

Dana Christine Boyer

Humphrey School, 301 19th Ave S, Minneapolis, MN 55455 | boyer120@umn.edu | (+1) 860-208-7748

EDUCATION

University of Minnesota

PhD | Science, Technology and Policy

Expected Mar. 2018

Advisor: Anu Ramaswami (anu@umn.edu)

Dissertation title: Design and analysis of urban food strategies for multiple sustainability objectives

University of Cambridge

MPhil | Engineering for Sustainable Development

Class of 2013

Supervisor: Peter Guthrie (pmg31@cam.ac.uk)

Dissertation title: Vegetation in buildings: Greenery to address psychology and social well-being in sustainable building design

University of Connecticut

BS & BA | Environmental Engineering, German Studies, Landscape Design | Honors, Magna Cum Laude

Class of 2012

Universität Stuttgart

Non-degree | Credits towards undergraduate degree, coursework in sustainability and globalization

2009

DISSERTATION OVERVIEW

- Contribute to the development of an analytical framework to assess communitywide urban food use and the associated system wide water, energy/GHG impacts, and land use impacts to identify co-benefits;
- Develop sustainability systems analysis tools to inform, and help prioritize city food system actions and policy (as needed), in the context of a set of environmental outcomes;
- Apply systems analysis tools to Minneapolis, New York City and Delhi to understand differences among city policy levers and action impact in the United States and India to shape environmental impacts;
- In conjunction with the analysis tools described above, assess how the multiple food system objectives promoted by cities potentially coincide or conflict with one another and concurrent city sustainability efforts.

CURRENT POSITIONS

National Science Foundation Sustainable Cities Project (PIRE & SRN) | *PhD Research Fellow* | United States, China, India
PhD Research Fellow: June 2014-present

- Researcher for two international research partnerships: “Developing Low-Carbon Cities in the USA, China & India through Inter-Disciplinary Integration Across Engineering, Environmental Sciences, Social Sciences & Public Health” & “Integrated Urban Infrastructure Solutions for Environmentally Sustainable, Healthy, and Livable Cities;”
- Lead graduate research efforts to inform city infrastructure and food system policy globally;
- Develop analytical frameworks, tools and analyses to inform and prioritize city sustainability (greenhouse gas, water, and land impacts) and food policy;
- Design implementation recommendations to achieve mitigate environmental impact and decrease supply risk;
- Apply analysis tools to cities in India, China and the United States to understand differences among city policy levers and action impact in the United States and India to shape environmental impacts;
- Communicate research findings to diverse stakeholder and policy audience including the United Nations, city governments globally, city food policy officials, city NGOs;
- Lead international travel between China, India and the United States to meet with policy makers and data collection.

Interdisciplinary Center for Global Change, University of Minnesota, United States

Doctoral Global Food Security Fellow: September 2016-present

- Fellowship for doctoral research related to food security (\$30,000).

Center for Science, Technology and Public Policy, University of Minnesota, United States

Course Instructor: September 2016-present

- Designed and teach graduate course “Urban Food System Science and Policy;”
- Course addressed environmental, economic & social objectives of food systems and analytical tools to develop solutions.

Acara Institute, University of Minnesota, United States & India

Course Instructor: Present

- Instruct study abroad course “Design for Sustainable Development – India,” leading graduate students in research and design of solutions to real social and environmental challenges in Bangalore, India

International Society for Industrial Ecology, Student Chapter, Global

Vice president, board member: September 2016-present

- 1 of 7 young professionals elected globally to facilitate advancement of the field of industrial ecology

