

TEJAL KANITKAR

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Research and Teaching Interests

My research interests lie in the areas of **energy, development, and climate policy**. I have worked on trying to integrate perspectives from the natural sciences, engineering, and the social sciences to understand the interconnected aspects of energy production and access, scientific and technological advancement in this sector, and policy shifts and instruments, in terms of their importance for ensuring the development and economic wellbeing of people, especially in the era of acute environmental crises such as climate change.

Professional Experience

- Associate Professor

14 June 2019 onwards

Energy Environment Program, School of Natural Sciences and Engineering
National Institute of Advanced Studies, Bengaluru

- Assistant Professor

September 2011 – May 2019

Centre for Climate Change and Sustainability Studies, Tata Institute of Social Sciences, Mumbai

I was responsible for teaching in the Master's Program offered by the Centre for Climate Change and Sustainability Studies as well as teaching courses on energy and climate change in programs offered by other schools in the Institute.

- Chairperson

June 2012- May 2019

Centre for Climate Change and Sustainability Studies, Tata Institute of Social Sciences, Mumbai

I was the Chairperson of the Centre since its inception in 2012 and have contributed to the foundational work that the Centre has done in building and taking forward an inter-disciplinary perspective on climate change and sustainable development. As the chairperson, I have been

responsible for taking forward the research agenda for the Centre as well as streamlining and implementing the teaching program that is aligned with the perspectives emerging from the collective research of faculty associated with the Centre.

- Program Manager

June 2009 – August 2011

Centre for Science Technology and Society, Tata Institute of Social Sciences, Mumbai

- Research Associate

September 2006 – January 2009

Prayas Energy Group, Pune

- Research Assistant

September 2004 – May 2006

Centre for Renewable Energy and Energy Efficiency, Department of Mechanical Engineering, University of Massachusetts, Amherst, MA

Qualification

- Ph.D., Department of Energy Science and Engineering

November 2016

Indian Institute of Technology Bombay, Mumbai, India (External Candidate)

Thesis Title: “*An Integrated Modelling Framework for Energy, Economy, and Emissions in India*”

- Master of Engineering, Department of Mechanical Engineering

July 2006

University of Massachusetts, Amherst, Massachusetts, USA

Thesis Title: “*Reliability Assessment of Distributed Generation Systems*”

- Bachelor of Engineering (B.E.) in Mechanical Engineering

May 2004

University of Mumbai, Mumbai, India

- Certified Energy Auditor

October 2007

Bureau of Energy Efficiency, Ministry of Power, Government of India

Research Publications

• **Journal Papers**

- Kanitkar, T., Banerjee, R., & Jayaraman, T. (2018). An integrated modeling framework for energy economy and emissions modeling: A case for India. *Energy*, 167, 670-679.
- Jayaraman, T., Kanitkar, T., (2016) Deepening the Climate Crisis, Commentary, *Economic and Political Weekly*, January 10, 2016, Vol XLV, No.1
- Kanitkar, T., (2015), 1.5 or 2 deg. C, What should the Global Climate Goal be?, *Review of Agrarian Studies*, vol. 6, no. 1., December 2015.
- Kanitkar, T., Banerjee, R, Jayaraman, T., (2015), Impact of economic structure on mitigation targets for developing countries, *Energy for Sustainable Development*, 26 (2015) 56–61
- Kanitkar, T (2014), "Climate Change and Food Production Systems ," *Review of Agrarian Studies*, vol. 4, no. 1., June 2014
- Kanitkar, T., Jayaraman, T., D'Souza, M., (2013) Carbon Budgets for Climate Change Mitigation: A GAMS Based Emissions Model, *Current Science*, Vol. 104, No.7, 2013
- Kanitkar, T., & Banerjee, R. (2011). Power sector planning in India. *Journal of Economic Policy and Research*, 7(1), 1-23
- Jayaraman, T., Kanitkar, T., D'Souza, M., (2010), Deconstructing the Climate Blame Game, Commentary, *Economic and Political Weekly*, January 2, 2010, Vol XLV, No.1
- Kanitkar, T., Jayaraman, T., D'Souza, M., Purkayastha, P., Raghunandan, D, Talwar, R, (2009), How Much Carbon Space Do We Have, The physical constraints on India's Climate Policy and its Implications, Special Article, *Economic and Political Weekly*, October 10, 2009, Vol XLIV, No. 41
- **Conference Papers**
 - Kanitkar, T., (2017). The Mitigation Burden Beyond 2030 – Should Developing Countries be Thinking of New (I)NDCs, *Conference on Climate Action: Mitigation and Adaptation in a Post Paris World* , 8th Annual Conference on Climate Change at Tata Institute of Social Sciences, 4-5 August 2017
 - Kanitkar, T., Jayaraman, T. & Banerjee, R. (2016). Energy Options for India in a Carbon Constrained World – Analysis Using GAMS), *SEES 2016, Singapore*, February 2016
 - Kanitkar T. (2015), Equity, The Global Commons and the Paris Agreement, International Conference on Cities in the Global South, Mumbai, India
 - Kanitkar, T. (2014), Equity and the Allocation of Mitigation Burdens: A Carbon Budgets Approach, American Geophysical Union, 2014 Fall Meeting, USA
 - Kanitkar T., Alam, M. (2012), Drivers of Energy Access and Substitution: Results from 4 villages in Maharashtra, 4th International Symposium on Energy & Environment: ACCESS, McDonnell International Scholars Academy
 - Kanitkar T., Jayaraman, T. (2012), Energy Intensity and Climate Change Mitigation: A Comparative Analysis of Developed and Developing Countries, National Conference on Climate Change, IIT-Delhi

