

SUDATTA RAY

sray@nus.edu.sg, +65 9668 7480, www.sudattaray.com

ACADEMIC APPOINTMENTS

Assistant Professor	National University of Singapore (NUS)	August 2022 -
	Department of Geography	
Assistant Professor	Yale-NUS College	January 2022 -
(Joint Appointment)	Department of Environmental Studies	

EDUCATION

PhD	Stanford University	2021
	Emmett Interdisciplinary Program in Environment and Resources (E-IPER)	
	Dissertation: Impact of Rural Electrification on Food Security of Smallholder Farmers in India	
MSPPM	Carnegie Mellon University	2014
	H. J. Heinz III College, School of Public Policy and Management	
	Master of Science in Public Policy and Management – Data Analytics Track	
MS	University of Delhi	2009
	St. Stephen's College	
	Master of Science in Chemistry	
BS	University of Delhi	2007
	Sri Venkateswara College	
	Bachelor of Science in Chemistry	

PUBLICATIONS

PUBLICATIONS

Ray, S., Pullabhotla, H.K. "[The changing impact of rural electrification on Indian agriculture.](#)" *Nat Commun* **14**, 6780 (2023).

WORKS IN PROGRESS

Ray, S., Falcon W. & Naylor, R. "Rural Electrification in Agricultural Intensification Across India."

Ray, S. & Benson, S. "Least-Cost Pathways of Groundwater Expansion in Odisha."

Ray, S. "Cascading effects of electrification on water and sanitation among marginalized communities."

Ray, S. "The competing interests in Waste-to-Energy in Southeast Asia."

POLICY REPORTS

Jain, A., **Ray, S.**, Ganesan, K., Aklin, M., Cheng, C. & Urpelainen J. (2015). "[Access to Clean Cooking Energy and Electricity, Survey of States.](#)" *Columbia University and Council on Energy, Environment and Water* Report.

Ray, S., Chaturvedi, V., Ganesan, K. & Ghosh, A. (2015). "[India's Intended Nationally Determined Contributions: Renewable Energy and Pathway to Paris.](#)" *Council on Energy, Environment and Water* Policy Brief.

Ghosh, A. & **Ray, S.** (2015). "[Fixing Climate Governance through Effective Technology Partnerships.](#)" *Fixing Climate Governance Series, Paper No. 3.* Centre for International Governance Innovation.

Ghosh, A., Vijayakumar, A. & **Ray, S.** (2015). "[Climate Technology Partnerships: Form, Function and Impact.](#)" *Fixing Climate Governance Series, Paper No. 2.* Centre for International Governance Innovation.

Ray S. (2015). "[Electricity Trading in its Infancy in South Asia.](#)" *India Climate Dialogue* Web Article.

Ganesan, K., Jain, A., **Ray, S.**, Sharma, M. & Ghosh, A. (2014). "[Agenda for a Reformed Power Sector in India: Risk, Resource, Relay and Restructuring.](#)" *Council on Energy, Environment and Water Policy Brief.*

[Black Carbon Research Initiative](#) – *National Carbonaceous Aerosols Programme (NCAP)*, Ministry of Environment & Forests, March 2011 – Editorial Team.

[Climate Change & India](#) - *A 4x4 Assessment, A Sectoral and Regional Analysis for 2030s*, Ministry of Environment & Forests, November 2010 – Editorial Team.

[India: Greenhouse Gas Emissions 2007](#), Ministry of Environment & Forests, May 2010 – Editorial Team.

PRESENTATIONS & CONFERENCE ACTIVITY

CONFERENCE ACTIVITY

Ray, S. (2020). "Beyond Lights: The Changing Impact of Rural Electrification in Indian Agriculture." *Association for Public Policy Analysis & Management (APPAM)*. Presentation, (Online due to COVID).

Ray, S. (2020). "Beyond Lights: The Changing Impact of Rural Electrification in Indian Agriculture." *Sustainable Energy Transition Initiative (SETI) Annual Conference, Duke University*. Presentation, (Online due to COVID).

Ray, S. (2020). "Beyond Lights: The Changing Impact of Rural Electrification in Indian Agriculture." *Agricultural & Applied Economics Association, Annual Meeting*. Presentation, (Kansas City, USA-Online due to COVID).

Ray, S. (2020). "Beyond Lights: The Changing Impact of Rural Electrification in Indian Agriculture." *Online Summer Workshop in Environment, Energy, and Transportation (Economics)*. Presentation, (Online).

Ray, S. (2020). "Beyond Lights: The Changing Impact of Rural Electrification in Indian Agriculture." *Association of Environmental and Resource Economists, Annual Summer Conference*. Presentation, (Miami, USA-Online due to COVID).

Ray, S. (2019). "Rural Electrification in Agricultural Intensification Across India." *American Geophysical Union, Fall Meeting 2019*. Poster, (San Francisco, USA).

Ray, S. (2019). "The Evolving Role of Rural Electrification in Indian Agriculture." *The University of Michigan Ann Arbor, Sustainability & Development Conference 2019*. Presentation, (Michigan, USA).