Sustainable Cities Research Coordination Network

Research and workshop coordinator: January 2017-present

- Coordinate research related to food waste across disciplines and universities

Minneapolis Food Policy Council

Board member: January 2018-present

- Selected to guide food policy agenda in the city of Minneapolis

ACADEMIC PUBLICATIONS

1. **Boyer, D** & A Ramaswami. 2017. What is the contribution of city-scale actions to the overall food system's environmental impacts? Assessing water, greenhouse gas, and land impacts of future urban food scenarios. *Environmental Science and Technology*.
2. A Ramaswami, **D Boyer**, AS Nagpure, A Fang, S Bogra, B Bakshi, E Cohen, A Rao-Ghorpade. 2017. Implementing a framework for assessing the food-energy-water nexus from an urban systems perspective: environmental impacts and supply-chain risk in Delhi India. *Environmental Research Letters*.
3. Nagpure, AS, **Dana Boyer**, AG Russell, A Ramaswami. 2017. Greenhouse gases (GHG) and air pollution emission footprints of infrastructure use in three Indian cities: Equity within and beyond city boundaries. *Journal of Cleaner Production – in revision*.
4. Tong, KK, A Fang, **Dana Boyer**, Y Hu, S Cui, L Shi, Y Kalmykova, A Ramaswami. 2016. "Greenhouse gas emissions from key infrastructure sectors in large & smaller Chinese cities: method development & benchmarking" *Carbon Management*.

PUBLICATIONS in PREPARATION

1. **D Boyer**, Y Hu, P Nixon, A Ramaswami. Urban Food System Strategies for Diverse World Cities. In prep
2. **D Boyer**, P Nixon, Y Hu, A Ramaswami. Methods for connecting food demand with location of production for evaluation of food-energy-water nexus. In prep.
3. **D Boyer** & A Ramaswami. Food demand and supply chain-informed, spatially disaggregated water, GHG, land impact of 9 Indian cities. In prep
4. R Kosse, G Ambrose, P Nixon, **D Boyer**, CM Franco, M Schultz, A Ramaswami. Geo-spatial mapping of urban gardening in the Twin Cities. In prep.

OTHER PUBLICATIONS

1. **Boyer, D**, S Brodie, J Sperling, E Stokes, A Zomer. 2015. "Implementing the Urban Sustainable Development Goal in Atlanta and Delhi." *UGEC View Points*. <<https://ugecviewpoints.wordpress.com/2015/06/18/implementing-the-urban-sustainable-development-goal-in-atlanta-and-delhi/>>.
2. **Boyer, D**. 2015. "The Importance of Understanding Urban Food Flows." *Global Food for Thought – Chicago Council of Global Affairs*. <<http://www.thechicagocouncil.org/blog-entry/importance-understanding-urban-food-flows>>.
3. **Boyer, D**, Brodie, S, Sperling, J, Stokes, K & A Zomer. 2015. "Comments on Habitat III Issue Papers: Spatial Development." Eds. Griffith, C. & M. Watkins. *Urbanization & Global Environmental Change*. Arizona State Univ., USA. <<https://ugec.org/files/2015/11/UGEC-Habitat-III-Response-Paper.pdf>>
4. Kehew, R, Boswell, M, Daniels, J, Wee Kean, F, Bulkeley, H, Aylett, A.,... Zomer, A, **Boyer, D**, Sperling, J, Kizhakkethottam, C & O Baloi. 2015. Guiding Principles for City Climate Action Planning. UN-Habitat. [Report launched for COP21 in Paris]. < <http://unhabitat.org/books/guiding-principles-for-climate-city-planning-action/>>

CONFERENCE PAPERS and PRESENTATIONS

Boyer, D, P Nixon, A Ramaswami. What is the contribution of city-scale actions to the overall food system's environmental impacts? Assessing water, GHG, and land impacts of future urban food scenarios. *5th Annual Yale Food Systems Symposium*. February 23-24, 2017. (Accepted abstract)

Boyer, D & A Ramaswami. Importance of interdisciplinary frameworks and data in the Sustainable Healthy Cities Sustainability Research Network. *American Institute of Chemical Engineers Annual Meeting*. Minneapolis, MN: Oct 29-Nov. 3, 2017.

Boyer, D & A Ramaswami. What is the role of city-scale actions in reducing the overall food system's environmental impacts? Exploring the coupled water-GHG footprint of future urban food scenarios in Delhi, India. *National Science Foundation SRN Awardees Conference*. Washington DC: June 7, 2017.