- Kanitkar, T., Kosanovic, D., (2011) Evaluation of the Contribution of On-Site Generation to Grid and Customer, *SAE World Conference Proceedings*, Detroit, USA, April 2011
- Kanitkar, T., Jayaraman, T., D'Souza, M., Sanwal, M., Purkayastha, P., Talwar, R., Raghunandan, D., (2010) Global Carbon Budgets and Burden Sharing in Mitigation Actions, Discussion Paper for *Conference on Global Carbon Budgets and Equity in Climate Change*, Tata Institute of Social Sciences and Ministry of Environment and Forest, GoI, 28-29 June 2010
- Sreekumar, N., Kanitkar, T., (2008), Balancing Regulation and Incentives to Enhance Energy Access to the Poor and Women in Privatising Energy Markets, *Conference on Gender and Poverty Sensitive Energy Policies in Asia and the Pacific by ENERGIA and UNESCAP*, November 2008, Bangkok, Thailand
- **Books**
 - Kanitkar, T. (2019). An Integrated Modeling Framework (IMF) for Energy-Economy-Environment Modeling. In *An Integrated Framework for Energy-Economy-Emissions Modeling* (pp. 89-104). Springer, Cham.
- **Book Chapters**
 - Kanitkar, T. & Jayaraman, T. (2019). Meeting the Temperature Targets Equitably – Relevance of the Carbon Budget Approach , **Book Chapter** to Appear in *Edited Volume on Climate Change: India's Perceptions, Policies, and Expectations*, MoEFCC, Government of India.
 - Kanitkar, T. & Jayaraman, T. (2019). Equity in Long Term Mitigation, **Book Chapter** to Appear in *Edited Volume on Climate Change and India*, Oxford University Press.
 - Jayaraman, T., Kanitkar, T., D'Souza, M., (2012) Equity and Burden Sharing in Emission Scenarios: A Carbon Budget Approach, **Book Chapter**, *Handbook of Climate Change and India, Development, Politics and Governance*, Oxford University Press, 2012
 - Equitable access to sustainable development: An Indian approach, Part of the Volume on Equitable Access to Sustainable Development, *Contribution to the body of scientific knowledge: A paper by experts from BASIC countries*, BASIC expert group: Beijing, Brasilia, Cape Town and Mumbai
- **Booklets**
 - Kanitkar, T., Sreekumar, N., (2008), Awareness and Action for Better Electricity Service – An agenda for the Community, **Booklet**, Prayas Energy Group, January 2008
 - Kanitkar, T., Vaghlikar, N., (2007), Alternative Power Planning, **Booklet**, Prayas Energy Group, September 2007
- **Selected Popular Articles**
 - Is Gender-Just Climate Action Possible Without Equity? Appeared on 26 December 2018 in Newslick

- COP24: Developed Nations Continue to Dictate Terms of Global Climate Action. Appeared on 16 December 2018 in Newsclick
- The Paris Agreement, COP-23, and Equity Going Forward. Appeared on 7 December 2017 in Newsclick
- Mike Pence: America's GDP Growth Trumps Climate Needs. Appeared on 24 June 2017 in Newsclick
- WTO: Trade Trumps a Sustainable World. Appeared on 29 February 2016 in Newsclick
- The Habit of Scientific Temper. Appeared on 7 January 2018 in The Asian Age
- A Breakdown of India's National Energy Policy, Appeared on 22 January 2018 in Newsclick
- Scientific Temper Teaches Questioning, Appeared on 1 February 2018 in National Herald

Experience in Academic Course Development and Teaching

- ***Co-developed a Master's Program in Climate Change and Sustainability Studies at the Tata Institute of Social Sciences***

The M.A/M.Sc. Program in Climate Change and Sustainability Studies was launched in 2012. It is a unique program designed to equip students to understand and address the intertwined challenges of environmental protection and development in an **inter-disciplinary** manner. The particular focus is climate change.