Ray, S. (2018). "Beyond Tube-wells: Bringing Irrigation to Oriya Smallholder Farmers." *IWMI- Tata's Partners' Meet 108, Building Climate Resilience for Doubling Farmers' Income – Innovations in Water, Land, Energy and Ecosystems*. Presentation, (Gujarat, India).

Ray, S. (2015). "Analysing Climate Actions and their Global Consequences." *World Resources Institute (WRI) Technical Practitioner's Workshop for Analyzing Mitigation INDCs*. Presentation, (Bonn, Germany).

Ray, S. (2015). "India's INDC: Renewable Energy and the Pathway to Paris." *Council of Energy, Environment and Water (CEEW) Climate Day, Negotiating the Climate Cliff*. Presentation, (New Delhi, India).

INVITED TALKS

Ray, S. (2020). "Seeing the Light: Harnessing Rural Electrification to Boost Development" *Hard Earth Lecture Series*. Stanford University, California.

Ray, S. (2019). "Energy Access for Development: Scope and Need for Productive Uses of Electricity." *Global Climate and Energy Project, Student Lecture Series*. Stanford University, California.

Ray, S. (2019). "State of Energy Access in India." *Energy Access Panel, Stanford Energy Club*. Stanford University, California.

Ray, S. (2016). "Impact of Energy Policies on Resources Use and Food Security in India." *Enhancing Diversity in Graduate Education, Cross Talks*. Stanford University, California.

RESEARCH EXPERIENCE

Graduate Research Student and Instructor, **Stanford University**

2015-2021

- Estimated the impact of rural electrification policy change on the growth in groundwater irrigation between 1986 and 2013 for 323 districts in India.
- Modeled the impacts of different energy provision schemes on smallholder farmer income, groundwater sustainability and carbon emissions for 30 districts in Orissa, India.
- Surveyed and analysed electricity use for 500 households across 5 urban informal settlements in Harare, Zimbabwe.
- Taught "Capstone Project Seminar in Environment and Resources" (28 students across 2 years).
- Developed course curriculum and taught "Achieving Universal Energy Access by 2030: Can it be Done?" (15 students).

Junior Research Associate, **Council on Energy, Environment and Water (CEEW)**

2014-2015

- Surveyed and analysed the state of energy access in 8,566 rural households across 6 states in India.
- Developed integrated plans in agriculture, energy and water for tribal districts in Madhya Pradesh, India.
- Analysed and recommended steps for reforming the Indian power sector to the Office of the Prime Minister of India.
- Estimated the financial implications of India's Intended Nationally Determined Contribution to the UNFCCC.

Climate Corp Fellow, **Environmental Defense Fund**

2013 Summer

- Developed energy efficiency projects for Maricopa County Community Colleges and facilitated annual cost savings of \$220,000 and GHG emissions savings of 1,520 CO₂ eq.

POLICY EXPERIENCE

Senior Programme Officer, **World Wide Fund for Nature – India**

2011-2012

- Led analyses of international climate change negotiations as part of the Global Climate Energy Initiative.
- Analysed the State Action Plans on Climate Change for five Indian Himalayan states.
- Developed a framework to track the efficacy of low carbon policies of ten states across India.

Technical Officer, **Government of India, Ministry of Environment, Forests and Climate Change**

2009-2011

- Negotiated India's stand at 2 Conference of Parties and 2 Intersessional Meetings of United Nations Framework for Climate Change Convention (UNFCCC) Climate Change talks on issues of HFC mitigation and market mechanism.
- Wrote briefs and responses to climate change related questions raised in the parliament.
- Led a nation-wide initiative for the development of State-level Action Plans on Climate Change.

GRANTS

EIPER Collaboration Research Grant (\$10,000)	2019
McGee Grant (\$3,000)	2018
EIPER Summer Graduate Research Grant (2,110)	2018
EIPER Summer Graduate Research Grant (\$2,500)	2017
McGee Grant (\$3,790)	2016
Enhancing Diversity in Graduate Education (EDGE) Travel Grant (\$863)	2015

FELLOWSHIPS & AWARDS

School of Earth, Energy and Environmental Sciences Certificate for Outstanding Mentoring	2020
Kimmelman Family Fellowship	2015- 2019
Enhancing Diversity in Graduate Education Fellowship (EDGE-STEM) Fellow	2015-2017
Fulbright- Nehru Master's Fellowship in Leadership and Development	2012-2014
HEINZ MSPPM Merit Based Scholarship	2012-2014
Second Prize, Annual Social Innovations Challenge, Carnegie Mellon University	2013

TEACHING EXPERIENCE

<i>Powering the Planet</i> , Yale-NUS College	2022
<i>Capstone Project Seminar in Environment and Resources</i> , Stanford University	2020 &
Course Assistant	2021
<i>Topics in Environment and Resources</i> , Stanford University	2019 &
Guest Lecturer	2017
<i>Achieving Universal Energy Access by 2030: Can it be done?</i> , Stanford University	2018
Course Developer and Assistant	

DEPARTMENT & UNIVERSITY SERVICE

Stanford University's Founders Circle Day Presenter	2019
Enhancing Diversity in Graduate Education (EDGE) Mentor	2017-2018
E-IPER Admissions Committee	2017