

## ISHA RAY

Energy & Resources Group, 310 Barrows Hall #3050, UC Berkeley, Berkeley, CA 94720.  
Tel: 1 (510) 642 1640; Fax: 1 (510) 642 1085  
Email: [isharay@berkeley.edu](mailto:isharay@berkeley.edu)

### Current Position

Associate Professor, Energy and Resources Group, University of California at Berkeley  
Co-Director, Berkeley Water Center  
Faculty, Institute for South Asian Studies, University of California at Berkeley  
Faculty, UC Berkeley-UC San Francisco Joint Medical Program

### Education

1997 PhD, Applied Economics, Food Research Institute, Stanford University  
*Thesis title: "A Farming Systems Analysis of Irrigation Institutions"*  
1985 MA, Food Research Institute, Stanford University  
1983 BA, Philosophy, Politics and Economics, Oxford University

### Research interests

Water and development; water, sanitation and gender; technology and development; social science research methods

### Academic Activities

2002-2009 Assistant Professor, Energy and Resources Group, UC Berkeley  
1999-2001 Ciriacy-Wantrup Postdoctoral Fellow, University of California, Berkeley  
1997-1999 Postdoctoral Fellow, International Water Management Institute (IWMI).

2004-2013 Editorial Committee:  
Annual Review of Environment and Resources

2006 - Reviewer:  
Agricultural Water Management  
American Anthropologist  
Annals of American Geographers  
Annual Review of Environment and Resources  
Economic Development & Cultural Change  
Environmental Research Letters  
Environmental Science & Policy  
Environmental Science & Technology  
Information Technology & International Development  
Journal of Asian and African Studies  
Journal of Water, Sanitation and Hygiene for Development  
The Information Society  
Water Resources Research  
World Development  
*and*  
National Science Foundation (USA)  
Natural Environment Research Council (UK)  
Oxford University Press

## United Nations Environment Program

### Professional Activities

- 2015-2016 Expert Group Meeting (Co-Chair), *Women's Empowerment and Sustainable Development*. UN Women
- 2013-2014 Expert Group Meeting, *World Survey on Women in Development*, 2014. UN Women
- 2013-2015 Economic Advisory Panel, California Air Resources Board
- 2006-2013 Member, *Global Business Network* ([www.gbn.com](http://www.gbn.com))
- 2005-2002-2006 Water Portfolio Advisor, *The Acumen Fund* ([www.acumenfund.org/default.asp](http://www.acumenfund.org/default.asp))
- 2002-2006 Advisor, *The Blue Planet Network* (<http://blueplanetnetwork.org/>)
- 2002-2006 Senior Advisory Council, William Jefferson Clinton Service Corps Fellowship Program, *American India Foundation*
- 2001-2002 Consultant, Global Freshwater, *The William and Flora Hewlett Foundation*

### Awards and Honors

- 2006 Prytanean Faculty Award
- 2004 Hellman Family Faculty Fund Award
- 2003 Regents' Junior Faculty Fellowship
- 1997 Distinction for PhD Defense; Stanford University

### Books

Pranab Bardhan and **Isha Ray** (editors). 2008. *The Contested Commons: Conversations Between Economists and Anthropologists*, Malden and Oxford: Blackwell Publishing.

### Peer-reviewed Publications

Christopher Hyun, Alison E. Post & **Isha Ray** (2017). Frontline worker compliance with transparency reforms: barriers posed by family and financial responsibilities. *Governance* (forthcoming).

Emily Kumpel, Cleo Woelfle-Erskine, **Isha Ray** & Kara Nelson (2016). Measuring household consumption and waste in unmetered, intermittent piped water systems. *Water Resources Research* (forthcoming).

Zachary Burt, Robert M Njee, Yolanda Mbatia, Veritas Msimbe, Joe Brown, Thomas F Clasen, Hamisi M Malebo & **Isha Ray** (2016). User preferences and willingness to pay for safe drinking water: Experimental Evidence from Rural Tanzania. *Social Science and Medicine* (forthcoming).

