M.S. Chadha Center on Global India

*Developing leadership for the study of India in a global context*

**First Annual Conference**  
March 27-28, 2020


**Urban Sustainability Transitions in India and the World: Advancing Science & Policy**

*About the center:* The mission of the M.S. Chadha Center for Global India (CGI) is to address key interactions between India and the world that have potential to transform human and planetary wellbeing, and our imaginaries of the human experience. CGI is novel in its focus on the linkages between India and the world, rather than solely focused within India. Examples of global India topics include: the linkage between Indian urbanization and global sustainability; new visions of literature, art and music at the intersection between India and the world; technology and infrastructure leap-frogging in India and the world; the global impact of India’s diaspora; and studies of India’s democracy in a global perspective.

*Conference theme:* This inaugural conference convenes global experts to address the topic of Global India, focusing on India’s urbanization in the context of global sustainability.

*Objectives:* To develop interdisciplinary scholarship on urban sustainability at local, national, and global scales, in ways that inform policy and action. We will compare, contrast, learn from, and inform massive urbanization in India that is expected to bring 400 million new urbanites to cities by the year 2050. This urbanization is occurring against the backdrop of major environmental and infrastructure transitions, reflected in several urban policy initiatives, including the UN’s Sustainable Development Goal of developing sustainable cities and communities, Smart City initiatives in the US and India, the zero carbon and healthy city paradigm, the circular economy city, the water-sensitive city, and others. Urban trajectories in India will likely influence urbanization in Southeast Asia and Africa, and profoundly impact global sustainability. These major transitions are poorly understood, but need to be addressed urgently, leveraging technological, infrastructure, and social innovations.

The conference seeks first to build public awareness about India’s urban trajectory and our common quest for sustainability across cities and nations worldwide. A second purpose is to develop networks for future partnerships between Princeton scholars and leaders in the field of urban sustainability, from the US, India, and international organizations.

*Co-sponsored by PIIRS, PEI, and Princeton Engineering – the Metropolis Initiative.*
Agenda as of 3/17

*Conference format:* The conference is entirely online. Princeton students and faculty have the option to meet in-person for specific sessions in room 144, Louis Simpson International Building, or may choose to join remotely. In light of COVID-19, there will be no public plenary on the Princeton campus to avoid large gatherings in small spaces.

- The livestreamed events are highlighted below in maroon font, these events will be broadcast one way to a broader audience of registered attendees outside of Princeton University with emphasis on other schools, U.S national labs, city related organizations and the general public. Participants could submit questions online, for a short, moderated Q&A session. In the interest of time and sound quality, questions submitted will be moderated.

The academic sessions and discussions will be closed to the general public and will focus on emerging research clusters at CGI.

- Understanding Urbanization: Its Scale and Dimensions, Data and Models
- Infrastructure Challenges and Innovations: Smart Grid, Smart Cities, Circular Economy
- Energy Transitions, Air Quality, Climate, and Health
- Water, Climate and Health
- Urban Food Systems
- The Global Impact of Artificial Intelligence Innovations in India

Academic sessions will feature brief invited presentations followed by collaborative discussions aimed at clarifying a more detailed policy and action focused research agenda in India.
## CONFERENCE AGENDA

### LOCATION

The conference is entirely online. Speakers and audience members will join via Zoom videoconferencing. For Princeton scholars, there is limited availability for 4-5 scholars who are already on-campus to join the academic sessions in-person in the Louis Simpson International Building, room 144, or at CEE 219 (TBD).

