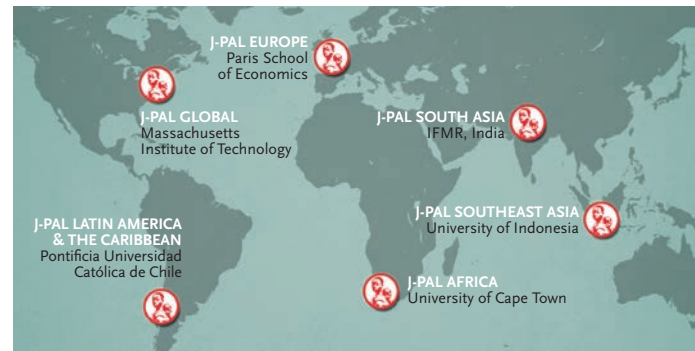
J-PAL's policy group analyzes and disseminates research results, and builds partnerships with policymakers to ensure policy is driven by evidence and effective programs are scaled up.

CAPACITY BUILDING

J-PAL equips practitioners with the expertise to carry out their own rigorous evaluations through training courses and joint research projects.

J-PAL'S ENVIRONMENT & ENERGY PROGRAM

Too many energy and environmental policies are chosen without knowledge of their costs and benefits because reliable information on their causal impacts does not exist. J-PAL's affiliated professors are conducting randomized evaluations to rigorously measure the impact of innovative solutions to the climate, environment, and energy challenges that confront developing countries. Some examples of these evaluations by J-PAL affiliates include: testing the effectiveness of payments for ecosystem services to enhance conservation in Uganda; measuring the effects of clean cookstoves on health and the environment; and investigating improvements to auditing systems for pollution regulation in India.



J-PAL has over 360 completed and ongoing randomized evaluations conducted in 52 countries by our 76 affiliated professors.

ENERGY INSTITUTE AT HAAS

The Energy Institute at Haas (EI@Haas) brings together research and curricular programs on energy business, policy, and technology commercialization. The goal of EI@Haas is to bridge the gap between the frontiers of economic and scientific energy research and the marketplace. Specifically, EI@Haas:

- Trains the business and policy leaders of tomorrow to understand the market, policy, and technological challenges of the energy industries
- Strives to ensure that energy and environmental policy is based on sound economic and business principles, backed by rigorous empirical evidence and the frontiers of economic research
- Works with scientists to commercialize promising energy technologies, being mindful of the unique scientific and policy issues they will confront

EI@Haas recently launched a joint initiative with a partner organization at MIT, the Center for Energy and Environmental Policy Research. The initiative, The Eze Project, studies energy use and energy efficiency by uniting top researchers who are using transparent and state-of-the-art analytical techniques, including randomized controlled trials.





SPEAKERS



Mary Ann Bates is a Policy Manager in J-PAL's Global office. She is the lead staff for the Environment and Energy Program, where she works with J-PAL's affiliated professors to promote more randomized evaluations in that field and to disseminate the resulting policy lessons to answer questions at the intersection of environment, energy, and poverty reduction. Bates leads J-PAL's work in creating publications that help communicate policy lessons from J-PAL's evaluations to policymakers. She holds a Master of Public Policy from the Goldman School of Public Policy at UC Berkeley. She will deliver the opening remarks for today's event with Temina Madon.



Eric Brewer is a Professor of Computer Science at UC Berkeley and an affiliate of CEGA. Brewer develops novel technologies for development, including the design of low-cost communications and power infrastructure for the rural poor. The World Economic Forum named Brewer a "Global Leader for Tomorrow" and Technology Review has cited him as one of the top 100 most influential people for the 21st century. He is currently involved in the rigorous evaluation of solar microgrid deployments in East Africa and India. Professor Brewer will present his work on "Willingness to Pay for "Clean Tech" in Kenya and India" with Catherine Wolfram.



Marshall Burke is a PhD candidate in the Agricultural and Resource Economics Department at UC Berkeley. He studies the impacts of climate on a range of social outcomes, including agricultural productivity, disease, and conflict. He has conducted extensive fieldwork on the microeconomics of development in Africa. Burke will present his recent work with Edward Miguel on "Quantifying the Effect of Climate Change on Human Conflict."



Lucas Davis is Associate Professor of Economic Analysis and Policy at the Haas School of Business. He is an affiliate of CEGA and the Energy Institute at Haas. Prior to joining Haas in 2009, he was an Assistant Professor of Economics at the University of Michigan. His research focuses on energy and environmental markets, and in particular, on electricity and natural gas regulation; pricing in competitive and non-competitive markets; and the economic and business impacts of environmental policy. His work appears in leading academic journals including the *American Economic Review*, the *RAND Journal of Economics*, and the *Journal of Political Economy*. Davis will present his work with Paul Gertler, "Energy Efficiency: An Unexpected Behavioral Response," to document the cost-effectiveness of an appliance subsidy program in Mexico.