Boyer, D & A Ramaswami. What is the role of city-scale actions in reducing the overall food system's environmental impacts? Exploring the coupled water-GHG footprint of future urban food scenarios in Delhi, India. *25th annual conference of the International Symposium on Sustainable Systems and Technology (ISSST): Science in Support of Sustainable and Resilient Communities*. Chicago, IL: June 25-30, 2017

Boyer, D, Beneficial food waste re-utilization as a solution in Delhi, India. *Waste Management, Waste Reuse and Industrial Symbiosis in Indian Cities: Workshop hosted by the Resource Optimization Initiative (ROI), Bangalore and The Center for Industrial Ecology, Yale University*. Bangalore, India: May 11-12, 2017.

Boyer, D & A Ramaswami. What is the role of city-scale actions in reducing the overall food system's environmental impacts? Exploring the coupled water-GHG footprint of future urban food scenarios in Delhi, India. *ES17 Engineering Sustainability*. Pittsburgh, PA: April 9-11, 2017.

Boyer, D & A Ramaswami. Evaluating urban food system scenarios to enhance water and energy in cities: application of a systems framework to Delhi, India. *Industrial Ecology Gordon Research Conference: Decoupling Well-being from environmental pressures and impacts*. Stowe, Vermont: June 19-24, 2016.

Boyer, D, Symposia presenter for: The Nexus in Cities: Measuring Impact, Exploring solutions. *The Food-Energy-Water Nexus, 16th National Conference and Global Forum on Science, Policy and the Environment*. Washington, DC: January 19-21, 2016.

Stokes, K, J Sperling, A Zomer, S Brodie, **D Boyer**. "Are we doing "justice" to "equity"? Exploring sustainability and climate action plans for the 100 Resilient Cities Network." *Urban Transitions Global Summit*. Shanghai, China: September 5-9, 2016.

Ramaswami, A, **D Boyer**, A Nagpure, A Fang, E Cohen, S Bogra, B Bakshi. The Food-Energy-Water Nexus in Indian Cities: environmental impact, supply chains and risk. *Urban Infrastructure Transformations in China, India & the US: Connecting Local Priorities with Global Carbon Targets, National Academy of Engineering*. Washington, DC: August 23-24, 2015.

Boyer, D, D Costie, J Katz, C Qin. 2014. "Low-carbon transit intervention for Chinese cities". *Partnership in International Research and Education on sustainable cities and infrastructure in India, China, and the US*. Institute of Urban Environment, Chinese Academy of Sciences, Xiamen. August 8, 2014.

HONORS and AWARDS

2017: Honorable Mention for Best Poster, International Society for Industrial Ecology Conference

2016-2017: Interdisciplinary Center for Global Change Food Security Fellow

- \$30,000 award for outstanding scholarship in food security research

2016-2017: PEO Woman's Scholar Award

- \$15,000 national award for a woman demonstrating leadership and academic merit in doctoral studies

2016: U.S. Borlaug Global Food Security Summer Institute Fellow

- Selected as 1 of 40 graduate students researching issues related to food security; funded by USAID

2016: Best Presentation, U.S. Borlaug Summer Institute on Global Food Security

2015 Chicago Council of Global Affairs Food Symposium Next Generation Delegation

- Chosen as an emerging leader in global food system from 500 applications of 252 universities in over 46 countries.

2012 Outstanding Woman Scholar from the School of Engineering, University of Connecticut: 2012

2010 – 2012 Environmental Leadership Award, University of Connecticut: 2012

School of Engineering Outstanding Senior Award, University of Connecticut: 2011

University of Connecticut Rhodes, Mitchell, Marshall and Udall Nominee: 2011

DAAD (German Academic Exchange Service) Undergraduate Scholarship: May 2010

Chi Epsilon (Civil and environmental engineering honor society, top 1/3 of class)

PAST EXPERIENCE

Ashoka – India, Innovators for the Public, Bangalore, India

Venture and Fellowship Intern: March 2014 – June 2014

- Worked with the world's largest association of social entrepreneurs, with nearly 3,000 individuals in 80 countries
- Assisted with identification of new entrepreneurial ventures in India to create social change
- Mapped out India in search of key veins (individuals, organizations, sectors) where one is likely to find entrepreneurs through a market segmentation process
- Researched, screened and interviewed candidates for Ashoka Fellowship
- Particular areas of focus included nutrition, agriculture, environmental issues and sanitation

