

Dr. Anu (Anuradha) Ramaswami

Charles M. Denny Jr. Chair Professor of Science, Technology & Environmental Policy
Humphrey School of Public Affairs
Professor, Department of Bioproducts and Biosystems Engineering
University of Minnesota (UMN)
Phone: (303)523-8130; e-mail: anu@umn.edu

EDUCATION

Indian Institute of Technology, Madras	1987	BTech	Chemical Engineering
Carnegie Mellon University	1989	M.S.	Civil Engineering
Carnegie Mellon University	1995	Ph.D.	Civil & Environmental Engineering,

PROFESSIONAL EXPERIENCE

Sept. 2012 -	Denny Chair Professor of Science, Technology & Public Policy, Director, Center for Science Technology & Public Policy Humphrey School of Public Affairs, University of Minnesota (UMN) Professor, Bioproducts & Biosystems Engineering, UMN
August 2017-2020	Co-Director, NSF Smart & Connected Communities (S&CC): <i>Connecting the Smart-City Paradigm with a Sustainable Urban Infrastructure Systems Framework to Advance Equity in Communities</i>
August 2015-2019	Director and Lead PI, NSF Sustainability Research Network: <i>Integrated Infrastructure Solutions for Sustainable, Healthy and Livable Cities</i>
Nov. 2012 - 2016	Director and Lead PI, NSF PIRE: <i>Developing Low Carbon Cities in USA, China & India through Interdisciplinary Integration</i>
Aug. 2007 - 2013	Director and Lead PI, NSF IGERT - <i>Sustainable Urban Infrastructure</i>
Aug. 2007-2012	Professor of Civil Engineering, University of Colorado Denver (UCD) Director, Center for Sustainable Infrastructure Systems, UCD
2003-2007	Associate Professor, University of Colorado Denver
1996-2003:	Assistant Professor, University of Colorado Denver
1995-1996:	Research Assistant Professor, Colorado School of Mines

LEADERSHIP, SERVICE & AWARDS

June 2016 - 2018	Elected Vice-Chair of the Gordon Research Conference on Industrial Ecology (and Chair of the 2020 Gordon Conference)
July 2014 -	Member, UN Environment's International Resource Panel
September 2016 -2017	Co-Lead of the United Nations International Resource Panel Inaugural Report presented at the UN Environmental Assembly, December, 2017
September 2016 -	Member of the US National Science Foundation's External Advisory Committee on Environmental Research and Education (ACERE)
2012 - 2013	Lead Author IPCC Working Group III Chapter 12: Human Settlements, Infrastructure & Spatial Planning

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- 2009 Recipient of the 2009 ATT Faculty Fellowship Award for Industrial Ecology
- 2008 USEPA C2P2 Pollution-Prevention Partnerships: First Place Winner (with City of Denver).
- 2008 The Wirth Chair Sustainability Award for “*Pioneers of the New Energy Economy*”, 4/2008.
- 2005 University of Colorado Denver *Campus-wide Teacher of the Year Award*, 2005.
- College of Engineering *Teacher of the Year Award*, UCD, 2005.
- 2005 Faculty Advisor for winning student team at *US Environmental Protection Agency’s National P3 Student Design Contest* for People, Prosperity and the Planet, Washington DC, May.
- 2002 College of Engineering *Researcher of the Year Award*, UCD, 2001-02.
- 1998 College of Engineering *Teacher of the Year Award*, UCD, 1997-98.
- 1983 *All-India 11-th rank* (Science) in the National Secondary School Examination.

SCHOLARLY ACTIVITIES

GRADUATE LEVEL TEACHING TEXTBOOK

- 2005 Ramaswami, A.; Milford, J.B.; Small, M.J. **Integrated Environmental Modeling: Pollutant Transport Fate and Risk in the Environment**. Graduate-level Textbook, **John Wiley Inc.**, New York, NY. ISBN: 978-0-471-35953-1

MAJOR REPORTS

- 2018 ACERE (2018). ***Sustainable Urban Systems: Articulating a Long-Term Convergence Research Agenda***. A Report from the NSF Advisory Committee for Environmental Research and Education. Prepared by the Sustainable Urban Systems Subcommittee. (Ramaswami served as Lead Author and Chair of the Sustainable Urban Systems Subcommittee. The report is available at: <https://www.nsf.gov/ere/ereweb/ac-ere/sustainable-urban-systems.pdf>)
- 2018 UNEP (2018). ***Sustainable Urban Transitions in the ASESAN Region: An Infrastructure & Resource Perspective***. Ramaswami, A., Tabory, S., McFarlane, A., & Pelton, R. (Summary available at: <https://resourceefficientcities.org/2018/02/sustainable-urban-infrastructure-transitions-in-the-asean-region/>)
- 2018 IRP (2018). ***The Weight of Cities: Resource Requirements of Future Urbanization***. Swilling, M., Hajer, M., Baynes, T., Bergesen, J., Labbé, F., Musango, J.K., Ramaswami, A., Robinson, B., Salat, S., Suh, S., Currie, P., Fang, A., Hanson, A. Kruit, K., Reiner, M., Smit, S., Tabory, S. A Report by the International Resource Panel. United Nations Environment Programme, Nairobi, Kenya. (Available at: <http://www.resourcepanel.org/reports/weight-cities>)
- 2017 IRP (2017). **Assessing global resource use: A systems approach to resource efficiency and pollution reduction**. Bringezu, S., Ramaswami, A., Schandl, H., O’Brien, M., Pelton, R., Acquatella, J., Ayuk, E., Chiu, A., Flanegin, R., Fry, J., Giljum, S., Hashimoto, S., Hellweg, S., Hosking, K., Hu, Y., Lenzen, M., Lieber, M., Lutter, S., Miatto, A., Singh Nagpure, A.,

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- Obersteiner, M., van Oers, L., Pfister, S., Pichler, P., Russell, A., Spini, L., Tanikawa, H., van der Voet, E., Weisz, H., West, J., Wijkman, A., Zhu, B., Zivy, R. (Ramaswami served as Co-Lead Author. The report is at: <http://www.resourcepanel.org/reports/assessing-global-resource-use>)
- 2014 A Lead Author of: *Chapter 12: Human Settlements, Infrastructure and Spatial Planning in Climate Change 2014: Mitigation of Climate Change, Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)*, Working Group III. (with Dhakal, S., Seto, K. corresponding lead authors, and: Bigio, A.; Blanco, H.; Delgado, J.C.; Dewar, D.; L. Humang, Inaba, A.; Kansal, A.; Lwasa, McMahon, J.; Mueller, D.; Murakami, J.; Nagendra, H.; Ramaswami, A. (lead authors in alphabetical order)
- 2013 Ramaswami, A. “*Understanding Infrastructure Impacts on Urban Greenhouse Gas Emissions and Key Mitigation Strategies*”, Chapter 11 in “**Infrastructure and Land Policies**”, published by the Lincoln Land Institute, Boston, MA.

PEER-REVIEWED JOURNAL ARTICLES

- 2018 Nagpure, A.S.; Reiner, M.; Ramaswami, A. (2018) Resource requirements of inclusive urban development in India: insights from ten cities, **Environmental Research Letters**, 13(2). <https://doi.org/10.1088/1748-9326/aaa4fc>
- 2017 Ramaswami, A.; Tong, K.; Fang, A.; Lal, R. M.; Nagpure, A. S.; Li, Y.; Yu, H.; Jiang, D.; Russell, A.; Shi, L.; Chertow, M.; Wang, Y.; Wang, S. (2017). *Urban cross-sector actions for carbon mitigation with local health co-benefits in China*. **Nature Climate Change**, 7(10), 736-742. doi: 10.1038/nclimate3373
- 2017 Tong, K., Fang, A., Yu, H., Li, Y., Shi, L., Wang, Y., . . . Ramaswami, A. (2017). *Estimating the potential for industrial waste heat reutilization in urban district energy systems: Method development and implementation in two Chinese provinces*. **Environmental Research Letters**, 12(12). doi: 10.1088/1748-9326/aa8a17
- 2017 Sperling, J. B., & Ramaswami, A. (2017). *Cities and “budget-based” management of the energy-water-climate nexus: Case studies in transportation policy, infrastructure systems, and urban utility risk management*. **Environmental Progress and Sustainable Energy**. doi: 10.1002/ep.12765
- 2017 Boyer, D., & Ramaswami, A. (2017). *What Is the Contribution of City-Scale Actions to the Overall Food System's Environmental Impacts?: Assessing Water, Greenhouse Gas, and Land Impacts of Future Urban Food Scenarios*. **Environmental Science and Technology**, 51(20), 12035-12045. doi: 10.1021/acs.est.7b03176
- 2017 Miller-Robbie, L., Ramaswami, A., & Amerasinghe, P. (2017). *Wastewater treatment and reuse in urban agriculture: Exploring the food, energy, water, and health nexus in Hyderabad, India*. **Environmental Research Letters**, 12(7). doi: 10.1088/1748-9326/aa6bfe
- 2017 Yi, H., Suo, L., Shen, R., Zhang, J., Ramaswami, A., & Feiock, R. C. (2017). *Regional Governance and Institutional Collective Action for Environmental Sustainability*. **Public Administration Review**. doi: 10.1111/puar.12799