- ***Developed a Master's Program, Post-Graduate Diploma Program and Certificate Course in Climate Change and Sustainability Studies for the BRICS University***

In 2017, I was responsible for developing a similar program but in three different formats, to be offered as part of the BRICS University initiative of the Government of India. A two year graduate degree program, a one year post-graduate diploma program, and a 1 month certificate course, all oriented towards national and international students from BRICS countries was developed.

- ***Courses developed and taught***

Course Name	Course Level	Introduced in	Taught in years	Number of Students	Brief Course Description
Energy and Climate Change Mitigation - Basic (Program Core course)	M.A./M.Sc.	2012	2012, 2013, 2014, 2016, 2017, 2018, 2019 (currently teaching)	15-25	Scientific and technological aspects of different fuel technologies through their entire life cycles
Energy and Climate Change Mitigation-Advanced (Program Core course)	M.A./M.Sc.	2012	2013, 2014, 2015, 2016, 2017, 2018	15-25	Economic and political aspects of energy systems and linkages between energy and development
Energy Modeling (Program Elective Course)	M.A./M.Sc.	2012	2013, 2014, 2015, 2016, 2017, 2018	10-20	Approaches and methodologies for energy modeling and energy-environment- economy modeling
Quantitative Research Methods (School Core Course)	M.A./M.Sc.	2014	2014, 2015, 2016, 2017, 2018	70-80	Quantitative data analysis and statistics
Contemporary Debates in Climate Change and Sustainable Development (Institute Elective)	M.A./M.Sc.	2016	2016, 2017, 2018	90-110	Basic concepts and contemporary debates and contestations in the subject – ranging from issues of the plastic ban to the politics of the climate change negotiations
Sustainable Development and Climate Change (Core course for Master's Program in Development Studies)	M.A./M.Sc.	2016	2016, 2017, 2018	50-60	Interconnections of development theory and environmental policy and governance

➤ **Student Supervision**

- **2 Ph.D. students** - currently advising
 1. Energy transitions and mechanization in agriculture: a comparative study of two villages in two different agro-ecological zones
 2. Energy, equity, and economics in climate model simulations: A critical analysis and reworking of the shared socio-economic-pathways
- **1 Ph.D. student** - currently co-advising

1. Challenges and Conflicts in meeting India's NDCs, focus on the afforestation and sequestration targets

- **1 M.Phil. student** - graduated

1. Assessing drivers of energy access and energy substitution in rural Maharashtra

- **23 Masters students** - graduated

➤ **Fieldwork and field studies designed and implemented**

Year	Type of Field Work	Duration	Area in which undertaken	Description
2008	Study of rural energy access (Prayas Energy Group)	2 weeks	Mokhada, Jawahar, Dahanu Talukas of Maharashtra	Assessing problems with electricity access, issues of hours of supply, load shedding, billing, and disconnections in tribal regions of Maharashtra
2012	Cooking energy study in rural areas	4 weeks	Beed district and Nashik district I Maharashtra	Study patterns of fuel use and drivers of fuel substitution for cooking in rural households and small household based enterprises
2012, 2013, 2017, 2018	Urban field survey (TISS)	2 weeks each	Areas in Pune and Mumbai	Study access to and patterns of use of important amenities such as transport, water, sanitation and energy as well as study indicators for health and education that can help understand aspects of vulnerability and development in a more substantive manner
2013, 2014, 2016, 2017	Rural field survey- Village study (TISS)	3 weeks each	Osmanabad, laghar and Kolhapur	Survey of agricultural and non-agricultural production to assess rural incomes and a qualitative study of the impact of drought on agricultural production

Major Research Projects Lead/Co-Lead

	Project Name	Funding Agency	Year	Duration
1	Human Capacity Building in Strategic Knowledge in Climate Change (2017)	Department of Science and Technology, Government of India	2017	3 years
2	Capacity Building in Sustainability and Environmental Management	Erasmus+ Program of EU	2017	3 years
3	Climate Action: Mitigation and Adaptation in a Post-Paris World	Rosa Luxemburg Stiftung, Germany	2017	8 months
4	Equity and differentiation in the context of 2015 agreement	Ministry of Environment, Forests, and Climate Change, Government of India	2016	1 year
5	Village Study of Vulnerability and Adaptation in Maharashtra	Environment Department, Government of Maharashtra	2013	1 year
6	Building Capacities for Climate Action	Shakti Foundation	2012	2 years
7	Energy and Climate Change Mitigation: Pathways Under a Carbon Budget	World Wildlife Fund, India	2011	2 years
8	Study on Emissions Modelling	Ministry of Environment and Forests, Government of India	2010	1 year