Zachary Burt, Kara Nelson & **Isha Ray** (2016). Towards Gender Equality through Sanitation Access. *United Nations Women Discussion Paper*.  
<http://www.unwomen.org/en/digital-library/publications/2016/3/towards-gender-equality-through-sanitation-access>

**Isha Ray** (2016). Investing in Gender-Equal Sustainable Development. *United Nations Women Discussion Paper*.  
<http://www.unwomen.org/en/digital-library/publications/2016/8/investing-in-gender-equal-sustainable-development>

Susan Amrose, Zachary Burt & **Isha Ray** (2015). Safe drinking water for low-income regions. *Annual Review of Environment and Resources*, 40:9.1 – 9.29.

Alasdair Cohen, Yong Tao, Qing Luo, Gemei Zhong, Jeff Romm, John M Colford, Jr. & **Isha Ray** (2015). Microbiological evaluation of household drinking water treatment in rural China shows benefits of electric kettles: A cross-sectional study. *PLoS ONE*, 10(9): e0138451.

Ayşe Ercumen, Benjamin F. Arnold, Emily Kumpel, Zachary Burt, **Isha Ray**, Kara Nelson, & John M. Colford, Jr. (2015). Upgrading a piped water supply from intermittent to continuous delivery and association with waterborne illness: A matched cohort study in urban India. *PLoS Medicine*, 12(10): e1001892.

Fermin Reygadas, Joshua S. Gruber, **Isha Ray** & Kara L. Nelson (2015). Field efficacy evaluation and post-treatment contamination risk assessment of an ultraviolet disinfection and safe storage system. *Water Research*, 85: 74 – 84.

Zachary Burt & **Isha Ray** (2014). Storage and non-payment: persistent informalities within the formal water supply of Hubli-Dharwad, India. *Water Alternatives*, 7: 106 – 120.  
[Also reported in the India Water Portal: <http://www.indiawaterportal.org/articles/does-24x7-water-supply-help-reduce-water-storage-or-hoarding-urban-areas>]

Carolina Balazs & **Isha Ray** (2014). The Drinking Water Disparities Framework: On the origins and persistence of inequities in exposure. *American Journal of Public Health*, Framing Health Matters, 104: 603 – 611.

Joshua S. Gruber, Fermin Reygadas, Ben Arnold, **Isha Ray**, Kara L. Nelson & John Colford, Jr. (2013). A stepped wedge, cluster-randomized trial of a household UV-disinfection and safe storage drinking water intervention in rural Baja California Sur, Mexico. *American Journal of Tropical Medicine and Hygiene*, 89: 238 – 245.

Carolina Balazs, Rachel Morello-Frosch, Alan Hubbard & **Isha Ray** (2012). Environmental justice implications of arsenic contamination in California's San Joaquin Valley: a cross-sectional cluster-design examining exposure and compliance in community drinking water systems. *Environmental Health*, 11:84 (14 November 2012).

**Isha Ray** and Renee Kuriyan (2012). Poverty and profits in the information age. *Information Technology and International Development*, 8 (1): iii - viii. [Introduction to Special Issue on: Poverty and Profits in the Information Age]

Anita Milman & **Isha Ray** (2011). Interpreting the unknown: Uncertainty and the management of transboundary groundwater. *Water International*, 36: 631 – 645. [Special Issue on: Strengthening Cooperation on Transboundary Groundwater Resources].

Gabrielle Wong-Parodi, Hadi Dowlatabadi, Tim McDaniels and **Isha Ray** (2011). Influencing attitudes towards carbon capture and sequestration: A social marketing approach. *Environmental Science and Technology*, 45: 6743 – 6751.

Carolina Balazs, Rachel Morello-Frosch, Alan Hubbard & **Isha Ray** (2011). 'Social disparities in nitrate contaminated drinking water in California's San Joaquin Valley.' *Environmental Health Perspectives*, 119: 1272 – 1278.13

Giorgos Kallis, **Isha Ray**, Julian Fulton & James McMahon (2010). Public versus private: Does it

matter for water conservation? Insights from California. *Environmental Management*, **45**: 177 – 191.

