Environmental Engineering & Sciences

Department of Civil and Environmental Engineering

CEE 595G Seminar

Monday, April 29, 2024 | 12:00 – 12:50 p.m. CST | 3310 Yeh Center

Agriculture and Food Systems in India: A Wicked Problem

Food systems today face a wicked problem. Current agricultural practices have resulted in widespread environmental damages, yet there is an urgent need to expand food production to reduce nutrition inequities. This is particularly crucial for a country like India that faces the dual challenge of food and environmental health security for an estimated 1.6 billion people by 2050. In this talk, I will provide an overview of how the Indian food system impacts the environment, focusing on a class of compounds called reactive nitrogen. An Environmentally Extended Input-Output model was developed to track reactive nitrogen sources and flows from the agriculture sector for the years 2000-2020. Findings suggest large inefficiencies in nitrogen management for crop and livestock production, with nearly 60% of the applied nitrogen lost to the atmosphere and hydrosphere. While such inefficiencies can be mitigated through sustainable production practices, dietary choices have also been identified to be an important lever for mitigation. Preliminary results from a consumption-based greenhouse gas emissions inventory highlight dairy and meat consumption as the largest contributor to climate footprint, with significant regional and demographic heterogeneity. Overall, the talk will highlight the need for a holistic approach to co-design agricultural and environmental policies to mitigate the existing paradoxical challenges posed by modern-day food systems.

Professor Srinidhi Balasubramanian
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Biography

Srinidhi Balasubramanian is an Assistant Professor in the Environmental Science and Engineering Department and an Affiliate Faculty in the Interdisciplinary Program in Climate Studies at the Indian Institute of Technology Bombay, India. Her research interests are in two complementary areas - in developing and implementing air quality models for the study of human and ecosystem health and in the sustainability of agriculture and food systems.

She holds in Bachelors in Civil Engineering from Mumbai University and a Masters in Technology in Environmental Science and Engineering from IIT Bombay. She graduated with a Ph.D. in Civil and Environmental Engineering at the University of Illinois at Urbana-Champaign under the supervision of Dr. Sotiria Koloutsou-Vakakis and Professor Mark Rood. Then, she pursued postdoctoral research at the University of Minnesota. She very much enjoys her time in the classroom, pursuing academic outreach and exploring the world through plant-based cooking.