

# VAISHALI KUSHWAHA

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205 Kent St, #28, Brookline, MA 02446, USA  
Mobile: +1 857 540 8266  
Email: [kushwaha.v@northeastern.edu](mailto:kushwaha.v@northeastern.edu)  
[vaishali.kushwaha@gmail.com](mailto:vaishali.kushwaha@gmail.com)

## Research Interests

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Urban Environmental Sustainability; Climate Change Resilience; Water Security; Asian cities; Environmental Planning, Management and Governance; Ecological Economics; System Dynamics; Network Analysis; Urban Informatics

## Education and Academic Achievements

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**PhD in Law and Public Policy (GPA 4.0/4.0)** 2015 – Ongoing  
*Northeastern University, School of Public Policy and Urban Affairs* Boston, MA, USA

- Recipient of **NULab for Texts, Maps, and Networks Fellowship 2020-2021; 2021-2022**
- Recipient of **Hong Liu Asian Studies Research Award 2018**
- Dissertation - Securing Water for Urbanizing India: Articles on Planning, Management, and Governance  
[Article 1](#) - Institutional (Dis)Arrangements and Urban Water Governance in India: A Case Study of Ahmedabad using Social Network Analysis | [Article 2](#) - System Dynamics Approach to Urban Water Management – Study of Water Security in Ahmedabad, India | [Article 3](#) - Sustainable and Resilient (SURE) Urban Water Management: An Assessment Framework for Indian Cities

**Master in Public Administration (GPA 4.8/5.0)** 2009 - 2011  
*National University of Singapore, Lee Kuan Yew School of Public Policy* Singapore

- **Led Editorial Team of Water Leaders' Summit**, Singapore International Water Week 2009

**Master of Science - Environmental Engineering (GPA 3.8/4.0)** 2003 - 2005  
*Texas A&M University, Dwight Look College of Engineering* College Station, TX, USA

- **J. Walter Porter Fellowship**, Texas Section of American Society of Civil Engineers (ASCE), 2004 – 2005
- **Maritime Systems Engineering Scholarship**, Texas A&M University at Galveston, 2005

**Bachelor of Engineering - Civil Engineering (GPA 4.0/4.0)** 1998 – 2002  
*Gujarat University, L.D. College of Engineering* Ahmedabad, India

- **First female representative** nominated to the student union, 2001- 2002
- **Gold Medal** for highest grade in Geotechnical specialization, Gujarat University, 2002

## Research | Teaching | Capacity Building Experience

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**Northeastern University**, College of Humanities and Social Sciences  
*Research Fellow at Digital Integration Teaching Initiative*

*NULab for Texts, Maps, and Networks Fellow (2 years)* 2020 – 2022

- Collaborate with faculty across social sciences and humanities to integrate digital proficiencies into their curriculum
- Develop and deliver educational material for remote (synchronous and asynchronous) and in-person training and capacity building of graduate and undergraduate students.
- Published a Digital Mapping and Storytelling Research Project: [WaterMap of Ahmedabad, India](#) [[Project Blog](#)]

*Instructor/ Co-Instructor/ Teaching Assistant (5 years)* 2015 – 2020

- PPUA 6509: Techniques of Program Evaluation (8 semesters)
- PPUA 5261: Dynamic Modeling for Environmental Decision Making (1 semester)
- PPUA 6502: Economic Analysis and Institution (3 semesters)

- PPUA 6554: International NGOs and Transnational Activism (1 semester)
- PPUA 7673 Capstone in Public Policy and Urban Affairs (1 semester)
- INSH 6500 Statistical Analysis (2 semester)

*Research Assistant (2 years, 4 months)* 2019; 2016 –2017

- Resilience Domain Mapping: Applied network analysis to study the potential for synergies and collaboration across departments in Northeastern University for a potential resilience program.
- Resilience Governance Project of DHS Critical Infrastructure Resilience Institute: Analyzed governance challenges to advancing greater awareness and management of the risks arising from regional lifeline infrastructure interdependencies. Reviewed literature conducted survey and developed network maps to study the strengths and weaknesses of current collaboration of energy, transportation, and planning agencies in Greater Boston Area.

**Management Development Institute of Singapore**, Department of Public Administration and Management  
*Associate Lecturer (Rating 4.43/5.0)* 2013 - 2014

- Developed and delivered graduate-level course GPAD1 1302A Economic Analysis of Public Policy

**Nirma University of Science and Technology, India**, Department of Civil and Environmental Engineering  
*Lecturer* 2006 – 2007

- Developed and delivered undergraduate-level courses in Environmental sciences, Environmental engineering, Civil engineering, and Town planning. Guided students on research projects and seminars.
- Member of Gujarat Pollution Control Board (GPCB) recognized audit and environmental consultancy team. Conducted Environmental Impact Assessments and Audits for private sector companies/industries.