Ashley Murray & **Isha Ray** (2010). Back-end users: the unrecognized stakeholders in demand-driven sanitation. *Journal of Planning, Education and Research*, **36**: 94 – 102.

Ashley Murray & **Isha Ray** (2009). Wastewater for agriculture: A reuse-oriented planning model and its application in peri-urban China. *Water Research*, **44**: 1667 – 1679.

Judith Bradbury, **Isha Ray**, Tarla Rai Peterson, Sarah Wade, Gabrielle Wong-Parodi & Andrea Feldpausch (2009). The role of social factors in shaping public perceptions of CCS: Results of multi-state focus group interviews in the US. *Energy Procedia* **1**: 4665 – 4672.

Gabrielle Wong-Parodi & **Isha Ray** (2009). Community perceptions of carbon sequestration: Insights from California. *Environmental Research Letters*, **4**. DOI:10.1088/1748-9326/4/3/034002.

Ashley Murray, **Isha Ray** & Kara Nelson (2009). An innovative sustainability assessment for urban wastewater infrastructure and its application in Chengdu, China. *Journal of Environmental Management*, **90**: 3553 – 3560.

Renee Kuriyan & **Isha Ray** (2009). Outsourcing the state? Public-private partnerships and information technologies in India. *World Development*, **37**: 1663 – 1673.

David McKenzie & **Isha Ray**. (2009). Urban water supply in India: Status, reform options, and possible lessons. *Water Policy*, **11**: 442 – 460.

Jaquelin Cochran & **Isha Ray**. (2009). Equity reexamined: A study of community-based rainwater harvesting in Rajasthan, India. *World Development*, **37**: 435 – 444.

Carol de Wilde, Anita Milman, Yvonne Flores, Jorge Salmeròn & **Isha Ray**. (2008). An integrated method for evaluating community-based safe water programs and an application in rural Mexico. *Health Policy and Planning*, **23**: 452 – 464.

Gabrielle Wong-Parodi, **Isha Ray** & Alexander Farrell. (2008). Environmental non-government organizations' perceptions of geologic sequestration. *Environmental Research Letters*, **3**.  
<http://www.iop.org/EJ/abstract/1748-9326/3/2/024007>

Renee Kuriyan, **Isha Ray** & Kentaro Toyama. (2008). Information and communication technologies for development: The bottom of the pyramid model in practice. *The Information Society*, **24**: 93 – 104.

**Isha Ray** (2007). Women, water and development. *Annual Review of Environment and Resources*, **32**: 421 – 449.

**Isha Ray** (2006). Outcomes and processes in economics and anthropology. *Economic Development and Cultural Change*, **54**: 677 – 694.

[Reprinted as Ch 4 in Bardhan and Ray (eds) *The Contested Commons*, Blackwell Publishing 2008]

Pranab K Bardhan & **Isha Ray** (2006). Methodological approaches to the question of the commons. *Economic Development and Cultural Change*, **54**: 655 – 676.

[Reprinted as Ch 1 in Bardhan and Ray (eds) *The Contested Commons*, Blackwell Publishing 2008]

**Isha Ray** (2005). Get the prices right: Water prices and irrigation efficiency. *Economic and Political Weekly*, August 13 2005: 3659 – 3668.

[Reprinted as Ch 4 in F. Molle and J. Berkoff (eds.) (2007) *Irrigation Water Pricing: The Gap Between Theory and Practice*, Wallingford: CABI Publishing]

**Isha Ray** & Jeffrey Williams (2002). Locational asymmetry and the potential for cooperation on a canal. *Journal of Development Economics*, **67**: 129 – 155.

**Isha Ray** & Serap Gül (1999). More from less: policy options and farmer choice under water scarcity. *Irrigation and Drainage Systems*, **13**: 361 – 383.