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- 2017 Ramaswami, A., Jiang, D., Tong, K., & Zhao, J. (2017). *Impact of the Economic Structure of Cities on Urban Scaling Factors: Implications for Urban Material and Energy Flows in China*. **Journal of Industrial Ecology**. doi: 10.1111/jiec.12563
- 2017 Ramaswami, A., Boyer, D., Nagpure, A. S., Fang, A., Bogra, S., Bakshi, B., . . . Rao-Ghorpade, A. (2017). *An urban systems framework to assess the trans-boundary food-energy-water nexus: Implementation in Delhi, India*. **Environmental Research Letters**, 12(2). doi: 10.1088/1748-9326/aa5556
- 2016 Ramaswami, A.; Russell, A.; Culligan, P.; Sharma, K.R.; Kumar, E. (2016). *Meta-principles for developing smart, sustainable, and healthy cities*, **Science**. 352(6288).
- 2016 Ramaswami, A.; Baidwan, N.K; Nagpure, A.S (2016). *Exploring social and infrastructural factors affecting open burning of municipal solid waste (MSW) in Indian cities: A comparative case study of three neighborhoods of Delhi*, **Waste Management & Research**. 34(11).
- 2016 Lal, R.M; Nagpure, A.S.; Luo, L.; Tripathi, S.N.; Ramaswami, A.; Bergin, M.H; Russell, A. (2016). *Municipal solid waste and dung cake burning: discoloring the Taj Mahal and human health impacts in Agra*, **Environmental Research Letters**. 11(10), 104009.
- 2016 Bringezu, S.; Potočnik, J.; Schandl, H.; Lu, Y.; Ramaswami, A.; Swilling, M.; Suh, S. (2016). *Multi-Scale Governance of Sustainable Natural Resource Use—Challenges and Opportunities for Monitoring and Institutional Development at the National and Global Level*, **Sustainability**. 8(8).
- 2016 Zhang, C.; Cao, X.; Ramaswami, A. (2016). *A novel analysis of consumption-based carbon footprints in China: Unpacking the effects of urban settlement and rural-to-urban migration*, **Global Environmental Change**. 39.
- 2016 Tong, K.; Fang, A.; Boyer, D.; Hu, Y.; Cui, S.; Shi, L.; Kalmykova, Y.; Ramaswami, A. (2016). *Greenhouse gas (GHG) emissions from key infrastructure sectors in large and smaller Chinese cities: method development and benchmarking*, **Carbon Management**.
- 2016 Reiner, M.B.; Ramaswami, A. (2016). *What Is Remedial Secondary Infrastructure? Implications for Infrastructure Design, Policy for Sustainability, and Resilience*. **J. Infrastructure Syst.** 02516001
- 2015 Ramaswami, A.; Baidwan, N.K.; Nagpure, A.S. (2015). *Exploring Social and Infrastructural Factors affecting Open-burning of Municipal Solid Waste (MSW) in Indian cities: Connecting Infrastructure, Environment and Health Risk Perceptions in Three Neighborhoods in Delhi* (To be submitted to **Science of The Total Environment**).
- 2015 Nagpure, A.S.; Ramaswami, A.; Russell, A. (2015) *Characterizing the Spatial and Temporal Patterns of Open-burning of Municipal Solid Waste (MSW) in Indian Cities*, **Environmental Science & Technology**, 49(21), 12904-12912
- 2015 Lin, J., Hu, Y., Cui, S., Kang, J., & Ramaswami, A. (2015). *Tracking urban carbon footprints from production and consumption perspectives*. **Environmental Research Letters**, 10(5), 054001.

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- 2015 Jiang, D., & Ramaswami, A. (2015). *The 'thirsty' water-electricity nexus: field data on the scale and seasonality of thermoelectric power generation's water intensity in China*. **Environmental Research Letters**, 10(2), 024015.
- 2014 Ramaswami, A., Russell, A., Chertow, M., Hollander, R., Tripathi, S., Lei, S., & Nagpure, A. S. *International, Interdisciplinary Education on Sustainable Infrastructure and Sustainable Cities: Key Concepts and Skills*. **The Bridge**, 44(3).
- 2014 Cohen, E.; Ramaswami, A. "Water Footprint of Energy Supply to Cities: Conceptual Development and Case Study of Denver, CO". **J. Industrial Ecology**, 18(1):26-39
- 2013 Ramaswami, A.; Chavez, A. *What metrics best reflect the energy and carbon intensity of cities? Insights from theory and modeling of 20 US cities*, **Environmental Research Letters** (Impact Factor: 3.58), 8(3):035011. DOI:10.1088/1748-9326/8/3/035011
- 2013 Miller, L.; Ramaswami, A.; Kumar, P. "Life Cycle Energy Use and Greenhouse Gas Emission Analysis for a Water Resource Recovery Facility in India". **Water Environment Research**, 85(7):621-631(11).
- 2013 Chavez, A. Ramaswami, A. "Articulating An Infrastructure Supply-Chain Greenhouse Gas (GHG) Emissions Footprint for Cities: Mathematical Relationships and Policy Relevance", **Energy Policy**. Vol. 54: 376-384. March 2013.
- 2013 Ramaswami, A. "Social Actors and Key Policy Levers for Mitigating the Greenhouse Gas Footprint of US Cities". **Cityscape: A Journal of Policy Development And Research**, 15(1): 209-232.
- 2013 Miller, L.; Ramaswami, A.; Ranjan, R. "Contribution of Water and Wastewater Infrastructures to Urban Energy Metabolism and Greenhouse Gas Emissions in Cities in India". **ASCE J. Environmental Engineering**. Vol. 139, No. 5, May 2013, pp. 738-745.
- 2012 Chavez, A., Ramaswami, A., Dwarakanath, N., Ranjan, R., & Kumar, E. "Implementing Trans-Boundary Infrastructure-Based Greenhouse Gas Accounting for Delhi, India: Data Availability and Methods". **J. Industrial Ecology**: 814-828. (DOI: 10.1111/j.1530-9290.2012.00546.x).
- 2012 Ramaswami, A., Weible, Main, D., Heikkila, T., et al. "A Social-Ecological Infrastructural Systems (SEIS) Framework for Inter-Disciplinary Study of Sustainable City-Systems: An Integrative Curriculum across Seven Major Disciplines". **J. Industrial Ecology**, Vol.16, Issue 6: 801-813. (DOI: 10.1111/j.1530-9290.2012.00566.x).
- 2012 Liu, R., Durham, S.A., Rens, K.L. & Ramaswami, A. "Optimization of cementitious material content for sustainable concrete mixtures". **ASCE Journal of Materials in Civil Engineering**, 24(6): 745-753.
- 2012 Solis, A., Durham, S. A, Ramaswami, A. "Providing Storm water Management Solutions in Rajkot, India: A Pervious Concrete System Demonstration." **International Journal of the Constructed Environment**, Vol.2, Issue 3: 135-154.
- 2012 Ramaswami, A.; Bernard, M.; Chavez, A.; Hillman, T.; Whitaker, M.; Thomas; G.; Marshall, M. "Quantifying Carbon Mitigation Wedges in US Cities: Near-Term Strategy Analysis and Critical Review", **Environmental Science & Technology**, 46 (7): 3629–3642..