Conferences Organized/Co-Organized

➤ *9 Conferences on Climate Change at the Tata Institute of Social Sciences*

Year of Conference	Funded by
2009	Tata Trust
2010	Ministry of Environment and Forests, GoI
2011-12	Ministry of Environment and Forests, GoI
2013	ICSSR
2014	ICSSR
2015	ISET International
2016	NABARD
2017	Rosa Luxemburg Stiftung
2018	Department of Science and Technology, GoI

Workshops Organized

- Workshop on Climate Change and Sustainable Development for Practitioners from Social Science backgrounds (2019), Supported by the Department of Science and Technology, GoI
- Workshop on Climate Change and Sustainable Development for Practitioners from Science and Engineering backgrounds (2018), Supported by the Department of Science and Technology, GoI
- Workshop on Equity in Climate Change (2018), Supported by the Department of Science and Technology, and MoEFCC, GoI
- Workshop on Climate Change and Sustainable Development for Practitioners from Social Science backgrounds (2018), Supported by the Department of Science and Technology, GoI
- 4 Workshops on Climate Action: Mitigation and Adaptation Strategies (2012), for representatives of non-governmental organizations and grassroots activists in 4 second tier cities in India, Supported by Shakti Foundation
- Workshop on Energy and Climate Change Mitigation for Disaster Managers in Assam (2013), Supported by Government of Assam

Selected Talks and Public Lectures

- The Challenge of Climate Change and the Need for a Just Transition (2018), TUED, Kochi, Kerala
- India and the Paris Agreement: Concerns and a Possible Way Forward (2018), TIFR, Mumbai
- Energy in the Urban Environment (2018), K.J. Somaiya, Mumbai
- The Politics and Economics of Climate Change (2018), SIES, Mumbai
- The Science and Politics of Climate Change (2018), Manthan Samvad, Hyderabad
- Energy Options in the Era of Climate Change (2017), University of Mumbai, Mumbai
- Perspectives on Sustainable Development (2017), CLL, Mumbai
- The Paris Agreement: How did we get here and what is it about? (2017), IIT Bombay, Mumbai
- Challenges of the Energy Transition Under Carbon Constraints (2016), Peoples Forum on BRICS, Goa
- Implications of the Paris Agreement for India (2016), Azim Premji University, Bangalore
- Fair and Equitable Distribution of the Global Carbon Budget (2016), Ministry of Environment, Forests and Climate Change, GoI, New Delhi
- Meeting Equity in Paris – Is it Possible? (2015), Centre for Policy Research, New Delhi
- Equity, the Global Commons and the Paris Agreement (2015), Conference on Cities in the Global South, Mumbai
- Climate Justice and Sustainable Cities (2015), Civil Society Seminar on Sustainable Cities
- Climate Change Mitigation: Defining the problem (2014), AL College, Mumbai
- How much Carbon Space do we have? (2013), Tamil Nadu State Council for Science and Technology, Chennai
- Operationalising Equity and Sustainability in the Era of Climate Change (2012), SNDT, Mumbai

Administrative duties

- Chairperson for the Centre of Climate Change and Sustainability Studies at TISS from June 2012 to May 2019.
- Member of the Task Force for the implementation of the Choice Based Credit System at TISS in the year 2016.
- Coordinator for the School of Habitat Studies for the implementation of the Choice Based Credit System for the years 2016-17, 2017-18, and 2018-19.

- Member of the Committee for development and administration of the TISS-NET the centralized entrance exam for all Masters programs in TISS in the year 2017-18.
- Fieldwork coordination for the Centre for Climate Change and Sustainability Studies for the years 2012-13, 2013-14, 2015-16, 2016-17, 2017-18, and 2018-19.

Other Work

- Energy Audits for Small and Medium Sized Industry: More than 25 energy audits in New York and New England area as part of a program sponsored by the Department of Energy (DOE), USA.
- Worked on a project for the Ministry for Environment, Forests and Climate Change, Government of India, in providing detailed comments and responses on IPCC's Special Report on 1.5 deg. C Global Warming
- Attended the UNFCCC's 23rd and 24th Conference of Parties (COP23 and COP24) in Bonn, Germany and Katowice, Poland respectively as Observer funded by RLS Germany
- Work on rural energy – analysis of all forms of primary and secondary energy use in households and for productive activity
- Mid-term review of the 11th Five Year Plan (electricity sector) for Andaman and Nicobar Islands, Government of India - 2009
- Work on energy and emissions modeling incorporating specific concerns of developing countries, viz, equity, development and sustainability in the context of climate change mitigation for the Ministry of Environment, Forests, and Climate Change, Government of India