**Isha Ray** & Jeffrey Williams (1999). Evaluation of price policy in the presence of water theft. *American Journal of Agricultural Economics*, **81**: 928 – 941.

### **Conference Proceedings (peer-reviewed)**

**Isha Ray** & Renee Kuriyan, (2011). Towards Aspirations as a Development Indicator: The Case of Information and Communication Technologies. *Proceedings of the 4<sup>th</sup> IEEE/ACM International Conference ICTD 2010*.

Renee Kuriyan & **Isha Ray**. (2009). E for “Express”: Seeing the Indian State Through ICTD. *Proceedings of the 3<sup>rd</sup> IEEE/ACM International Conference ICTD 2009*: 66 – 73.

Renee Kuriyan & **Isha Ray**. (2007). Private Public Partnerships and Information Technologies for Development in India. *Proceedings of the 2<sup>nd</sup> IEEE/ACM International Conference ICTD 2007*: 310 – 320.

Renee Kuriyan, Kentaro Toyama, & **Isha Ray**. (2006). Integrating Social Development and Financial Sustainability: The Social and Political Challenges of Kiosks. *Proceedings of IEEE International Conference ICTD 2006*: 121 – 130.

### **Book Chapters**

Carolina Balazs and **Isha Ray** (2015). Water Justice in California’s Central Valley. Chapter 11 in Lassiter, Allison (ed.) *Sustainable Water*. Berkeley: University of California Press.

**Isha Ray** (2015). Transformative Investments for Gender-Equal Sustainable Development. Chapter 6 in Leach, Melissa (ed.) *Gender Equality and Sustainable Development Pathways*. Abingdon & New York: Routledge. [Based on Ray 2016 *United Nations Women Discussion Paper*]

PK Bardhan & **Isha Ray** (2008 and 2014). Methodological Approaches in Economics and Anthropology. In John B. Davis and Wilfred Dolfsma (eds.) *Elgar Companion to Social Economics*. Edward Elgar Publishing. [Based on Bardhan and Ray 2006 in *Economic Development and Cultural Change*]

### **Other Publications**

Co-Chair and Lead Author *Report of the Expert Group Meeting on the CSW 60 Priority Theme: Women’s Empowerment and the Link to Sustainable Development* (2015). New York: UN Women.

<http://www2.unwomen.org/~media/headquarters/attachments/sections/csw/60/csw60%20egm%20report.pdf?v=1&d=20160128T152130>

Isha Ray (May 30 2015). *India's emergency in slow motion*. CNN.com Opinions:  
<http://www.cnn.com/2015/05/29/opinions/ish-ray-india-heatwave-emergency/index.html>

Contributing Author to *Gender Equality and Sustainable Development: World Survey on the Role of Women in Development* (2014). New York: UN Women.  
[http://www.unwomen.org/~media/headquarters/attachments/sections/library/publications/2014/unwomen\\_surveyreport\\_advance\\_16oct.pdf](http://www.unwomen.org/~media/headquarters/attachments/sections/library/publications/2014/unwomen_surveyreport_advance_16oct.pdf)

Isha Ray. (2013). 'Challenges and Achievements in Millennium Development Goals for Water and Sanitation for Women and Girls'. *UN Women Expert Group Briefing Paper*.  
<http://www.unwomen.org/~media/Headquarters/Attachments/Sections/CSW/58/EP11-IshaRay%20pdf.pdf>

Contributing Expert to Report on Structural and Policy Constraints in Achieving the MDGs for Women and Girls (2013). *58<sup>th</sup> United Nations Commission on the Status of Women*, New York  
<http://www.unwomen.org/~media/Headquarters/Attachments/Sections/CSW/58/CSW58-2013-EGM-Report-en.pdf>

Isha Ray. 2008. 'Women and water in the developing world.' March 20, 2008. In: *Encyclopedia of Earth*, Cutler J. Cleveland (ed). Washington, D.C.: Environmental Information Coalition, National Council for Science and the Environment. <http://www.earthportal.org/?p=714>  
[Based on Ray 2007 in *Ann. Rev. Envir. Res*]

Renee Kuriyan, **Isha Ray** & Daniel Kammen (2008). 'How to use technology to spur development.' *Issues in Science and Technology*, Winter 2008: 70 – 74.