- 2012 Sperling, J.; Ramaswami, A. “*Exploring Health Outcomes as a Motivator for Low-Carbon City Development: Implications for Infrastructure Interventions in Asian Cities*”, **Habitat International**, 37: 113-123 (doi:10.1016/j.habitatint.2011.12.013).
- 2011 Chavez, A.; Ramaswami, A. “*Progress toward Low Carbon Cities: Approaches for Trans-boundary GHG Emissions’ Footprinting*”. **Carbon Management**, 2(4):471-482.
- 2011 Ramaswami, A.; Chavez, A.; Ewing-Thiel, E.; Reeve, K. “*Two Approaches to Greenhouse Gas Emissions Accounting at the City-scale*”, **Environmental Science & Technology**, 45(10): 4205-4206
- 2011 Ramaswami, A.; Main, D.; Bernard, M.; Chavez, A.; Davis, A.; Thomas, G.; Schnoor, K. “*Planning for low-carbon communities in US cities: a participatory process model between academic institutions, local governments and communities in Colorado*”. **Carbon Management**, 2(4):397-411. (doi: 10.4155/cmt.11.34)
- 2011 Kennedy, C., Ramaswami, A., Carney, S., and Dhakal, S. “*Greenhouse Gas Emission Baselines for Global Cities and Metropolitan Regions*”, In **Cities and Climate Change: Responding to an Urgent Agenda**, Chapter 2, pp 15-49, Edited by D. Hoornweg, M. Freire, M. J. Lee, P. Bhada-Tata, B. Yuen, The World Bank, Washington D.C, USA.
- 2011 Ramaswami, A.; Sperling, J. “*Epilogue: Knowledge and Field Measurements on Cities and Climate Change*”; In **Cities and Climate Change: Responding to an Urgent Agenda**, pp 255-259, Edited by D. Hoornweg, M. Freire, M. J. Lee, P. Bhada-Tata, B. Yuen, The World Bank, Washington D.C, USA.
- 2011 Kocman, S.; Guo, J.Y.C; Ramaswami, A. “*Waste Incorporated Sub-base for Porous Landscape Detention Basin Design*”, **ASCE Journal of Environmental Engineering**, 137, 928-936.
- 2011 Hillman, T.; Janson, B.; Ramaswami, A. “*Spatial Allocation of Transportation Greenhouse Gas Emissions at the City Scale*”, **ASCE Journal of Transportation Engineering**, Vol. 137, No. 6, June 2011, pp. 416-425.
- 2010 Hillman, T.; Ramaswami, A. “*Greenhouse Gas Emission Footprints and Energy Use Metrics for Eight US Cities*”, **Environmental Science & Technology**, 44: 1902-1910.
- 2010 Ramaswami, A. “*Finding and Educating Self and Others Across Multiple Domains: Crossing Cultures, Disciplines and Research Modalities*”, In: **What is Global Engineering Education For? The Making of International Educators**, Downey, G.; Beddoes, K. (Eds); Morgan Claypool Publishers. pp.150-174 (doi: 10.2200/S00302ED1V01Y201010GES001).
- 2010 Siddiki, S.N.; Martell, C.; Ramaswami, A. “*Defining and Measuring Sustainability in Public Private Water Infrastructure Partnerships in Developing Countries*”, In **Public Private Partnerships**, G. Ramesh (Ed), Taylor and Francis, **ISBN: 0415599245**
- 2009 Guo, J. Y. C.; Kocman, S.; Ramaswami, A. “*Design of Two-Layered Porous Landscaping Detention Basins*”, **ASCE Journal of Environmental Engineering**, 135 (12): 1268-74.

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- 2009 Kennedy, C.; Gasson, B.; Hansen, Y.; Hillman, T.; Havranek, M.; Phdungslip, A.; Ramaswami, A.; Steinberger, J.; Mendez, G. *Greenhouse Gas Emissions from Global Cities*, **Environmental Science and Technology**, 43: 7297 – 7302.
- 2009 Kennedy, C.; Gasson, B.; Hansen, Y.; Hillman, T.; Havranek, M.; Phdungslip, A.; Ramaswami, A.; Steinberger, J.; Mendez, G. “*Methodology for Inventorying Greenhouse Gas Emissions from Global Cities*”, **Energy Policy**, Vol.38, Issue 9:4828-4837 doi:10.1016/j.enpol.2009.08.050.
- 2008 Ramaswami, A., Hillman, T., Janson, B.; Reiner, M.; Thomas, G, “*A Demand-Centered Hybrid Life Cycle Methodology for City-Scale Greenhouse Gas Inventories*”, **Environmental Science & Technology**, 2008, 42(17): 6456 – 6461.
- 2007 Reiner, M.B.; K.L. Rens; Ramaswami, A. “*Sustainability of the Urban Built Environment: A Bulk Material Flow Analysis, One Material at a Time*”. **Journal of Engineering for Sustainable Development for Energy, Environment and Health**
- 2007 Mihelcic, J.R.; Zimmerman, J.B.; Ramaswami, A. “*Integrating Developing World Knowledge into Global Discussions and Strategies for Sustainability, Part 1: Science & Technology*”; **Environmental Science & Technology**, 2007, 41(10): 3415-30
- 2007 Ramaswami, A.; Zimmerman, J.B.; Mihelcic, J.R. “*Integrating Developing World Knowledge into Global Discussions and Strategies for Sustainability, Part 2: Economics and Governance*”, **Environmental Science & Technology**, 2007, 41(10): 3415-30
- 2007 Rubin, E.; Ramaswami, A. “*Evidence for Phytodegradation of MTBE from Coupled Bench-scale and Intermediate-Scale Tests*”, **ASCE Journal of Environmental Engineering**, 133(4): 389-396
- 2006 Reiner, M.B.; K.L. Rens; A. Ramaswami. “*The Role of HVFA Concrete in the Sustainability of the Urban Built Environment*”, **Journal of Green Building**, 1(4):129-140.
- 2006 Ramaswami, A; *Engineering Sustainable Urban Infrastructure*, Chapter 20, **Sustainability Science and Engineering: Defining Principles**, Abraham, M. (Ed), Elsevier, pp. 419-441. **ISBN-10: 044451712X**
- 2005 Skaates, S; Ramaswami, A; Anderson, L. “*Transport and Fate of dieldrin in poplar and willow trees analyzed by SPME*”, **Chemosphere**, 61, 85-91.
- 2004 Ramaswami, A; Milford, J.B.; Small, M. “*Integrated Environmental Assessment, Part II: Modeling Fate and Transport*”, **Journal of Industrial Ecology**, 8(3), 11-13.
- 2002 Ramaswami, A; Rubin, E; Bonola, S. “*Non-significance of Rhizosphere Degradation during Phytoremediation of MTBE*”, **International Journal of Phytoremediation**.
- 2001 Rubin, E.; Ramaswami, A. “*Phytoremediation of MTBE*”, **Water Research**, 35(5):1348-1353.
- 2001 Ramaswami, A.; Rubin, E. “*Measuring Phytoremediation Parameters of VOCs: Focus on MTBE*”, **ASCE Practice Periodical of Hazardous and Radioactive Waste: Special Issue on Phytoremediation**, 5(3): 123-129.

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- 2001 Ramaswami, A.; Johansen, P.; Isleyen, M.; Bielefeldt, A.; Illangasekare, T. "Potential for Biostabilization of Multicomponent DNAPLs: 1. Coal Tar". **ASCE J. of Environmental Engineering**, 127(12): 1065-1072.
- 2001 Bielefeldt, A.; Riffel, M.; Ramaswami, A.; Illangasekare, T. "Potential for Biostabilization of Multicomponent DNAPLs: 2. Aroclor 1242". **ASCE J. of Environmental Engineering**, 127(12): 1073-1079.
- 2001 Ramaswami, A.; Carr, P., Burkhardt, M. "Plant-Uptake of Uranium". **International Journal of Phytoremediation**.3(2): 189-201.
- 2001 Ramaswami, A.; Tawachsupa, S.; Isleyen, M. "Batch-Mixed Iron Treatment of High Arsenic Waters". **Water Research**, 35(18):4474-4479.
- 2000 Ramaswami, A., and R.G. Luthy, "Measuring and Modeling Physicochemical Limitations to Bioavailability and Biodegradation", **Manual of Environmental Microbiology**, 82: 916-924, Second edition, American Society of Microbiology Press.
- 1997 Ramaswami, A, and R.G. Luthy. "Mass Transfer & Bioavailability of PAH Compounds in Coal Tar (NAPL) - Water Slurry Systems. 1. Mathematical Modeling." **Environmental Science & Technology**, 31(8):2260-2267.
- 1997 Ramaswami, A; S. Ghoshal; R.G. Luthy. "Mass Transfer and Bioavailability of PAH Compounds in Coal Tar (NAPL)-Water Slurry Systems. 2. Experimental Evaluations" **Environmental Science & Technology**, 31(8):3368-2276.
- 1996 Ghoshal, S., Ramaswami, A.; R.G. Luthy. "Biodegradation of Naphthalene from Coal Tar and Hepta- methylnonane in Mixed Batch Systems". **Environmental Science & Technology**, 30(4), 1282-1291.
- 1994 Ramaswami, A., and M.J. Small, "Modeling the Spatial Variability of Natural Trace Element Concentrations in Ground Water", **Water Resources Research**, 30(2), 269-282.
- 1994 Luthy, R.G., D.A. Dzombak, C. A. Peters, S.B. Roy, A. Ramaswami, D.V. Nakles and B.R. Nott, "Remediating Tar-Contaminated Soils at Manufactured Gas Plant Sites: Technological Challenges", **Environmental Science & Technology**, 28, 266A-276A.
- 1994 Ramaswami, A., S. Ghoshal and R.G. Luthy, "Mass Transfer and Biodegradation of PAH Compounds from Coal Tar", **Water Quality International**, 30(7): 61-70.
- 1993 Luthy, R.G., A. Ramaswami, S. Ghoshal and W.M. Merkel, "Interfacial Films in Coal Tar Non-Aqueous Phase Liquid-Water Systems", **Environmental Science & Technology**, 27: 2914-2918.