### DURATION

**US Eastern Daylight Time**
- Fri. Mar. 27, 8:30 am—4:30 pm
- Sat. Mar. 28, 9:00 am—2:30 pm

**India Standard Time**
- Fri. Mar. 27, 6:00 pm—Sat. Mar. 28, 2:00 am
- Sat. Mar. 28, 6:30 pm—Sun. Mar. 29, 12:00 am

### DAY 1: FRIDAY MARCH 27

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<tbody>
<tr>
<td>8:30-8:40 am EDT</td>
<td>6:00-6:10 pm IST</td>
<td>Welcome &amp; Introduction to Chadha Center: Professor Stephen Kotkin, Director, Princeton Institute for International &amp; Regional Affairs [PIIRS]</td>
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<tr>
<td>8:40-9:00 am EDT</td>
<td>6:10-6:30 pm IST</td>
<td>Research breakthroughs in Sustainable Urban Systems</td>
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<td>● Anu Ramaswami, Professor of Civil &amp; Environmental Engineering; Director, CGI, Princeton University</td>
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<tr>
<td>9:00-9:30 am EDT</td>
<td>6:30-7:00 pm IST</td>
<td>Perspectives from Global/International Agencies</td>
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<td>● Satya Tripathi, Assistant Secretary-General and Head of the New York Office, United Nations Environment Programme</td>
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<td>● Aparna Subramani, Executive Director at the World Bank Group representing Bangladesh, Bhutan, India, Sri Lanka</td>
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<tr>
<td>9:30-9:40 am EDT</td>
<td>7:00-7:10 pm IST</td>
<td>Bridging from Local to Global</td>
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<td>● Ani Dasgupta, Global Director, Ross Center for Sustainable Cities, World Resources Institute</td>
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<tr>
<td>9:40-10:00 am EDT</td>
<td>7:10-7:30 pm IST</td>
<td>City Pilot Projects and Action on the Ground in India &amp; Other Nations</td>
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<td>● Ashish Rao-Ghorpade, Assistant Director, ICLEI-South Asia on “Community Based Action and City Pilot Projects in South Asia”</td>
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<td>● Isabel Wetzel, UNEP – UN Habitat, on “The Green Cities Program”</td>
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A Five-Minute Introduction to the second half of Session 1 (Anu Ramaswami)
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<tr>
<th>Time (EDT)</th>
<th>Time (IST)</th>
<th>Session Title</th>
<th>Details</th>
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</table>
| 10:05-10:45 am      | 7:35-8:15 pm        | Perspectives from India                                                        | • **Manish Gupta**, Director, Google Research, India on “Artificial Intelligence (AI) for Social Good in Urban India and the World”  
• **S. Krishnan** – Principal Secretary, Finance, Tamil Nadu, on “Urbanization, Water & Energy in Tamil Nadu”, Government of India  
• **Kunal Kumar** – Joint Secretary & Mission Director, Smart Cities Mission, Ministry of Housing and Urban Affairs, Government of India on India’s Smart City Program  
• **Rakesh Mohan** – Senior Fellow, Yale University; Former Deputy Governor, Reserve Bank of India, “Infrastructure, PPPs, Governance” |
| 10:45-11:00 am      | 8:15-8:30 pm        | Q&A                                                                           | • Online attendees to submit questions via the Zoom Chat function  
• Moderator will select a few questions for panel members to address  
• Questions will be moderated in the interest of time & sound quality |
| 11:00-11:45 am      | 8:30-9:15 pm        | Reflections from Researchers on Urban Economy, Innovation and Sustainability in India and the World | • Comments on urban systems, disease burden, and pandemics  
  ○ **Bryan Grenfell**, Professor of Ecology & Evolutionary Biology and Public Affairs (10 minutes)  
• Comments on comparative urban infrastructure studies:  
  ○ **Esteban Rossi-Hansberg** (10 minutes) – Professor, Economics, Princeton University, on “The economic success of cities in India, Mexico, and USA”  
  ○ **Elie Bou-Zeid** (10 minutes) – Professor, Civil & Environmental Engineering, Princeton University on “Translating urban science and technological innovation across nations”  
• Q & A (moderated, online)  
• Discussants:  
  ○ **Mario Gandelsonas** (perspectives from Architecture, Princeton University)  
  ○ **Adrien Matray** (perspectives on Economics and India Data, Princeton University) |

**Public livestreaming ends here**

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<th>Time (EDT)</th>
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<th>Break</th>
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<tr>
<td>11:45 am-12:15 pm</td>
<td>9:15-9:45 pm</td>
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| 12:15-2:00 pm       | 9:45-11:30 pm       | **Session 2: Air Quality, Climate, and Health**                              | **Closed Academic Session**  
**Session summary:** India faces a serious air pollution challenge. While most of the attention (and the investment in monitoring) has been focused on particulate matter pollution in cities, the full extent of health, climate, and crop-damaging pollutants extends beyond cities and includes high levels of ozone and other criteria pollutants. The Indo-Gangetic plain, a densely populated regions bounded
by high mountains to the north, is particularly hard-hit. Policy, private sector, and community attention to pollution is on the rise, however, and the national government has increased its financial allocations to air quality management to unprecedented levels. Several flagship national programs ranging from commitments to accelerate the energy transition to renewable energy to targets for electric vehicle usage and cleaner cities have much potential to contribute to cleaner air. This session will focus on ways that research can help support and accelerate these efforts to reduce pollution. It draws on insights from the WRI teams’ work with city and national policymakers, insights from India-based air quality researchers, and observations on a potential research program from Princeton-based faculty.