Giorgos Kallis, Michael Kiparsky, Anita Milman & **Isha Ray** (2006). 'Glossing over the complexity of water.' *Science Letters* 314: 1387 – 1388, 1 December 2006.

## **Courses taught**

### **1. Social Science Research Methods**

Epistemology, Sampling, Surveys, Interviewing, Content Analysis, Participant Observation, Comparative Method, Case Study Method, Ethics.

### **2. Water and Development**

The Politics, Economics and Policy of Water and: health, sustainable development, participatory development, gender, financing, privatization, transboundary cooperation.

### **3. Environmental Classics**

From Rachel Carson to Michael Pollan: non-academic books and papers that have framed our thoughts on nature, culture and resources.

### **4. Community-Driven Development**

Theory and case studies of community-based and participatory development approaches in the developing world

## **PhD students graduated**

Alasdair Cohen, 2016 (Postdoctoral Scholar | UC Berkeley)

Zachary Burt, 2015 (Postdoctoral Scholar | Columbia University)

Julian Fulton, 2015 (Asst. Professor | California State University, Sacramento)



Cleo Woelfle-Erskine, 2015 (Asst. Professor | University of Washington, Seattle)  
Fermin Reygadas Gil Robles, 2014 (Ashoka Fellow | Co-Founder and Director-General, Fundación Cántaro Azul, Mexico)  
Deborah Cheng, 2013 (Program Officer | Social Sciences Research Council, New York)  
Carolina Balazs, 2012 (OEHHA | Environmental Protection Agency)  
Gabrielle Wong-Parodi, 2011 (Assistant Research Professor | EPP, Carnegie-Mellon University)  
Anita Milman, 2010 (Asst. Professor | University of Massachusetts-Amherst)  
Ashley Muspratt, 2009 (Founder | Waste Enterprisers, Inc, Rwanda)  
Renee Kuriyan Wittemyer, 2009 (Research Director | Intel Labs)  
Jaquelin Cochran, 2008 (Senior Energy Analyst | National Renewable Energy Laboratory)  
Renata Andrade, 2006 (Faculty | Catholic University of Brasilia)

### **Invited Talks (selected)**

'Gender Equality: A View from the Loo'. *Homecoming Lecture*; UC Berkeley, October 2016

*Graduation Speaker*, Global Poverty and Practice Minor, University of California, Berkeley. May 2016.

'Towards Gender Equality through Sanitation Access'. *Emerging Issues in Gender and WASH*. Presented at the United Nations 60<sup>th</sup> Meeting of the Commission on the Status of Women. New York, March 2016.

'Gender Equality: A View from the Loo'. *TEDx Berkeley*. UC Berkeley, February 2016.

<https://www.youtube.com/watch?v=CvE8AWl8Wb4>

'Sustainable Development and Gender Equality: A Post-2015 Perspective.' *Reducing Inequality in a Sustainable World*. UC Berkeley, March 2015.

'Household Welfare and Political Impacts of Increasing Service Predictability' (paper with Tanu Kumar and Alison Post). *Urban Poverty Workshop*. Duke University, December 2014.

'Socially Transformative Investments for Sustainable Development and Gender Equality.' *UN Women Expert Group Meeting*. FAO: Rome, Italy. February 2014.

'Shared Rivers: Conflict and Cooperation on the Ganga-Brahmaputra-Meghna Basin'. International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal. August 2013.

'Safe Drinking Water: Access, Affordability, Acceptance'. Laboratoire d'étude des Transferts en Hydrologie et Environnement (LTHE), Grenoble, France. July 2013.

'Access, Vulnerability and Drinking Water.' NSF-UC Santa Cruz Workshop on *Equity and Water Governance*, Santa Cruz, California. February 2013.