EDITORIALS AND COMMENTARIES

- 2017 Ramaswami, A. *Towards zero-pollution cities: Urban infrastructure transformations can produce resource-efficient, inclusive and healthy cities* (pp. 44-45). **Our Planet**, Nairobi, Kenya. <http://web.unep.org/ourplanet/december-2017/articles/towards-zero-pollution-cities>

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- 2012 Ramaswami, A.; Chavez, A.; Chertow, M. “*Carbon Footprinting of Cities and Implications for Analysis of Urban Material and Energy Flows*”, **J. Industrial Ecology**, Special Issue on Sustainable Urban Systems, Vol. 16, Issue 6: 783-785 (DOI: 10.1111/j.1530-9290.2012.00569.x)
- 2012 Zborel, T.; Holland, B.; Thomas, G.; Baker, L.; Calhoun, K.; Ramaswami, A. “*Translating Research to Policy for Sustainable Cities: What Works and What Doesn’t?*” **J. Industrial Ecology**, Special Issue on Sustainable Urban Systems, Vol.16, Issue 6: 786-788 (DOI: 10.1111/j.1530-9290.2012.00569.x)
- 2011 Ramaswami, A.; Dhakal, S. “*Low-carbon policies in the USA and China: Why Cities Play a Critical Role*”. **Carbon Management**, August 2011, 2(4):359-362
- 2011 Amekudzi, A.; Ramaswami, A.; Chan, E.; Lam, K.; Meng, W.H.; Zhu, D. “*Contextualizing Carbon Reduction Initiatives: How should carbon mitigation be addressed by various cities worldwide?*” **Carbon Management**, 2(4): 363-365.
- 2011 Ramaswami, A.; Schauer, J.; Li, X.; Chan, E. “*Conference Report: US–China Workshop on Pathways Toward Low Carbon Cities: quantifying baselines and interventions*”, **Carbon Management**, 2(4): 377-382

IN THE NEWS: Select Recent Media Coverage Featuring Ramaswami’s Work

- Humphrey School Magazine from October 2017, “Urban Outfitting: Imagining cities for a changing world”
- The New Indian Express from July 25, 2017, “Climate change: Untreated sewage major contributor” <http://www.newindianexpress.com/cities/hyderabad/2017/jul/25/climate-change-untreated-sewage-major-contributor-1633181.html>
- European Commission on International Cooperation and Development: from February 2016, “Voices and Views: Building Safer and More Inclusive Cities for Women”. <http://capacity4dev.ec.europa.eu/article/building-safer-and-more-inclusive-cities-women>
- The Times of India: article from July 2016, “Smart Ideas for a Smart City”. <http://timesofindia.indiatimes.com/city/allahabad/Smart-ideas-for-a-Smart-City/articleshow/53351580.cms>
- ICLEI Local Governments for Sustainability: article from October 2016, “Smart, healthy and sustainable cities: PEER learnings from US, China & India”. <http://southasia.iclei.org/newsdetails/article/smart-healthy-and-sustainable-cities-learnings-from-us-china-india.html>
- Live Mint: article from January 2017 “Systems-level thinking for cities”. <http://www.livemint.com/Politics/qhaP6Onzm2mbZk4lIOHBZL/Systemslevel-thinking-for-cities.html>
- Phys.org: article from October 2016 “*Taj Mahal study examines particulate problems in Agra*”. <http://phys.org/news/2016-10-taj-mahal-particulate-problems-agra.html>

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- The Hindu: article from October 2016 “*Burning of municipal waste discolouring Taj Mahal?*” <http://www.thehindu.com/news/national/Burning-of-municipal-waste-discolouring-Taj-Mahal/article16073264.ece>
- The Times of India: article in October 2016 “*Large-scale open burning of garbage damaging Taj: US study*”. <http://timesofindia.indiatimes.com/india/Large-scale-open-burning-of-garbage-damaging-Taj-US-study/articleshow/49567408.cms>
- The Indian Express: article in October 2016 “Burning of municipal waste in vicinity contributes to discolouring of Taj Mahal”. <http://indianexpress.com/article/india/india-news-india/burning-of-municipal-waste-in-vicinity-contributes-to-discolouring-of-taj-mahal/>
- Environmental Research Web: *Is burning of municipal waste darkening the Taj Mahal?* Discussing the urban environmental field study on Municipal Solid Waste burning in Indian cities in October 2016. <http://environmentalresearchweb.org/cws/article/news/66526>
- The John Batchelor Show: June 2016 interview on what it means to develop smart, sustainable, and healthy cities.
- New York Times: December 2015 article on “*The Cleanest Cities? It’s Not So Simple*” discussing challenges in measuring and ranking sustainable cities. http://www.nytimes.com/2015/12/09/business/energy-environment/the-cleanest-cities-its-not-so-simple.html?_r=2
- New York Times, The Wall Street Journal, The Times of India, Navbhart Times covered the urban environmental field study on Municipal Solid Waste burning in Indian cities in November 2015.
- National Public Radio: National Science Foundation radio production on “*Sustainable Design: Sustainability from the Seat of a Bike*”, produced by Lisa Raffensperger (NSF); February 22, 2011.
- The New York Times: January 2010 article on Urban Sustainability Academic Programs: <http://www.nytimes.com/2010/01/03/education/03urbansustain.html>
- Colorado Public Radio: October 2009 feature discussing challenges in measuring city-scale carbon footprints (“*Cities Struggle to Measure their Carbon Footprints*”)
- PRI’s The World Science Forum: Interview and discussion on inter-disciplinary training of engineers in social, cultural and other aspects of development work. November 2009. <http://www.world-science.org/forum/making-technology-work-anu-ramaswami/>
- Documentary Film 2009: Featured as an expert interviewed in the award-winning documentary: “**The Great Squeeze: Surviving the Human Project**”; Tiroir A Film Productions, 2009. <http://www.thegreatsqueeze.com/experts.html>
- Summit Daily News: December 2009 - Dillon gets grant to help town go green: UC Denver will conduct urban infrastructure reviews and greenhouse gas evaluations for the town <http://www.summitdaily.com/article/20091207/NEWS/912069981/1078/NOTES&parentprofile=1055>

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- 2008 SustainLane Web Report on Ramaswami's work with US and International Cities: How Big is Your Carbon Footprint? (<http://www.sustainlane.com/us-city-rankings/articles/how-big-is-your-carbon-footprint/US8ZCJH4RFR98XCSBP4PMVUIMO3A>)
- 2007 Denver's Channel 7 Interview: Green Concrete Policies in Denver (<http://www.thedenverchannel.com/news/14718809/detail.html>)
- 2007 Environmental Science & Technology (ACS) News Article on Sharing Sustainable Solutions across Developed and Developing Worlds: <http://ehsmanager.blogspot.com/2007/04/sharing-sustainable-solutions.html>

CONFERENCE PAPERS AND PRESENTATIONS (* indicates presenting author is Ramaswami)

