

# Shreeyash Nitin Malode

Doctoral Candidate - Department of Management Sciences  
Indian Institute of Technology Kanpur (IITK), India  
Research Area: Emissions Trading, Energy-Climate Policy Modelling  
and Integrated Assessment Modelling

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## Education

- Indian Institute of Technology Kanpur, Kanpur, India** Autonomous Public Research University  
Doctor of Philosophy in Management; CGPA: 7.60/10 Dec. 2020 – Ongoing
  - Tentative Thesis Title: Essays on Emissions Trading System for India
- Tata Institute of Social Sciences, Mumbai, India** Autonomous Public Research University  
Master of Science in Regulatory Governance; CGPA: 7.70/10 May. 2018 – May. 2020
  - Dissertation Title: **Impact of electricity tariff on end-consumers**
- National Power Training Institute, Nagpur, India** Affiliated to R.T.M. Nagpur University  
Bachelor of Engineering in Power Engineering; CGPA: 8.81/10 June. 2013 – June. 2017
  - Project Title: **Computational Fluid Dynamic Analysis of ES Precipitator**
- Shivaji Science College, Warora, India** Affiliated to Maharashtra State Board  
Higher Secondary Certificate (Grade: 10+2); Percentage: 82.00 Feb. 2012 – Feb. 2013

## Publications

- Malode, S.N., & Singh, A., (2025):** Navigating India's Emission Trading System: An Analysis of Policy Evolution, Implementation Imperatives, and Critical Review for Energy Sustainability Pathway. **Energy for Sustainable Development 88 (2025): 101822.** DOI: [10.1016/j.esd.2025.101822](https://doi.org/10.1016/j.esd.2025.101822)
- Malode, S.N., & Singh, A., (2025):** Leveraging Policy for Sustainability: Assessing the Impact of Indian Carbon Market on Thermal Power LCOE, in Leal Filho, et. al (eds), Energy for Sustainable Development:-Capitalising on the Transformative Potential of Energy to Promote Economic Growth and Improve Livelihoods, World Sustainability Series, Springer, Cham, link - <https://link.springer.com/book/9783032040701> [Book Chapter - In Press].
- Singh, A., Gupta, G., Shihhare, M., Malode, S. N., Sangwan, V., Sharma, M., & Khare, R., (2025):** Identification of risk and hedging avenues for power market participants: A novel framework and application to India, The Electricity Journal. [Under Revision].
- Malode, S. N. (2025):** Sectoral emissions trading in national energy systems model: An application to Indian cement and steel sectors using MESSAGEix modelling framework, IIASA YSSP Report, IIASA, Laxenburg, Austria. [Limited Peer Review - Embargo].
- Singh, A., Malode, S.N., & Verma, A. (2023):** Developing Energy-Climate Policy Modelling for India: MESSAGEix, Centre for Energy Regulation (CER) and Energy Analytics Lab (EAL) [Limited Peer Review - Report Submitted to NITI Aayog, Government of India, India].

## Work Experience

Total Professional Work Experience : 21 Months

- International Institute for Applied Systems Analysis, Laxenburg, Austria** 3 Months  
Young Scientists Summer Program (Part-time with doctoral studies) Jun 2025 - Aug 2025
  - Integration of MESSAGEix Framework and Emission Trading System Modeling: Assessment of Indian Carbon Market Policy and 1.5°C Scenarios for Energy Transition:**
    - \* **Fellowship:** Awarded Prof. Jyoti and Kirit Parikh Fellowship to participate at YSSP.
    - \* **Project Description:** Developed novel framework of sectoral emissions trading within integrated assessment model. Applied the framework in the case of cement and steel industry in India. Presented findings in international conferences, and submitted YSSP report.
    - \* **YSSP Mentors:** Dr. Setu Pelz, Dr. Siddharth Joshi and Dr. Shonali Pachauri
    - \* **Activities:** 2025 YSSP Final Colloquium Proceedings Editor.