**Texas A&M University**, Department of Ocean and Maritime Systems Engineering  
*Research Assistant* 2003 – 2005

- Studied and compared the man-made beneficial use marshes with the natural marshes in Galveston Bay, Texas.
- Collected field data and conducted hydrodynamic and sediment transport modeling.

## Civil Society | Think Tank | Consultancy Experience

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**Centre for Sustainable Asian Cities (CSAC)** [<https://www.sde.nus.edu.sg/csac/>]

School of Design and Environment, National University of Singapore

*Visiting Researcher | Research Associate | Research Assistant (3 years 8 months)* 2014, 2009 - 2012

- Member of Singapore Ministry of National Development Research Fund project - Benchmarks, Best Practices and Framework for Sustainable Urban Development and Cities.
- Developed framework for Singapore to guide its sustainable urban development. Reviewed and selected sustainable development indicators, analyzed best urban practices, and identified benchmarks for the city-state.
- Led research, publication, and presentation of 5 themes (out of 13) focusing on governance, water resources, climate change, air quality, and waste management.
- Coordinated the team of 5 researchers, mentored interns, convened consultation meetings and workshops.

**United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)**

*Associate to Independent Consultant Dr. Lai Choo Malone-Lee (1 year)* 2009, 2011-2012

- Project “Capacity Building Needs of the Water Sector in South-east Asia and South Asia” - Identified capacity building needs of the water sector in South-East Asia and South Asia, conducted workshop and survey of over 25 government representatives from the region.
- Project “Evaluation of the Master Plan on Active, Beautiful and Clean Waters for All of Singapore” - Evaluated eco-efficiency of Singapore’s water infrastructure policy and master plan to transform itself into City of Gardens and Water, extracted lessons and scope of adopting similar plans for developing countries in Asia.

**Enviro Pro**, Singapore [<https://www.enviroprogreeninnovations.com/>]

*Environmental Engineer and Consultant (1 year)* 2008 – 2009

- Planned, designed, and implemented blue-green infrastructure solutions, integrate bioengineering and water sensitive urban design features in projects for public and private sector clients in Singapore and Indonesia.
- Designed and conducted experiments to study the impact of artificial green islands on surface water quality.
- Conducted environmental impact assessments, initial environment examinations and due diligence audits. Developed risk based corrective action computational software and training material.

### Asia Development Bank (ADB)

Associate to Independent Consultant Carsten Huttche (6 months)

2008

- Project “Remote Environmental Assessment for Infrastructure Projects in Conflict Area” - Conducted remote environmental impact assessment for energy sector development investment program in Afghanistan.

### Centre for Environment Education (CEE), Ahmedabad, India [<https://www.ceeindia.org/>]

Program Officer at Director’s Office (1 year 6 months)

2007- 2008

- Responsible for coordination, communication, monitoring and documentation of CEE activities at the Director’s Office. Created and implemented a new accountability and reporting system for monitoring over 200 projects across 30 offices.
- Incubated and developed new initiatives, like (1) HandPrint: a concept capturing positive action, commitment, measurement, and collaboration for a better future); (2) Climate Change Certificate Course that later transformed into graduate program.
- Supervised and mentored team of 3 members, introduced and managed a quarterly newsletter, revamped the institutional website.
- Core team member of the secretariat for the planning and organization of the UNESCO, UNEP and Gol sponsored, 4th International Conference on Environmental Education (ICEE) organized during 24-28 November 2007. Led and coordinated the curation, design and production of CEE’s history timeline exhibition for display at the 4<sup>th</sup> ICEE.
- Integral to proposal writing, liaison, fund raising and networking with institutes, government departments, NGOs, international development organizations and funding agencies.

### RAM Group of Gannett Fleming, Inc. Houston, USA,

Environmental/Risk Assessment and Management Engineer (7 months)

2005 – 2006

- Performed risk assessments and developed mitigations and management strategies for contaminated sites in the US. Developed regulatory guidance, risk assessment software and training for Risk- Based Corrective-Action (RBCA) Programs for numerous states and the U.S. Air Force in Europe (USAFE).

### VIKSAT, Kutch, India [<http://www.viksat.org/>]

Trainee (3 months)

2003

- Planned, designed and executed watershed management and rainwater harvesting strategies and structures in drought affected rural areas of Kutch, Gujarat.
- Facilitated community participation and *Pani Samiti* (Village-level Water Committee) discussions for planning and management of water infrastructures.