<table>
<thead>
<tr>
<th>Time</th>
<th>India Perspective on Science to Action</th>
<th>India Perspective from Academia: Landscape of Research Needs in India</th>
<th>Princeton Ongoing Work: Overview of Princeton’s ongoing project on air quality, climate, and health in India (about 5 minutes, speaker TBD)</th>
<th>Crafting a Future Vision: Princeton researchers present their early draft vision for a multi-faculty research agenda for US scholars working with Indian partners on air quality, climate and health</th>
<th>Crafting a Future Vision Brief: 1-minute TedX-style talks introducing researchers’ work and ideas for collaboration (2 slides each)</th>
<th>Discussion and crafting next steps (led by Jessica Seddon)</th>
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<tbody>
<tr>
<td>12:15-12:30 pm EDT</td>
<td>9:45-10:00 pm IST</td>
<td>Jessica Seddon, Visiting Fellow, Princeton, and, Global Air Quality Lead, WRI – global perspective</td>
<td>Vinayak Sinha – Professor, IISER Mohali</td>
<td>Denise Mauzerall, Professor, Environmental Engineering and International Affairs, Princeton University (10 minutes)</td>
<td>Thalia Gigerenzer, PhD candidate in Anthropology, Princeton University - Growing Up with Toxicity: Youth Writings on Pollution in Delhi</td>
<td>Research for impact/science-policy interaction</td>
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<td>12:30-12:45 pm EDT</td>
<td>10:00-10:15 pm IST</td>
<td>Ajay Nagpure, Head, Air Quality, WRI India—city experience (Surat)</td>
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<td>Mark Zondlo, Associate Professor, Civil and Environmental Engineering, Princeton University (10 minutes)</td>
<td>Anu Ramaswami, Professor of Civil &amp; Environmental Engineering - Director, CGI, Princeton University (urban infrastructure, air pollution, energy and health linkages)</td>
<td>Research priorities</td>
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<td>12:45-12:50 pm EDT</td>
<td>10:15-10:20 pm IST</td>
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<td>Discussants to provide brief opening remarks (5 minutes each)</td>
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<td>12:50-1:10 pm EDT</td>
<td>10:20-10:40 pm IST</td>
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<td>Gabriel Vecchi, Professor, Geosciences &amp; Princeton Environmental Institute, Princeton University</td>
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<td>1:10-1:25 pm EDT</td>
<td>10:40-10:55 pm IST</td>
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<td>João Biehl, Professor, Anthropology, Princeton University</td>
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<tr>
<td>1:25-2:00 pm EDT</td>
<td>10:55-11:30 pm IST</td>
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<td>Time</td>
<td>Session 3: The Urban Food System</td>
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<td>2:00-2:15 pm</td>
<td>Public Live-Streamed Session</td>
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<td><strong>Session summary:</strong> More than 200 cities, including cities in the US and India, have signed on to the Milan Food Pact, which aims to develop a sustainable and equitable food system by focusing on a variety of strategies within urban areas. This includes shifts towards more sustainable diets, urban agriculture, and food waste management. Urban actions can have profound impacts across the supply chain on food and agriculture systems. Because food is such a key part of our culture, changes in food systems are intricately linked to social and culture practices, as well as formal and informal institutions. This panel will explore urban food systems across scales, drawing upon supply chain insights from India, the US, and Africa; the growth of ethnic restaurants and Indian restaurants in the US; the discussion of the food-energy-water-nexus in India in the context of climate vulnerability; as well as efforts to develop the science for supporting food action planning in the US and Indian cities. Princeton University recently received an NSF award to support cities in the US and India in food action planning. This panel will seek to develop collaborative projects in this space, working with cities in the US and India.</td>
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Speakers (10 minutes each):