Paul Gertler is the Li Ka Shing Distinguished Professor of Economics at the Haas School of Business and the School of Public Health at UC Berkeley. He is a co-founding member of CEGA, affiliate of J-PAL, and director of the Clausen Center for International Business and Policy at Haas. Gertler's research explores health, childhood development, microfinance, and energy use in developing countries. He has conducted field research on healthcare payment systems in Rwanda, conditional cash transfers in Mexico, aging in Bangladesh, and contraception and fertility in Indonesia. He will present his work with Catherine Wolfram on "Energy Consumption Trends in Developing Countries," which highlights the role of the world's poor in driving medium-run growth in energy consumption.



Veronica Irastorza is a Center for Environmental Public Policy (CEEP) Visiting Scholar at the Goldman School of Public Policy at UC Berkeley and former Undersecretary of Energy Planning and Transition at the Ministry of Energy (SENER) in Mexico. At SENER, Irastorza was in charge of renewable energy and energy efficiency policies as well as long-term planning. She created the first National Energy Strategy, with a fifteen-year outlook. Irastorza has served in numerous positions within SENER (including Director General of Energy Planning and chief of staff to the Energy Secretary) and was Deputy Director of Planning for Pemex Gas. Irastorza will discuss her experience working with SENER, and implications of the research discussed in Lucas Davis' talk, "Incentives for Energy Efficiency: An Unexpected Behavioral Response."



Michael Greenstone is the 3M Professor of Environmental Economics in the Department of Economics at MIT. He is Chair of J-PAL's Environment & Energy Program, director of the Hamilton Project, and a research affiliate of the Energy Institute at Haas. His research focuses on estimating the costs and benefits of environmental quality. In addition to his projects in developed countries, he is currently researching the economic and health impacts of indoor air pollution, climate change, air pollution, and clean water in developing countries. Greenstone served as the Chief Economist for President Obama's Council of Economic Advisors in the first year of his Administration. He received a PhD in economics from Princeton University and a BA in economics from Swarthmore College. Greenstone will present his work on "Making Environmental Regulation Effective: Experimental Evidence from India with Hardik Shah."



Rich Lyons is the Bank of America Dean of the Haas School of Business at UC Berkeley. Prior to becoming dean in July 2008, he served as the chief learning officer at Goldman Sachs in New York, a position he held since 2006. Prior to Goldman Sachs, Rich served as acting dean of the Haas School from 2004 to 2005 and as executive associate dean and Sylvan Coleman Professor of Finance from 2005 to 2006. He received his BS in finance from UC Berkeley and his PhD in economics from MIT. Before coming to Haas, Professor Lyons spent six years on the faculty at Columbia Business School. His teaching expertise is in international finance.



Temina Madon, PhD, is the Executive Director of CEGA. Her research and training activities focus on health services, agricultural innovation, and technology design for emerging markets. Dr. Madon has worked as a science policy advisor for the National Institutes of Health-Fogarty International Center, with a focus on enhancing research capacity in developing countries. She received her PhD from UC Berkeley and her BS from MIT. Dr. Madon will deliver the opening remarks for today's event with Mary Ann Bates.



Craig McIntosh is Associate Professor of Economics in the International Relations school at the University of California, San Diego. He is an affiliate of both CEGA and J-PAL. His main research interest is the design of institutions which promote the provision of financial services to micro-entrepreneurs. He has conducted field evaluations of innovative anti-poverty policies in Mexico, Guatemala, Malawi, Rwanda, Uganda, and Tanzania. Currently, he is investigating mechanisms for boosting savings among the poor, the potential of schooling to fight HIV/AIDS in sub-Saharan Africa, and the consequences of poverty alleviation programs for environmental degradation. McIntosh received his PhD in agricultural and resource economics from UC Berkeley. He will deliver the closing remarks.



Edward Miguel is the Oxfam Professor in Environmental and Resource Economics and Faculty Director of CEGA at UC Berkeley, where he has taught since 2000. He is a long-time affiliate of J-PAL.

Miguel earned SB degrees in both economics and mathematics from MIT, and received a PhD in economics from Harvard University, where he was a National Science Foundation Fellow. His main research focus is African economic development, including work on the economic causes and consequences of violence; the impact of ethnic divisions on local collective action; and interactions between health, education, environment, and productivity for the poor. He has conducted field work in Kenya, Sierra Leone, Tanzania, and India. Miguel will present his work with Marshall Burke on “Quantifying the Effect of Climate Change on Human Conflict.”