- 2017 *Ramaswami, A., Botchwey, N., Fang, A., Kruit, K., *Designing an Interdisciplinary Multi-Institutional Curriculum on Infrastructure Transitions for Sustainable Healthy Cities*, Joint Conference ISIE/ISSST, Chicago, IL, June 29, 2017.
- 2017 *Ramaswami, A., Tong, K., Fang, A., Lal, R., Nagpure, A., Li, Y., Yu, H., Jiang, D., Russell, A., Shi, L., Chertow, M., Wang, Y., Wang, S., *Urban Cross-Sector Actions for Carbon Mitigation with Local Health Co-Benefits in China*, Joint Conference ISIE/ISSST, Chicago, IL, June 29, 2017.
- 2017 Nixon, P., Ramaswami, A., *Assessing the Food-Energy-Water (FEW) Nexus at the US County Level from a Production Perspective: Hot Spots of Production and Water-vulnerability*, Joint Conference ISIE/ISSST, Chicago, IL, June 28, 2017.
- 2017 Boyer, D., Ramaswami, A., *What is the contribution of city-scale actions to the overall food system's environmental impacts? Assessing water, GHG, and land impacts of future urban food scenarios*, Joint Conference ISIE/ISSST, Chicago, IL, June 28, 2017.
- 2016 *Ramaswami, A. *Developing Sustainable Urban Water-Energy Infrastructures: Applying a Multi-Sectoral Social-Ecological-Infrastructural Systems (SEIS) Framework*. and *Ramaswami, A. *Quantifying the Contribution of Urban-Industrial Efficiency and Symbiosis to Deep Decarbonization: Impact of 637 Chinese Cities*. Presentations at the American Geophysical Union Fall Meeting, San Francisco, CA, December 2016.
- 2016 *Ramaswami, A. *Urban Infrastructure Transitions toward Sustainable Healthy Cities: Examples from US, China & India*. 2016 International Conference on Sustainable Infrastructure (ICSI 2016), Shenzhen, China, October 2016
- 2016 *Ramaswami, A. *Urban Infrastructure Systems for Environmentally Sustainable and Healthy Cities*. Gordon Research Conference: Industrial Ecology, Stowe, VT, June 2016.
- 2016 Ramaswami, A. and Culligan, P. co-moderated a panel entitled: *The Nexus in Cities: Measuring Impact and Exploring Solutions*. 16th National Conference and Global Forum on Science, Policy and the Environment: The Food-Energy-Water Nexus. Washington D.C., January 2016.
- 2016 Ramaswami, A.; Leon, M. *City-level Decoupling: Urban Resource Flows and Governance of Infrastructure Transitions*. and Ramaswami, A.; Leon, M. *From Urban Metabolism to Urban Environmental Footprinting: A Review of Developments in the Field*. Presented at the World

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- Resources Forum Latin America and the Caribbean, International Sustainable Building Congress & III GBCCR EXPO in San Jose, Costa Rica to a delegation of people from the UNEP International Resource Panel, May 18-20, 2016.
- 2016 Ramaswami, A. *Socio-Environmental Systems Design*, Advisory Committee for Environmental Research and Education (AC ERE), Arlington, VA, March 30-31, 2016.
- 2015 Tong, K. and Ramaswami, A. *Exploring the determinants of investing in the capital assets of urban infrastructure in Chin.* and Fang, A.; Tong, K.; Ramswami, A. *How Community-Wide Infrastructure-Based GHG Footprinting Informs Climate Action Plans in China, India, and the United States.* Presentations at the Annual APPAM Fall Research Conference, November 2015, Miami, FL.
- 2015 Presented at the *Workshop on Urban Municipal Solid Waste and Biomass Burning: Impacts on Air Pollution, Climate and Health*, Indian Institute of Technology-Kanpur, October 2015
- 2015 Fang, A.; Lal, R.; Kang, J.; Johnson, K.; Cui, S.; Russell, A.; Ramaswami, A. *Co-Benefits of Carbon Mitigation: Impact on PM2.5 Emissions and Water Consumption in a Chinese City.* Annual Conference of the International Society of Industrial Ecology, University of Surrey, Guildford, UK, July 2015.
- 2014 Participated in *Urbanization and Global Environmental Change scoping meeting on a new urban research initiative* at Royal Holloway, University of London in Egham, UK, February 2014.
- 2013 *Ramaswami, A. *Framing mitigation challenges and opportunities in the climate compatible urban development and key indicators*, presented at Asian Institute of Technology – Climate Compatible Urban Development, Bangkok. March 2013.
- 2013 *Ramaswami, A. gave plenary presentation at the *International Conference of the International Society of Industrial Ecology*. Seoul, S Korea, June 2013.
- 2013 *Ramaswami, A., Anderson, A. *Understanding Multi-Level Governance for Sustainable cities using a Social-Ecological-Infrastructural Systems (SEIS) Framework.* *International Conference of the International Society of Industrial Ecology*. Seoul, S Korea, June 2013
- 2013 *Ramaswami, A., Anderson, A., & Cohen, E. *Water Footprints of Urban Energy Systems - Managing Supply Chain Risk to Cities at the Water-Energy-Climate Nexus.* *International Conference of the International Society of Industrial Ecology*. Seoul, S Korea, June 2013
- 2013 *Ramaswami, A. gave plenary presentation at the Conference celebrating *Indira Gandhi Institute of Development Research*. 2013.
- 2013 *Ramaswami, A. Graduate education on Energy Ethics- Energy Ethics and Sustainable Development: Sufficiency and Responsibility. Arizona State University, September 2013.
- 2013 *Ramaswami A. presentation regarding latest policies, protocols and technologies being adopted in the United States and internationally, especially in water-scarce China and India at *Minnesota Water Technology Export Roundtable*. Minneapolis, September 2013.
- 2013 *Ramaswami A. presentation to the Regional Council of Mayors on *Sustainable Infrastructure and Cities*.

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- 2012 Ramaswami, A. *Energy Ethics in A Curriculum on Sustainable Urban Infrastructure*, presented at the 21-st Annual Meeting of the **Association for Practical and Professional Ethics (APPE)**, Cincinnati, OH, March 2012.
- 2012 Ramaswami, A. *Social Actors, Participation Rates and Carbon Footprint Mitigation in US Cities: Case Study of Denver, CO*. Presented at the **Local Benefits of Sustainability Workshop**, Florida State University (FSU), March 2012
- 2012 Ramaswami, A. *Innovations in Greenhouse Gas Accounting at the City -Scale*, Presented to the **BSI Publicly Available Standards Steering Committee**, London, UK, January 2012.
- 2011 National Academy of Engineering COGGE
- 2011 Ramaswami, A. *Energy Ethics in Education*, presented at the **National Academy of Engineering** – Workshop on Energy Ethics in Science and Engineering Education, September, 2011.
- 2011 Ramaswami, A. *Transboundary Carbon Emissions Footprints – A Framework for Low Carbon Urban Infrastructure*, Presented at the **Durban Climate Conferences**, December 2011.
- 2011 Ramaswami, A. *Sustainable Urban Infrastructure*, Invited Speaker, **Twin Cities Urban Sustainability Forum**, November 2-3.
- 2011 Weible, Christopher, Anu Ramaswami, Mark Davis, Saba Siddiki, Zeljko Spiric, and Tanya Heikkila. 2011. “*Studying Cross-Scale Infrastructure, Actors, and Institutions: An Interdisciplinary Approach to Sustainable Cities*.” American Political Science Association meeting, Seattle, WA. September 2, 2011
- 2011 Ramaswami, A. *Transboundary Carbon Emissions Footprints and A Framework for Sustainable Cities*, Presented at the **AICHE National Conference**, Minneapolis, October, 2011.
- 2011 Ramaswami, A. *Urban Greenhouse Gas Emissions, Climate Change, and Mitigating Impacts*, presented at the **American Chemical Society National Meeting**, Denver, CO. August, 2011.
- 2011 Chavez, A., & Ramaswami, A. *Comparing Geographic, Hybrid, and Full Consumption-Based Greenhouse Gas Accounting Methods for 45 U.S. Cities*. Presented at the **International Society for Industrial Ecology (ISIE) Conference**, June, 2011. Berkeley, CA.
- 2011 Cohen, E., & Ramaswami, A. *Water Footprint of Urban Energy Systems: A Case Study of Denver, Colorado*. Presented at the **International Society for Industrial Ecology (ISIE) Conference**, June, 2011. Berkeley, CA.
- 2011 Ramaswami, A., Weible, C., Heikkila, T., & Main, D. *Developing an Inter-Disciplinary Graduate Curriculum on Sustainable City Systems using a Social-Ecological-Infrastructural Systems Framework*. Presented at the **International Society for Industrial Ecology (ISIE) Conference**, June, 2011. Berkeley, CA.