'The Persistence of the Informal Within the Formal' (paper with Zachary Burt). UNESCO-IHE workshop on *Informal Spaces in the Urban Waterscape*, Delft, The Netherlands. December 2012.

'Access to Basic Amenities: Goals, Payments and Accountability.' The World Bank's 6<sup>th</sup> *Urban Research and Knowledge Symposium (URKS6)*. Rethinking Cities: Framing the Future, Barcelona, Spain. October 2012.

'Social Disparities in Drinking Water Quality in California's San Joaquin Valley' (paper with Carolina Balazs, Alan Hubbard and Rachel Morello-Frosch). Inaugural Water and Society Session on *The Evolution of Water Management Paradigms*, American Geophysical Union (AGU), San Francisco. December 2011.

'Waste not, want not' (paper with Ashley Murray). *India Cities Conference*, New Delhi, India. March 2011.

'Development Research and the Social Sciences.' *Microsoft Research India / Indian Institute of Science Summer School on Technology for Socio-Economic Development*, Bangalore, India. June 2010.

'Women, Water and the Millennium Development Goals.' *109<sup>th</sup> General Meeting of the American Society of Microbiologists*, Philadelphia. May 2009.

'Water and Development in India.' *Perspectives on an Evolving India*, UC Berkeley. April 2009.

'Irrigation Water Prices: Implications for Equity and Efficiency.' *4<sup>th</sup> World Conference on the Future of Science*, Venice, Italy. September 2008.

'Conflict and Cooperation Over "Shared" Waters: What Does History Tell Us?' *Water and the Developing World*, Stanford University. April 2008.

'Equity and Water in Smallholder Agriculture.' *17<sup>th</sup> Annual Global Health Education Consortium Convention*, Sacramento. April 2008.

'Water, Technology and Development: The Tale of the Hand-Pump'. *CITRIS-Europe Conference*, London, UK. July 2007.

'Household Water Delivery Options in Rural and Peri-urban India' (with David McKenzie). Stanford Center for International Development, *Fifth Annual India Conference*, Stanford University. June 2004.

### **Invited Panels & Podcasts (selected)**

*Water: California in a Global Context*. American Academy of Arts and Sciences. Stanford, February 2016. <https://www.youtube.com/watch?v=CAI3VNtPMU>

World Affairs Council Podcast: *What's it like to worry about every drop?*  
[https://soundcloud.com/world\\_affairs/access-to-water-whats-it-like-to-worry-about-every-drop](https://soundcloud.com/world_affairs/access-to-water-whats-it-like-to-worry-about-every-drop)

*On The Same Page* with Katherine Boo ("Behind the Beautiful Forevers"). UC Berkeley, September 2015. <http://onthesamepage.berkeley.edu/event-videos>

*Clean India: Stimulating Behavior Change and Usage*. University of Chicago. New Delhi, April 2015.

UC Berkeley visit of UN Women Executive Director, Dr. Phumzile Mlambo-Ngcuka, on *Gender for a New Century*. UC Berkeley, December 2014.

*World Survey on the Role of Women in Development*, 2014, official release. UN Headquarters, New



York. October 2014. <http://m.webtv.un.org/meetings-events/watch/role-of-women-in-development-world-survey---panel-discussion/3849714459001>

'Water, Sanitation and the Millennium Development Goals,' *Economic Commission for Latin America and the Caribbean & UN Women*. Mexico City, Mexico. October 2013.

United Nations Women Concepts and Methods Workshop for the *World Survey on the Role of Women in Development*. *UN Women*, New York. September 2013.

Belmont Forum Freshwater Security Panel of Experts Meeting (II), *National Science Foundation (USA) and Natural Environment Research Council (UK)*, Washington, DC. March 2013.

Belmont Forum Freshwater Security Panel of Experts Meeting (I), *National Science Foundation (USA) and Natural Environment Research Council (UK)*, London, UK. September 2012.