- **Upmanu Lall**, Professor and Director of the Water Center, Columbia University - on “Indian and global food-energy-water-climate challenges”
- **Dana Boyer**, Research Manager, Sustainable Urban Infrastructure Systems Lab, Princeton University - on food action planning, urban demand and environmental impacts in India and USA
- **Thomas Reardon**, Professor, Dept. of Agricultural, Food and Resource Economics, Michigan State University - On his findings about food supply chains and what is surprising about them, what is similar across the various systems in India, and African nations
- **Jason Ren**, Professor, Civil and Environmental Engineering; Andlinger Center for Energy and the Environment - Transforming food waste
- **Krishnendu Ray**, Associate Professor, Food Studies, New York University - Immigrant Lives and Urban Food Systems: Culture and Power
- **Anu Ramaswami**, Professor of Civil & Environmental Engineering; Director, CGI, Princeton University - food systems, health and well-being

**DISCUSSANTS:** Remarks/responses from **Andrew Chignell**, Professor of Religion & Philosophy (On Ethics and Food; To be confirmed); **Jessica Metcalf**, Assistant Professor of Ecology, Evolutionary Biology and Public Affairs, Princeton University (10 minutes); and **Smitha Haneef**, Assistant Vice President, University Services, Princeton University

- Online Audience QA (moderated online) for 15 minutes
**Public livestreaming ends here**

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<th>US EDT: 3:45-4:30 pm</th>
<th>IST: 1:15-2:00 am</th>
<th>Discussion</th>
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<tr>
<td><strong>Closed Academic Session on Future Research Directions in Urban Food Systems</strong></td>
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*Adjourn Day 1 of the Conference*
# Session 4: How Artificial Intelligence Research in India can Impact the World and Transform the Science

**Public Live-Streamed Session**

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<th>Time</th>
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<th>Session Details</th>
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<tr>
<td>9:00-10:05 am</td>
<td>6:30-7:35 pm</td>
<td>Welcome and Introduction to the Day’s Events</td>
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|                 | IST: 6:30-6:35 pm | Welcome and Introduction to the Day’s Events  
- **Anu Ramaswami**, Professor, Director, CGI, Princeton University                                                                                                                                             |
| 9:05-10:05 am   | 6:35-7:35 pm | Panel Discussion  
- **Manish Gupta**, Director, Google Research, India on “TBD exact title – here is a placeholder: Opportunities in India that have Potential to Transform the Science of AI: Laying the Landscape” (15 minutes)  
- **Sanjeev Arora**, Professor, Computer Science, Princeton University on “TBD – Exact Title to be Discussed” (10 minutes)  
- **Karthik Narasimhan**, Assistant Professor, Computer Science, Princeton University on “TBD – exact title – we discussed Research Frontiers in NLP” (10 minutes)  
- TBD on AI, data privacy, ethics, and governance (10 minutes)  
Moderated by **Shivaji Sondhi**, Professor, Physics, Princeton University  
- With comments from: **Aarti Gupta** (Professor, Computer Science, Princeton University) and **Ellen Ambrosone** (South Asian Studies Librarian, Princeton University, on Digital Humanities), **Swati Bhatt** (Economics), **Tithi Chattopadhyay**, Associate director, Princeton’s Center for Information Technology & Policy, and others (TBD) (15 minutes max) |
| 10:05-10:20 am  | 7:35-7:50 pm | Q&A  
- Online attendees may submit questions  
- Questions will be moderated in the interest of time and sound quality                                                                                                                                 |

**Public Livestreaming ends at 10:20AM EST**

*Closed Academic Discussion on Next Steps (10:20 to 10:45 AM EDT) (7:50PM to 8:15 PM IST)*

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<th>Time</th>
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| 10:45 am – 12:30 pm | 8:15-10:00 pm | Session 5: Energy Transitions in the U.S. & India: Strategies for Integrating Decarbonization, Energy Access, Smart Grid & Resilience  
**Closed Academic Session**  
*Session summary:* Energy transitions towards distributed renewable energy may use natural gas as a bridge from coal to a renewable future, and may incorporate demand response strategies such as smart grids and smart cities. This would have the benefit of meeting reducing local air pollution—one of the leading causes of premature mortality in India—as well as achieving future climate goals. This also has the potential to create...
resilient energy infrastructure and improve energy access. This panel will
discuss pathways for energy transitions in India, the science of measuring
air pollution and health co-benefits, and how to enable policy
environments.