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- 2011 Solis, A., Ramaswami, A., & Durham, S. *Regional Material Flow And Life Cycle Analysis of Cement Manufacturing in India*. Presented at the **International Society for Industrial Ecology (ISIE) Conference**, June, 2011. Berkeley, CA.
- 2011 Solis, A., Durham, S. A., Ramaswami, A. (2011). "Thermal Performance of High Volume Fly Ash Concrete," presented at the *2011 World of Coal Ash (WOCA) Conference* in Denver, CO, <http://www.flyash.info>.
- 2011 Ramaswami, A. *City carbon foot printing methods, approaches and challenges*, Presented at the *International Workshop on Urban Energy and Carbon Modeling in Rapidly Urbanizing World Organized by Global Carbon Project (GCP), and International Institute for Applied System Analyses (IIASA), March 2011*.
- 2010* Ramaswami A., & Chavez, A. Are We There Yet? Measuring Progress Towards Low Carbon Trans-Boundary Challenges in City-Scale Greenhouse Gas Accounting. **NSF US-China Workshop on Low-Carbon Cities**. Hong Kong, China, December 2010.
- 2010 Chavez, A., & Ramaswami, A. Hybrid Greenhouse Gas Accounting Methodology for Cities: Past Work & New Developments. **American Center for Life Cycle Assessment (ACLCA)**. Portland, OR, November 2010.
- 2010 Chavez, A., & Ramaswami, A. Greenhouse Gas Emissions Accounting: Framework and Innovations at the City-Scale. **Colorado Environmental Health Association (CEHA)**. Colorado Springs, CO, October 2010.
- 2010 Chavez, A., & Ramaswami, A. Greenhouse Gas Emissions Accounting at the City-Scale. **SACNAS National Conference**. Anaheim, CA, October 2010.
- 2010* Ramaswami, A, Ewing-Thiel, J., & Chavez, A. Innovations in Greenhouse Gas Emissions Accounting at the City-Scale. **EPA Conference on Emission Inventories**, San Antonio, TX, October 2010.
- 2010* Ramaswami, A, & Chavez, A. Innovations in Greenhouse Gas Emissions Accounting at the City-Scale. **ICLEI-USA Annual Conference**. Washington D.C., September 2010.
- 2010 Miller, L.;Ramaswami, A.; Amerasinghe, P. Energy Assessment of Wastewater Treatment Plants with Water Reuse for Urban Agriculture in India. Oral Presentation at the **7th Annual Joint WEF/AWWA Rocky Mountain Region Student Conference**, Boulder, CO.
- 2010 Solis, A. V., Durham, S. A., Rens, K., L, & Ramaswami, A. Sustainable concrete for the urban environment: A proposal to increase fly ash use in concrete. Green Streets and Highways 2010: An Interactive Conference on the State of the Art and How to Achieve Sustainable Outcomes - **Proceedings of the Green Streets and Highways 2010 Conference**, 389, p. 401.
- 2010* Ramaswami, A. Trans-boundary Greenhouse Gas Emissions Accounting for Cities. **Living City Block Banking & Finance Workshop**, Denver, CO, October 2010.
- 2010* Ramaswami, A., & Culpen, A. *Greenhouse Gas Emissions Accounting: A Framework for Sustainable Cities*, National Renewable Energy Laboratory (NREL). Golden, CO, April 2010

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- 2010* Ramaswami, A.; “*Addressing the Sustainability Challenge*”; Presentation summary published in **Engineering, Social Justice, and Sustainable Community Development: Summary of A Workshop**, National Academy of Sciences, National Academy Press. pp. 8-10. [See also 2008 Workshop]
- 2010 Rogowski, S.; Pitterle, M.; Ramaswami, A.; Kuchenrither, D. “*Denver Metro District: Quantifying Energy and Greenhouse Gas Mitigation Opportunities for Biosolids Treatment Alternatives*”, Conference Paper published in **Water Environment Federation Residuals and Biosolids 2010**
- 2009* Kennedy, C., Ramaswami, A., Carney, S., and Dhakal, S. “*Greenhouse Gas Emission Baselines for Global Cities and Metropolitan Regions*”, **World Bank Commissioned Paper for the Urban Research Symposium 2009**, Marseille, France. June 27 – June 3.
- 2009* Ramaswami, A. “*Trans-boundary Contributions to City-Scale Carbon Footprints and Policy Implications*”; Presented at the International Symposium: Cities and Carbon Management: Towards Enhancing Science-Policy Linkages. University of Tokyo, November, 2009.
- 2009* Ramaswami, A.; Solis, A. “*Sustainable Infrastructure Materials Policy at the City-Scale: Data and Institutional Needs*”; Paper presented at the US-Japan Workshop on Life Cycle Assessment of Sustainable Infrastructure Materials; Sponsored by the US NSF, Sapporo, Japan, October, 2009. <http://www.hucc.hokudai.ac.jp/~m16120/workshop2009/program.html>
- 2009 Kocman, S.; Guo, J.Y.C.; Ramaswami, A. “*Waste Incorporated Sustainable Design of Storm Water Detention Basins*”, paper presented at Engineering Sustainability 2009, **Mascaro Sustainability Conference**, Pittsburgh, Pennsylvania, April 2009.
- 2009 **Liu, R.** (presenter), Ramaswami, A., Durham, S.A., & Rens, K.L. (2009, May). *LCA of post mercury control fly ash concrete*, Poster presented at the 2009 Symposium on Industrial Ecology for Young Professionals, Tempe, AZ, USA.
- 2008 **Liu, R.** (presenter), Ramaswami, A., Rens, K.L., & Durham, S.A. (2008, Sept.). *Comprehensive utilization of fly ash in civil engineering infrastructure in the United States and China*. Paper presented at the Global Waste Management Symposium, Copper Mountain, CO, USA
- 2008* Ramaswami, A.; “*Addressing the Sustainability Challenge: Three Questions to Ask in Engineering for Sustainable Community Development*”; presented at the NAE Workshop on **Engineering, Social Justice, and Sustainable Community Development**, National Academy of Sciences, Washington, D.C. October 2–3, 2008. [See also 2010 workshop publication].
- 2008* Ramaswami, A. “*Educating Self and Others Across Boundaries*”, Paper presented at The Globalizing Engineers Workshop: Personal Geographies of Engineering Educators, Center for the Advancement of Scholarship on Engineering Education (CASEE) Workshop, National Academy of Engineering, Washington, D.C., USA, September 5-6.
- 2008* Ramaswami, A. “*Evaluating Greenhouse Gas Emissions at the City Scale: Challenges and Benchmarks*”, **The Evaluation Conference**, American Evaluation Association, Denver, CO, November 2008

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- 2008* Hillman, T.; Ramaswami, A.; *Computing Greenhouse Gas Footprints: Results from 8 U.S. Cities*, Poster Presented at the **Gordon Conference on Industrial Ecology**, New Hampshire, USA, August, 2008.
- 2008 Kronoveter, K.; Pitterle, M.; Miller, L.; Ramaswami, A. *Quantifying Urban Food Waste and Energy Flows in Denver, Colorado: Potential for Decentralized Waste-to-Energy Infrastructures*, Poster Presented at the **Gordon Conference on Industrial Ecology**, New Hampshire, USA, August, 2008.
- 2008 Kronoveter, K.; Ramaswami, A. *Decentralized Organic Waste to Energy in Denver, Colorado*, Paper accepted for poster presentation at **Global Waste Management Symposium**, September 8-10, 2008
- 2008 Kocman, S.; Hager, A.; Ramaswami, A.; Guo, J.Y.C.; Durham, S. *Waste-Incorporated Porous Landscape Detention and Pavements for Sustainable Storm Water Management*, Paper accepted for poster presentation at **Global Waste Management Symposium**, September 8-10, 2008
- 2008* Ramaswami, A. *Linking Materials and Energy for Sustainability*, Platform presentation at **The 2008 Beneficial Use of Industrial Materials Summit**, Sponsored by the USEPA, Denver, CO March 31-April 1, 2008.
- 2008 Kocman, S.; Hager, A.; Ramaswami, A.; Guo, J.Y.C.; Durham, S. *Waste-Incorporated Porous Landscape Detention and Pervious Concrete Pavement for Sustainable Storm Water Management*, Poster presentation at **The 2008 Beneficial Use of Industrial Materials Summit**, Sponsored by the USEPA, Denver, CO March 31-April 1, 2008
- 2008* Ramaswami, A.; Hillman, T.; Janson, B.; Reiner, M.; Thomas, G. “*Cities, Greenhouse Gas Emissions, and Inventory Protocols*” Platform presentation at the **Colorado Department of Transportation Winter Conference**, Denver, CO February 2008.
- 2007* Mihelcic, J.; Jones, S.; Patterson, K.; Ramaswami, A. (Workshop Panel Presentation): American Association of Environmental Engineering and Science Professors (AEESP) Workshop: *Implementing an International Sustainable Development Initiative*, **AEESP Conference**, Virginia, July 2007.
- 2007 Pitterle, M; Ramaswami, A. “*Quantitative Sustainability Assessment of US Wastewater Treatment Plants*”, platform presentation, **American Association of Environmental Engineering and Science Professors (AEESP) Conference**, Virginia, July 2007.
- 2007 Reiner, M.; Ramaswami, A.; Rens, K. “*Quantifying the Role of High Performance Green Concrete (HPGC) in Sustainable Urban Infrastructure in Denver, Colorado*”, Platform presentation at the **American Association of Environmental Engineering and Science Professors (AEESP) Conference**, Virginia, July 2007.
- 2007* Ramaswami, A.; Reiner, M.; Rens, K. “*Partnerships for Developing a Sustainable Materials Policy*”, Invited Plenary Speaker at **USEPA’s National By-Products Beneficial Use Summit**, San Francisco, November 2006..
- 2005* Pitterle, M; Whitaker, M.B.; Ramaswami, A. “*Sustainable Energy Systems Design for Tribal Village Homes in India*”, paper accepted for oral presentation at **Engineering Sustainability 2005, Mascaro Sustainability Conference**, Pittsburgh, Pennsylvania, April 10-12, 2005.