- **Centre for Energy Regulation, Indian Institute of Technology - Kanpur** 9 Months  
Senior Student Research Associate (Part-time with doctoral studies) Apr 2022 - Dec 2022
  - **Developing Energy-Climate Policy Modelling for India using MESSAGEix framework:**
    - \* **Project Description:** Project Parties – IIT Kanpur and NITI Aayog; India Energy Model – 7 sectors; Dynamic Energy System Cost Minimization.
    - \* **Data Collection, Data Rectification and Data Verification:** Extensive data analytics exercise on agriculture, transport, domestic, commercial, industry, coal, oil, natural gas and power sector data; Total Parameters 1860.
    - \* **Modelling Exercise and Post-processing :** Developed Python code for carrying out modelling and reporting exercises. Validated mathematical formulation in GAMS code of MESSAGEix framework. Visualisation of model results in Python using matplotlib and MS Excel.
    - \* **Scenario Analysis and Reporting:** Devised various scenarios incorporating INDC commitments and policy targets. Final report writing.
- **Centre for Energy Regulation, Indian Institute of Technology - Kanpur** 4 Months  
Project Associate (Full-time) Aug 2020 - Jan 2021
  - **Regulatory Policy Research:** Summarized draft acts, rules, policies and regulations from the power sector. Assisted Principal Investigator (PI) in critically analyzing and submitting policy comments to regulatory authorities. Contributed to CER's Quarterly Newsletter – **Regulatory Insights**. Assisted PI in carrying out research in the power market for EAL's Quarterly Newsletter – **Power Chronicle**.
  - **Regulatory Data Dashboard:** Contributed in the development of the Regulatory Data Dashboard. Assisted PI in carrying out research related to **Aggregate Revenue Requirement, Average Cost of Supply, Regulatory Norms for Electricity Tariff and Financial Performance of Distribution Companies**.
  - **Regulatory Manthan (RM):** Contributed in organising CER's flagship event 1st and 2nd Regulatory Manthan. RM aims to discuss and identify national and international best practices, thus enhancing learning and capacity building in the power sector. Assisted PI in research in the topic titled **Developing a Multi-year Tariff (MYT) Framework and Relinquishment of Long-term CGS PPAs beyond Tenure**.
- **Independent Consultancy** 5 Months  
Self-Employed (Full-time) Apr 2020 - Aug 2020
  - **Client 1: Waatavaran CES Foundation, Mumbai, India (Apr 2020 - Jul 2020):** Policy advocacy and outreach: Conducted community mobilization on social issues, primarily **air pollution, biodiversity loss and forest rights**.
  - **Client 2: Climate Risk Horizons, Bangalore, India (Jul 2020 - Aug 2020):** Assessment of the **financial performance** of coal-based thermal power plants in India.

## International Conference/Workshop Presentations

- **Malode, S. N., & Singh, A., (2025):** Essays on Emissions Trading System for India: from the lens of sufficiency. Sufficiency PhD Days, The World Sufficiency Lab, SciencesPo, Paris, France. [**Online Oral Presentation**].
- **Malode, S. N., & Singh, A., (2025):** Assessment of Indian Carbon Market's Role in the National Energy Transition. 6th International Conference on Clean and Green Energy Engineering (CGEE2025), University of Zagreb, Zagreb, Croatia. [**Oral Presentation**].
- **Malode, S. N., Pelz, S., Joshi, S., Singh, A., & Pachauri, S., (2025):** Sectoral Emissions Trading in National Energy System Model: An Application to Indian Cement and Steel Industry. 2025 YSSP Final Colloquium, International Institute of Applied System Analysis (IIASA), Laxenburg, Austria. [**Oral Presentation**].
- **Malode, S. N., Pelz, S., Joshi, S., Singh, A., & Pachauri, S., (2025):** Sectoral Emissions Trading in Integrated Assessment Model: Application to Indian Cement and Steel Sector using MESSAGEix Framework. 2025 Student Research Fest, Complexity Science Hub, Vienna, Austria. [**Oral Presentation**].
- **Malode, S.N., & Singh, A., (2025):** Tracking, Targeting, and Transforming: Quantifying and Closing the Emissions Gap with Integrated Assessment Models. RE-CONNECT Workshop, PBL Netherlands Environmental Assessment Agency, Hague, Netherlands, Online Session 1, Part 2, Zenodo <https://doi.org/10.5281/zenodo.15425813> [**Online Oral Presentation**].
- **Malode, S.N., & Singh, A., (2024):** Setting Emission Cap on Thermal Power Sector for Indian Carbon Market: A Scenario Analysis using MESSAGEix Modelling Framework. IIASA Summer School for Systems Modeling 2024, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria, Zenodo <https://doi.org/10.5281/zenodo.14039458> [**Oral Presentation**].