Paulina Oliva is an Assistant Professor at UC Santa Barbara and an affiliate of CEGA. Her primary research interests lie in the intersection of environmental, development, and labor economics. She has conducted studies on environmental regulation in both Mexico and the United States as well as researched the impact of pollution on labor supply. She will be discussing her work, “Investing in Land to Promote Climate Change Resilience,” which highlights the impacts of a payment for environmental services (tree-planting) program in Zambia.



Elisabeth Sadoulet is a Professor of Agricultural and Resource Economics at UC Berkeley and long-time affiliate of CEGA. Her research interests span agricultural technologies, microcredit, conservation, conditional cash transfers, and property rights. Sadoulet has conducted field research in sub-Saharan Africa, Latin America, India, and China, and has consulted for several international agencies and foreign governments, including the FAO, the Consultative Group on International Agricultural Research, the Government of Mexico, and the World Bank. Professor Sadoulet will present her work, “Does Stress-Tolerant Rice Reduce Risks for Farmers?,” which highlights the impacts of flood- and drought-tolerant rice varieties on crop yields and other outcomes in India. Her collaborators are Alain de Janvry, Kyle Emerick, Manzoor H. Dar, and David Raitzer.



Tom Steyer is a successful asset manager and entrepreneur. He is founder of the San Francisco-based hedge fund Farallon Capital Management. In November 2012, Steyer was the driving force behind the successful campaign for California Proposition 39, which dedicated \$500 million annually for five years to clean and efficient energy projects. He served as a delegate to the Democratic National Conventions in 2004 and 2008 and has been a member of the Hamilton Project since 2005. Steyer and his wife founded the TomKat Center for Sustainable Energy and the Steyer-Taylor Center for Energy Policy and Finance at Stanford. He is also a founding board member of two new non-profit organizations focused on advanced energy: The Center for the Next Generation and the Advanced Energy Economy Institute. Steyer holds an undergraduate degree in economics and political science from Yale and an MBA from Stanford’s Graduate School of Business. Steyer will deliver the keynote address.



Hardik Shah is a Giorgio Ruffolo Research Fellow in the Sustainability Science Program at Harvard and a doctoral candidate in the Chemical Engineering Department at Nirma University in India. He is an environmental engineer and working as a Member Secretary of the Gujarat Pollution Control Board, a State regulatory body, where he has been instrumental in the design and execution of various policies, plans, and programs on environmental management in India and implementation of environmental regulations in Gujarat State. Shah received his law degree (LLB) (1997), Masters of Engineering (2003) and Bachelor of Engineering (1994), all from Gujarat University in India. Today, he will discuss his experience implementing incentives for pollution auditors in Gujarat in collaboration with Michael Greenstone and others in their talk, “Making Environmental Regulation Effective: Experimental Evidence from India.”



Catherine Wolfram is an Associate Professor of Business Administration at the Haas School of Business. She is an affiliate of CEGA and co-director of the Energy Institute at Haas. Wolfram’s research focuses on the economics of energy markets, in particular the impact of environmental regulation and the effects of electricity industry privatization and restructuring on energy markets around the world. Before joining the faculty at UC Berkeley, she was an assistant professor of economics at Harvard University. She received her PhD in economics from MIT. Wolfram will present her ongoing work with Eric Brewer and others on “Willingness to Pay for “Clean Tech” in Kenya and India”—an effort to rigorously measure the demand for and impacts of rural electrification.

ORGANIZERS

Jeanette Aguilar joined CEGA in 2012 and is responsible for supporting the Center's operations. Jeanette has extensive administrative experience at several Bay Area non-profits, including Californians for Justice, Eviction Defense Center, and the YWCA of San Francisco and Marin.



Lisa Chen is the head of strategy and operations at CEGA. She heads the Center's finance, operations, and organizational development efforts. In addition, she serves as a research manager on the Kenya Life Panel Survey portfolio of projects. She was previously a Senior Analyst at Cornerstone Research, an economics and litigation consulting firm. Lisa holds a MA in International Policy Studies and a BA in Economics and International Relations from Stanford University.



Carson Christiano is the head of CEGA's partnership development efforts and manages a study to evaluate the impacts of rural electrification in Kenya and India. Previously, she worked with IPA in Kenya where she coordinated a large-scale evaluation of WASH interventions. Carson holds a Masters in Public Policy from UC Berkeley's Goldman School of Public Policy and a BA in Political Science and International Studies from Northwestern University.



Claire Walsh is a policy analyst at J-PAL Global where she assists with policy analysis and outreach. She supports J-PAL's Environment & Energy Program, writes policy publications, conducts cost effectiveness analysis, and shares lessons from J-PAL evaluations with policymakers. She holds an MA from the Fletcher School of Law and Diplomacy at Tufts University where she specialized in development economics and international business relations.

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