## Digital Proficiencies

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| – Statistical Analysis (R, STATA)                      | – Network Mapping (NodeXL, Gephi)             |
| – Data Visualization (Tableau public)                  | – Website Design (Wix, Google Sites)          |
| – Spatial Mapping (ArcGIS Online)                      | – Hydrodynamic Modelling (ADCIRC, DYNLET)     |
| – Digital Story mapping (KnightLabs and ESRI Storymap) | – Graphics editor (Adobe Photoshop)           |
| – Computational Text Analysis (Voyant, Lexos)          | – Citation Management (Endnote)               |
| – Systems Thinking (STELLA)                            | – MS Office (Excel, PowerPoint, Word, Access) |

## Publications and Conference Papers

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### Conference Papers and Posters Presentations

- Kushwaha, V (2022). "Evaluation of Urban Water Security using Systems Thinking and Dynamics Modeling – A Case Study of Ahmedabad, India" Paper presentation, *Urban Affairs Association 50<sup>th</sup> Annual Conference*, April 12–14, 2022
- Kushwaha, V (2022). "Institutional (Dis)Arrangements and Urban Water Governance in India: Case Study of Ahmedabad using Social Network Analysis" Poster presentation, *Urban Affairs Association 50<sup>th</sup> Annual Conference*, April 12–14, 2022
- Kushwaha, V (2021). "Institutional (Dis)Arrangements and Urban Water Governance in India: Case Study of Ahmedabad using Social Network Analysis" *Annual Conference on South Asia*. Center for South Asia, University of Wisconsin-Madison. Virtual, October 21-23, 2021.
- Kushwaha, V (2020). "Analyzing Urban Water Governance Using Social Network Approach – Case of Ahmedabad City, India" *APPAM DC Regional Student Conference*. American University, Washington, DC, April 24-25. Paper/Abstract accepted but Conference canceled (COVID-19).
- Kushwaha, V (2020). "Sustainable and Resilient (SURE) Urban Water Management: Assessment and Planning Framework for Indian Cities". *Graduate Student Conference 2020*. UMass Boston, April 17. Paper/Abstract accepted; Conference canceled (COVID-19).
- Kushwaha, V. (2017). "Developing a Model for Residential Energy Efficiency Assessment using Big Data: A Case Study of Boston" *American Association of Geographers Annual Meeting*. Boston, April 5-9, 2017.
- Kushwaha, V., Malone-Lee, L.C., Heng, C.K. and Sathyanarayanan S. (2012). "An Assessment Framework for Evaluating Cities' Climate Change Adaptation through Urban Planning." *Resilient Cities 2012 – 3<sup>rd</sup> Global Forum on Urban Planning and Adaptation*. Bonn, Germany: ICELI Local Governments for Sustainability.
- Kushwaha, V., Malone-Lee, L.C. and Heng, C.K. (2010). "An Assessment Framework for Sustainable Water Resource and Infrastructure Planning: the case study of Singapore." *11th International Congress of Asian Planning Schools Association (APSA)*. Tokyo, Japan: The University of Tokyo.
- Malone-Lee, L.C., Sathyanarayanan S., Kushwaha, V., and Heng, C.K. (2010). "Evaluating the Transport-Pollution-Energy Nexus using the DPSIR framework: The case study of Singapore." *11th International Congress of Asian Planning Schools Association (APSA)*. Tokyo, Japan: The University of Tokyo.
- Ravens, T. and Kushwaha, V. (2005). "Design of Sustainable Tidal Creeks for Beneficial Use (Created) Marshes in Galveston Bay." *International conference: Oceans 2005 MTS/IEEE*. Washington, D.C.

### Reports

- Heng, C.K., Malone-Lee, L.C, Tham, K.W....and Shams, I. (2013). "Benchmarks, Best Practices and Framework for Sustainable Urban Development". Report of the Research Project by the Centre for Sustainable Asian Cities, National University of Singapore, supported by the Ministry of National Development and the Building and Construction Authority, in collaboration with the Urban Redevelopment Authority, Housing and Development Board and National Parks Board of Singapore.
- Malone-Lee, L.C. and Kushwaha, V. (2012). "Capacity Building Needs of the Water Sector in South-east Asia and South Asia". A report submitted to the UNESCAP as part of Capacity Building in Integrated Lake Basin Management and Capacity Building Needs Assessment initiative.
- Kushwaha, V. (2012). "Urban Water System and Environmental Sustainability Dynamics, in Singapore". In *Dynamic Modelling of Public Policy Systems - Selected Student Papers from the 2011 Class*, by National University of Singapore – Global Asia Institute.
- Malone-Lee, L.C., Heng, C.K. and Kushwaha, V. (2009). "Evaluation of the "Master Plan on Active, Beautiful and Clean Waters for All" of Singapore". A report submitted to the UNESCAP under its Eco-efficient and Sustainable Urban Infrastructure Development in Asia and Latin American initiative.
- Kushwaha, V., and Huttche, C. (2009). "Remote Environmental Assessment for Infrastructure Projects in Conflict Areas". A report submitted to Asia Development Bank (ADB) as part of consultation for Energy Sector Development Project in Afghanistan.

**Thesis**

Kushwaha, V. (2005). "Hydrodynamics and Sediment Transport in Natural and Beneficial Use Marshes".  
Master of Science Thesis submitted at Texas A&M University, College Station.

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