- **Malode, S.N., & Singh, A., (2024):** The Energy Storage Requirement for Decarbonizing Indian Power Sector: Analysing Emission Cap Scenario through the MESSAGEix-Flextool. Seventeenth IAMC Annual Meeting, Yonsei University, Main Campus, Seoul, South Korea, November 4-6, 2024, Zenodo <https://doi.org/10.5281/zenodo.14039458> [Online Poster Presentation].
- **Malode, S.N., & Singh, A., (2024):** Emission Cap Scenarios for Indian Power Sector using MESSAGEix Modelling Framework. Next Generation Challenges in Energy-Climate Modelling Workshop 2024 (Fully Virtual), University of Reading, Reading, Great Britain, September 26-27, 2024, Zenodo <https://doi.org/10.5281/zenodo.13856830> [Online Poster Presentation].

## Internship Experience

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Total Internship Experience : 11 Months

- **RADICALi Pte Ltd, Singapore** 8 Months  
Intern - Regulatory Intelligence (Part-time and Remote) Nov 2019 - Aug 2020
- **National Institute of Public Finance and Policy, New Delhi, India** 3 Months  
Research Intern - Economics (Full-time) Mar 2019 - June 2019

## Technical and Professional Skills

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- **Softwares/Languages:** MS Excel, GAMS, Python (Libraries- pandas, GAMSPY, matplotlib), R, L<sup>A</sup>T<sub>E</sub>X
- **Energy/Power System Models:** IIASA's **MESSAGEix Framework**, IRENA's **FlexTool**, SEI's **LEAP**, **IESS2047**
- **Professional and Quantitative and Qualitative Research Skills**
  - **Operation Research** (Linear and Mixed Integer Programming) specialization in Energy System Optimization, and Mathematical Modeling
  - **Data Analysis and Statistical Modeling** using Regression [Github Repositories: [github.com/shreeyashn20](https://github.com/shreeyashn20) ]
  - **Regulatory Impact Assessment**, Policy Research and Analysis specialization in **Energy and Climate Policies**
  - **System Dynamics Modeling**, Agent-Based Modeling, Game Theory
  - **Report Writing**, PowerPoint Presentation, Journal/Academic Writing, Copywriting and Legal Drafting
  - **Literature Review**, Design Thinking, Exploratory Research, Survey, Focus Group Discussion

## Awards and Achievements

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- Selected for **MS Research Hub EU-Funded Scholarship program** for online participation at **General Equilibrium Model**: MS Research Hub, Kassel, Germany
- Awarded **RE-CONNECT** grant for online poster presentation at **17th Integrated Assessment Modelling Consortium Annual Meeting**: RE-CONNECT Project, European Commission (EU) and IAMC Secretariat
- Participated in the **2024 IIASA Summer School for System Modeling on a full fee waiver**: International Institute for Applied Systems Analysis, Laxenburg, Austria [On-site]
- **Institute Assistantship for pursuing Ph.D. in Management**: IIT Kanpur
- All India Rank 100 in Graduate Aptitude Test in Engineering (2021) for Sociology Stream: IIT Bombay
- **Institute Silver Medal for Second Best Student (M.Sc Regulatory Governance 2018-20)**: TISS Mumbai
- **Institute Rank 1 in B.E. Power Engineering Final Year**: NPTI Nagpur
- **INSPIRE Scholarship 2013 by Department of Science and Technology**: Government of India
- **Merit-based Scholarship for Higher Education**: Maharashtra State Electricity Distribution Company Limited

## Certifications and Workshops

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- **2024 Summer School for System Modeling [July, 2024]**: IIASA, Laxenburg, Austria [On-site]
- **Electric Vehicle: Mobility meets the power system**: Florence School of Regulation, European Union Institute
- **Model for Analysis of Energy Demand**: Climate Compatible Growth, U.K.
- **MESSAGEix Workshop [June, 2021 & 2025]**, **MESSAGEix Community Meetings [2022-2024]**: IIASA

## References

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- **Prof. Anoop Singh** [anoops@iitk.ac.in](mailto:anoops@iitk.ac.in)  
Professor, IIT Kanpur
- **Prof. Sachin Warghade** [sachin.warghade@tiss.edu](mailto:sachin.warghade@tiss.edu)  
Assistant Professor, TISS Mumbai