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- 2005* Pitterle, M; Ramaswami, A. "*Urban Sustainable Infrastructure Engineering Project (USIEP): Urban Water Solutions*," paper accepted for oral presentation at Engineering Sustainability 2005, **Mascaro Sustainability Conference**, Pittsburgh, Pennsylvania, April 10-12, 2005.
- 2005 Pitterle, M., Whitaker, M., Ramaswami, A. "*Industrial Ecology for Sustainable Energy Systems Design in Remote Rural India*." Paper accepted for presentation at the International Conference of the **International Society for Industrial Ecology**, Stockholm, June 2005.
- 2005 Whitaker, M.B.; Ramaswami, A. Khan, Sarosh, S. *Life Cycle Assessment of New Generation Diesel Buses for Sustainable Transport in India* , paper accepted for presentation at the **International Conference of the International Society for Industrial Ecology**, Stockholm, June 2005.
- 2001* Ramaswami, A. *Phytoremediation of VOCs: Upscaling Issues*, Paper presented at the Annual Hazardous Waste Conference of the **Great Plains/Rocky Mountain Hazardous Substance Research Center**, Manhattan, Kansas, May, 2001 (Nominated for best paper award)
- 2001* Ramaswami, A.; Illangasekare, I.; Bielefeldt, A. *Biostabilization of DNAPLs*, Paper presented at the **International Containment Conference**, Orlando, FL, June, 2001
- 2000* Rubin, E; Ramaswami, A. *Potential for Phytoremediation of MTBE*, Paper presented at the Annual West Coast Conference on Contaminated Soils, **Association for the Environmental Health of Soils (AEHS)**, San Diego, CA, March, 2000.
- 2000* Tawachsupha, S; Isleyen, M; Ramaswami, A. "*Zero Valent Iron for Treatment of High Arsenic Waters*", Poster presented at the 4-th **International Arsenic Conference**, San Diego, CA; July, 2000. pp. 182.
- 2000 Rubin, E.; Ramaswami, A. "*Phytoremediation of MTBE*", Paper presented at the **Annual Hazardous Waste Conference**, Denver, CO, June, 2000, pp. 27.
- 2000 Rubin, E.; Ramaswami, A. "*Phytoremediation of MTBE*", Paper presented at the **ASCE Convergence 2000: Environmental Pipeline Engineering Conference** , Kansas City, July, 2000.
- 2000* Rubin, E.; Ramaswami, A. "*Phytoremediation of MTBE*", Paper presented at the **Seventh International Petroleum Environment Conference**, Albuquerque, New Mexico, November, 2000.
- 1999 Vestal, E.; Illangasekare, I.; Bielefeldt, A.; Ramaswami, A. *Modeling of Net Interphase Mass Exchange in NAPL-Water Systems Undergoing Biodegradation*, Paper presented at the 1999 EPA **Hazardous Substance Research Center**, Kansas City, April, pp. 18.
- 1999* Morrison, K.; Ramaswami, A.; Riffel, A.; Bielefeldt, A. "*Biodegradation and Biostabilization of PAHs in Coal Tar-Water Systems*", Poster presented at the 1999 **EPA Hazardous Substance Research Center** Conference, Kansas City, April, 1999, pp. 77.
- 1999* Morrison, K.; Johansen, P.; Ramaswami, A. "*The Potential for Biostabilization of Coal Tar in the Aqueous Environment*", Paper presented at the 4-th International **Symposium of Subsurface Microbiology**, American Society of Microbiologists, Aug., 1999, pp. 40.

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- 1999* Morrison, K.; Donahue, T.J.; Johansen, P. K.; Ramaswami, A.; Bielefeldt, A.; Illangasekare, T. "Biodegradation and Biostabilization Potential of DNAPL Coal Tar in the Subsurface", Annual meeting of the **Geological Society of America**, Denver, CO, October, 1999.
- 1998* Ramaswami, A.; Bielefeldt, A.; Illangasekare, T.; Riffel, A.; Vestal, E. "Assessing the Biostabilization Potential of Multicomponent DNAPLs", **National Bioremediation Conference** of the US EPA, Arlington, VA, September, 1998, pp.41-42.
- 1998 Vestal, E.; Illangasekare, I., Ramaswami, A.; Bielefeldt, A.; Riffel, A. " Modeling of Net Interphase Mass Exchange in NAPL-Water Systems Undergoing Biodegradation at the Spill-Site Scale", Proceeding of the national meeting of the **American Geophysical Union**, 1998.
- 1996* Ramaswami, A; Marquina, M.; Vollbrecht, J. "Investigation of Uranium-238 Uptake by Plants." Proceeding of the **VIII-th Annual Symposium on Emerging Technologies for Hazardous Waste Management**, sponsored by the Industrial and Engineering Chemistry Division of the American Chemical Society, Birmingham, AL, pp. 499-501.
- 1995* Johansen, P. and A. Ramaswami. "Biodegradation of Polycyclic Aromatic Hydrocarbons from Non-Aqueous Phase Liquids." Proceedings of the **American Chemical Engineers Society Annual Conference**, Miami, FL, November, 1995.
- 1994* Ghoshal, S., A. Ramaswami and R.G. Luthy, "Mass Transfer and Biodegradation of Naphthalene from Coal Tar", paper presented at the 207th National Meeting of the Environmental Chemistry Division of the **American Chemical Society**, pp. 388-391.
- 1994 Ramaswami, A., J. Nadzam; R.G. Luthy, "Effect of Interfacial Films on Mass Transfer in Coal Tar (NAPL)-Water Systems", presented at the **Water Environment Federation** Conference on Innovative Solutions for Contaminated Site Management, March 1994.
- 1992* Ramaswami, A., S. Ghoshal and R.G. Luthy, "Dissolution and Biodegradation of PAH Compounds from Coal Tar at Residual Saturation in Porous Media", paper presented at the symposium on Emerging Technologies for Hazardous Waste Management sponsored by the Industrial and Engineering Chemistry Division of the **American Chemical Society**, Atlanta, GA, September, 1992, pp. 463-466.
- 1990* Ramaswami, A., and M.J. Small, "Spatial Variability of Trace Elements in Groundwater", poster presented at the **American Society of Civil Engineers Specialty Conference on Environmental Engineering**, Arlington, VA, July, 1990, pp. 911-912.

INVITED KEYNOTE LECTURES AND PLENARY TALKS

Plenary Speaker at the Association of Southeast Asian Nations' (ASEAN) 3rd Annual Mayors Forum, "50 Years of ASEAN: Empowering Communities for a Stronger Region, "Re-imagining ASEAN Cities: Intelligent, Resource Efficient, and Innovative," Taguig City, Philippines, July 27, 2017.

Plenary Speaker at the Second Annual Meeting of the Global Platform for Sustainable Cities (GPSC), "High Impact and Innovative Strategies for Developing Low Carbon, Healthy, and Inclusive Cities," New Delhi, India, November 1, 2017.