U.S Department of Education (GlobalEd2 Project), Storrs, Connecticut, United States

Research Assistant: September 2013 – February 2014

- U.S. Department of Education funded project to increase knowledge of global sustainability and climate change
- Write climate change and environmental education material to be used in classrooms across the U.S.
- Code and analyze data for qualitative research of student participants' progress through the educational simulation

Centre for Sustainable Development, University of Cambridge, Cambridge, United Kingdom

Graduate Student Researcher: April – August 2013

- 5 – month independent research project on incorporation of food production into sustainable building design
- Work included quantitative and qualitative research through literature review, case study visits and analysis, and practitioner interviews

U.S. Environmental Protection Agency People Prosperity Planet (P3) Research, La Prusia, Nicaragua

Research Project Lead: August 2011 – August 2012

- Awarded \$90,000 for project “Sustainable erosion control in developing countries using industrial byproducts”
- Research objective: to develop technique to stabilize roads in Latin America with local resources and expertise
- Oversaw field implementation within Nicaragua (Mar. 2012), partnering with local the local government
- Presented work to the U.S. EPA in DC and awarded additional funding for successful completion of objectives and opportunity to increase scale of implementation

Spring Valley Farm, Storrs, CT, United States

Farm worker: September 2008 – 2012

- Raised livestock including chickens and rabbits
- Grew and harvested of a variety of seasonal produce to supply local retailers and restaurants

Coalition of Immokalee Workers, Immokalee, FL, United States

Volunteer: March 2010

- Work was aimed at increasing worker conditions of migrant farm workers in the United States South
- Worked with group responsible for the “A penny more per pound campaign” to improve farm worker equity
- Activities included meeting with migrant workers, farm owners, and worker advocacy groups

Community Enterprise Solutions, Antigua, Guatemala

Social Entrepreneurship Intern: May 2010 – July 2010

- Implemented the micro-consignment economic development model in impoverished rural Guatemala to increase access to health and environmental products and services
- Conducted needs assessments, marketing and advertising campaigns to help women create their own businesses
- Presented lectures to Guatemalan entrepreneurs on how to create a sustainable livelihood, topics including entrepreneurial skills and business concepts

Arup, London, United Kingdom

External Consultant: January 2013 – March 2013

- Program through the University of Cambridge Judge Business School
- Advised on developing market service for integration of waste, water, transport and energy urban infrastructure
- Focus was on urban environments, specifically C40 cities, around the globe
- Member of a team representing the United States, Australia, Malaysia and China
- Presented recommendations to senior Arup employees at London office

Center for Environmental Science and Engineering, University of Connecticut, Storrs, Connecticut, United States

Research Assistant: September 2009 – March 2011

- Analyzed local water samples for agricultural run-off concentrations (nitrogen, phosphorous, pesticides) to identify trends and causes
- Received funding from Connecticut Department of Environmental Protection; The Metropolitan District of Hartford

Department of Civil and Environmental Engineering, University of Connecticut, Storrs, Connecticut, United States

Teaching Assistant: January 2011 – 2012

- Water quality engineering (Spring 2011, Spring 2012); Fundamentals of environmental engineering (Fall 2011)

Engineers Without Borders, University of Connecticut, Storrs, Connecticut, United States

Nicaragua Road Reparation Project Chair: January 2010 – August 2012

- Led meetings of professional and engineering faculty to discuss on design solutions
- Instructed other members in technical tasks and data analysis
- Facilitated communication between all stakeholders in both in the United States and Nicaragua
- Researched cost-effective, socially mindful, and sustainable technical solutions
- Wrote multiple proposals and was awarded multiple grants

Advisory Board Member: November 2012 – present

- Advise University of Connecticut Chapter on projects in Nicaragua and Ethiopia

LANGUAGES

Languages: English (Fluent); Spanish (Conversational); German (Intermediate).