### Understanding the Landscape of the Energy Sector and Transitions in India
- **Neeli Srinivas Rajamani**, City of Vishakapatnam & Representative of Andhra Pradesh Electric Power Distribution Company Ltd (APEPDCL - TBD) (7-8 min)
- **Ashish Rao-Ghorpade** (Electric mobility experiments in India) (7-8 min)
- **Rahul Tongia**, Fellow, Brookings India (electricity governance) (7-8 min)
- **Ashwin Gambhir**, Fellow, Prayas (7-8 min)

### Princeton Ongoing Work
- **Elke Weber and Chris Greig** on “The Rapid Switch Project” (about 5 minutes)
- **Anu Ramaswami** on “An urban energy use atlas in India” (about 5 minutes)

### Brainstorming Visions of Future Research
- **Vijay Modi**, Columbia University, Professor of Mechanical Engineering - Big Ideas for US-India Collaborations (10 minutes)

### Vision of Future Research: 2-minute TedX-style talks introducing researchers’ work (2 slides each) (5 minutes)
- **Narasimha Rao**, Yale University, Assistant Professor of Energy Systems

### Landscape of US/India Energy Research Collaboration
- **Josh Sperling** (National Renewable Energy Laboratory, Urban Futures and Energy-X Nexus Engineer; Project Manager) 10 min

DISCUSSANTS: **Sharad Malik** (Princeton University, Professor of Engineering) and **Robert Socolow** (To be confirmed—Princeton University, Professor Emeritus, Mechanical and Aerospace Engineering) provide reflections from engineering and sustainability systems perspectives (10 minutes)

### Discussion and crafting next steps (about 30 minutes)

#### Break

**Session 6: Water, Climate, and Health**

**Closed Academic Session**
### Session summary:

Last year, the city of Chennai experienced extreme water scarcity and devastating flooding within the space of a few months. Water is already becoming a scarce resource in India, and this will only be further exacerbated by urbanization, population growth, and climate change. Water issues in cities face twin challenges: addressing drinking water and food supplies, and dealing with flooding—riverine, coastal, and intra-urban flooding due to poor infrastructure. Vulnerable populations are particularly at risk, raising issues of equity and justice. What is the future of urban infrastructure planning to address these multiple constraints? Can we develop an interdisciplinary joint project, using Chennai or other cities as a case study?

### India Perspective
- **Balaji Narasimhan** (From IIT-M) presents about multi-dimensional water issues in Chennai - water scarcity and flooding in (both riverine, coastal and intra-urban pluvial, and perhaps also sanitation challenges. (about 10 minutes)
- Other possible speakers: **Jessica Seddon** on governance challenges and what WRI is doing in India (5 minutes)
- **Anita Arjundas**, Krea University (to be confirmed)

### Princeton Ongoing Work
- **Amilcare Porporato**, Professor, Civil and Environmental Engineering, Princeton University, presents an overview of Princeton's ongoing project on water, climate and health (~5 minutes)

### Future Vision
- **Upmanu Lall** (Professor and Director of the Water Center, Columbia University) and **Balaji Rajagopalan** (Professor, U Colorado Boulder) present their vision for a research agenda for US scholars working with Indian partners on urban water sustainability and resilience (10 minutes)
- **Bhavani Raman** (Associate Professor, University of Toronto) and **Priti Narayan** (Fellow, Princeton University) present an overview of their work and vision for research from a humanities and social science perspective (if Bhavani can join online) (10 min, 5 min each)

### Future Vision Brief: 1-minute TedX-style talks introducing researchers' work (2 slides each) – 5 minutes total
- **Jason Ren**
- **Anu Ramaswami**

### Discussants
- **James Smith** (Professor, Princeton University) and **Gyan Prakash** (Professor, Princeton University) provide reflections from engineering and humanities perspectives (10 minutes)

### Discussion and crafting next steps (about 40 minutes)
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<tr>
<th>US EDT: 2:25-2:30 pm</th>
<th>IST: 11:55 pm-12:00 am</th>
<th>Closing and THANK YOU</th>
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<tbody>
<tr>
<td>Adjourn</td>
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