Plenary Speaker at the Gordon Research Conference on Industrial Ecology, Stowe, VT, June 2016.

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Keynote Speaker at Rutgers University-Newark Urban Sustainability Workshop on Building Partnerships: Education & Community as a Path to Urban Sustainability, October 20 & 21, 2016

Keynote Speaker at workshop *Developing Smart, Healthy and Sustainable Cities: Learnings from US, China and India* convened by ICLEI South Asia and University of Minnesota, USA, in New Delhi, India, 2016 January 2016

Invited Speaker at National Academy of Sciences Workshop on Partnerships, Research, and Innovation for Urban Sustainability: Confronting Local Sustainability Challenges in a Global Environment. Washington, DC October 15, 2015

Keynote Speaker at Denver Region GHG Inventory Tools Workshop, Dec 1, 2015, hosted by City & County of Denver

Invited Speaker – Georgia Institute of Technology, School of Public Policy Speaker Series. *Urban Infrastructure Transitions toward Environmentally Sustainable and Livable Cities: Connecting Analysis to Action*. April 2015

Invited Speaker - *An Integrated Infrastructure-Systems Approach for Developing Environmentally Sustainable and Healthy Cities in China, India & U.S.A.* Ezra's Roundtable Systems Seminar Series at Cornell University, April 17, 2015

Keynote Address - Toward Resilient and Resource Efficient Cities - Side Event of ICLEI/IRP meeting, April 2015, Seoul, Republic of Korea

Plenary Speaker at Vibrant Gujarat, Smart Cities for the next Generation, Gandhinagar, India, January 2015.

Invited Plenary Speaker fPET– Forum on Philosophy, Engineering, Technology. May 2010

Invited Speaker – **2010 Gordon Research Conference on Industrial Ecology** (July 2010)

Invited Plenary Speaker at USEPA's National By-Products Beneficial Use Summit, San Francisco, November 2006. *Partnerships for Developing a Sustainable Materials Policy*.

Invited Panelist and Speaker at the National AAAS Conference of the American Association for the Advancement of Science on *Technology and Policy Transformations for Sustainability*, Washington D.C., February, 2005.

Keynote Speaker at the Anita Borg Institute for Women and Development: National Annual Design Conference: April, 2004

Invited Panelist and Speaker at the Colorado Conference on Renewable Energy Strategies: “*Don't Be Left in the Dark*”, Convened by State Senator Ken Gordon, October, 2003.

Invited Participant at the conference on: “*Green Engineering: Defining the Principles*”, Sandestin, FL, May, 2003

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INTERNATIONAL DELEGATIONS

Panel Member: 21th Meeting of the International Resource Panel, United Nations Environment - International Resource Panel, Lima, Peru, 2017.

Panel Member: International Resource Panel Working Group Meeting, United Nations Environment - International Resource Panel, Tunis, Tunisia, 2017.

Panel Member: 20th Meeting of the International Resource Panel and its Steering Committee, United Nations Environment - International Resource Panel, Helsinki, Finland, 2017.

Panel Member: 17th Meeting of the International Resource Panel of the UNEP in Davos, Switzerland, October 2015.

Panel Member: 16th Meeting of the International Resource Panel of the UNEP in Hanoi, Vietnam, May 2015.

Invited Expert: Global Carbon Project Workshop at the International Institute for Applied Systems Analysis (IIASA), Vienna, Austria, March 2011.

Invited Delegate – Nominated by the US NSF to the Joint OECD-Global Science Forum Activity on Evaluating Policy Application of Urban Models to Address Climate Change and Sustainability, June 2010 (Paris, France), February 2011 (Melbourne, Australia).

Invited Delegate – US –Japan Workshop on Life Cycle Assessment of Sustainable Infrastructure Materials, October 2009

Invited by the US National Science Foundation as one of 14 delegates to represent the US at the **World Science Forum on Knowledge & Ethics**, Budapest, Hungary, Nov. 2005.

OTHER RELEVANT PROFESSIONAL ACTIVITIES

Editor/Office-bearer

- **Editorial Advisory Board**, *Nature Sustainability* (2017-)
- **Guest-Editor**, Special Issue on the Urban Food-Energy Water Nexus, *Environmental Research Letters*, with Joshua Newell, 2017
- **Co-Editor**, Special Issue on Sustainable Urban Systems, *Journal of Industrial Ecology*, with Larry Baker, Shobhakar Dhakal and Chris Kennedy, 2011
- **Lead Editor**, Special Issue on Pathways Toward Low Carbon Cities, in *Carbon Management*, 2011
- **Chairperson of the Board**, Sustainable Urban Systems section at the *International Society of Industrial Ecology*, Elected January 2011
- **Lead Faculty Editor** (with Kennedy, Carney, Dhakal) of the Proceedings of the International Urban Research Symposium on Cities and Climate Change, 2010-11.

Dr. Anu (Anuradha) Ramaswami

Workshop/Conferences Organized (Recent)

- **Organizer**, workshop at the Humphrey School of Public Affairs, “Achieving Sustainability in Minnesota and the World: A Science-Policy Dialogue MN Leaders and International Resource Panel (UNEP)” A public panel with representatives from Minnesota government and IRP members, Minneapolis, MN, March 20, 2017.
- **Co-Chair**, UNEP’s International Resource Panel workshop in Kassel, Germany, September 2016.
- **Organizer**, workshop at the 16th National Conference and Global Forum on Science, Policy and the Environment: The Food-Water-Energy Nexus, Washington D.C., January 19-21, 2016.
- **Host and Keynote Speaker**, *Minneapolis Agritecture Design Workshop*, September 2015
- **Keynote Speaker, Co-PI and Organizer**, NSF FEW: "Scaling Up" Urban Agriculture to Mitigate Food-Energy-Water Impacts. Workshop at University of Michigan, October 2015
- **Organizer and Host** of *PIRE Pre-trip Training and Research Meeting*, November 2015 **Chair**, *Sustainability Research Network Summer Interdisciplinary Environmental Study Course & Faculty Planning Workshop*, August 16 -20, 2015
- **Organizer and Host**, *RCN-Global Carbon Project Workshop: Urban Metabolism & Environmental Footprints*. University of Minnesota, March 25, 26, & 27, 2015
- **Co-Chair and Organizer**, *Urban Infrastructure Transformation in China, India & the US: Connecting Local Priorities with Global Carbon Targets*. Held at the National Academy of Engineering, Aug 23-24, 2014. <https://www.nae.edu/Projects/CEES/57196/70831/141455.aspx>
- **Session Chair**, Sustainable Cities, *US-EU Frontiers of Engineering Symposium* at Irvine, CA, November 2011.
- **Chair, Workshop** organized for the *Sustainable Urban Systems* Section of the International Society of Industrial ecology, associated with the International Conference on Industrial Ecology, Berkeley, CA, June 2011
- **Chair, US-China Workshop** on *Pathways Toward Low-Carbon Cities: Measurement and Diffusion Challenges*, sponsored by the US National Science Foundation CMMI Division, Hong Kong, December 14-15, 2010.
- **Conference Session Chair**, *Urban Greenhouse Gas Emissions, Climate Change and Mitigating Impacts*, to be held at the 242-nd National Meeting of the American Chemical Society, Denver, CO, September, 2011
- **Co-Chair, Joint Global Science Forum-OECD Workshop** on Urban Environmental Models for Sustainability and Climate Change, 1/31-2/1, 2011, Melbourne, Australia
- **Conference Session Chair** on “*Building Sustainable Communities: New Research Horizons*” at the National SACNAS Conference on “Science, Technology and Diversity for a Sustainable Future”, October 1, 2010.

Other Service Activities

- **Member of the Editorial Advisory Panel** for the journal Nature Sustainability
- **Science Advisory Board Member** for the Engineering Research Center for Re-Inventing the Nation’s Urban Water Infrastructure (ReNUWIt)

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- **Member** American Chemical Society (ACS), International Society for Industrial Ecology (ISIE), Association of Environmental Engineering & Science Professors (AEESP)
- **Reviewer for Journals:** ASCE Journal of Environmental Engineering, Carbon Management, Environmental Science & Technology, Journal of Industrial Ecology, Urban Management, Environmental Research Letters, Nature Climate Change.
- **Panel and Site Review** for NSF Center and Project proposals in Engineering and cross-cutting programs.
- **Technical Advisor** for Sustainability Assessments and Planning for 20 Cities in the US; technical expert for ICLEI-USA the Sustainability Advisory Board of ATT Corporation.