

Anne Steinemann

Educational History

PhD, 1993, Stanford University, Civil and Environmental Engineering
MS, 1985, UCLA, Civil Engineering
BS, 1984, UC Irvine, Civil Engineering, Magna cum Laude

Employment History

Professor of Civil Engineering Chair of Sustainable Cities Department of Infrastructure Engineering School of Engineering The University of Melbourne Melbourne, Australia	2015-present
Adjunct Professor College of Science and Engineering James Cook University Queensland, Australia	2015-present
Program Manager Scripps Institution of Oceanography Climate, Atmospheric Sciences, and Physical Oceanography University of California, San Diego	2012-2015
Senior Research Scientist Leader, National Integrated Drought Information System (NIDIS) State of California Program Cooperative Institute for Research in Environmental Sciences	2013-2015
Professor of Civil and Environmental Engineering Professor of Public Affairs Director, The Water Center University of Washington	2004-2013
Visiting Professor Civil and Environmental Engineering Stanford University	2010-2011
Research Associate Climate Research Division Scripps Institution of Oceanography University of California, San Diego	2004-2012

Associate Professor	2000-2004
Assistant Professor	1995-2000
City and Regional Planning Program	
College of Architecture	
Georgia Institute of Technology	
Adjunct Professor	1998-2004
School of Public Policy	
Georgia Institute of Technology	
Adjunct Professor	2001-2012
Marine and Environmental Systems	
Florida Institute of Technology	
Postdoctoral Scholar	1993-1995
Department of Civil and Environmental Engineering	
Stanford University	
Associate Director	1990-1992
Center for Teaching and Learning	
Stanford University	
Visiting Faculty	1988-1989
Department of Computer Science	
Linköping University, Sweden	
Engineering Hydrologist	1985-1988
US Geological Survey	
Menlo Park and San Diego, California	

Awards and Honors

Awarded, Climate Science Service Award, State of California, for developing "useful science" to "bridge between the academic research community and practitioners," 2014

Appointed, Indoor Air Quality Advisor to the Bullitt Center in Seattle, WA, winner of the "World's Greenest Commercial Building" award, 2013

Honored, US National Science Foundation, "Engineer of the New Millennium," 2011

Appointed, Mayor's Green Ribbon Commission, developed Climate Action Plan that was adopted by more than 1,000 mayors internationally, and resulted in Seattle winning "Most Livable City" award, 2008

Appointed, NSF International/American National Standards Institute (ANSI), Joint Committee for Health-Based Standards for Consumer Product Emissions, 2010-present

Awarded, American Water Resources Association, Outstanding Chapter of the Year, 2006
Faculty leader of AWRA student chapter

Appointed, Special Adviser to Governor of the State of Georgia, 1998-2004

Appointed, Special Adviser to the States of Florida, Georgia, and Alabama, 1998-2004

Appointed, President's National Drought Policy Commission, workgroups, 2000

US Congress, invited to provide expert testimony, 2000

Hesburgh Award (Highest national honor for university teaching programs), 1999

Junior Faculty Teacher of the Year (Highest University Award), Georgia Tech, 1997

Outstanding Teacher of the Year (Highest College Award), Georgia Tech, 1996

Awarded, National Science Foundation CAREER Award, highest national honor for junior faculty in science and engineering, 1998

American Association of University Women Scholar, 1993

Rotary Foundation International Scholar, 1998

University of California Regents Scholar, 1985

University of California Chancellor's Scholar, 1984

Female Engineer of the Year, University of California, Irvine, 1984

Civil Engineer of the Year, University of California, Irvine, 1984

Tau Beta Pi, Engineering Honor Society

Publications

Refereed archival journal publications

Steinemann A. 2018. National Prevalence and Effects of Multiple Chemical Sensitivities. *Journal of Occupational and Environmental Health* (in press).

Steinemann A. 2018. Fragranced Consumer Products: Sources of Emissions, Exposures, and Health Effects in the United Kingdom. *Air Quality, Atmosphere, and Health* (in press).

Goodman NG, Steinemann A, Wheeler AJ, Paevere PJ, Cheng M, Brown SK. 2017. Volatile organic compounds within indoor environments in Australia. *Building and Environment* 122:116-125.

Steinemann A, Rismanchi B, Wargocki P. 2017. Ten Questions Concerning Green Buildings and Indoor Air Quality. *Building and Environment* 112:351-358.

Steinemann A. 2017. Fragranced Consumer Products: Effects on Asthmatics. *Air Quality, Atmosphere, and Health*, 12:1-7.

Lunny S, Nelson R, Steinemann A. 2017. Something in the Air but not on the Label: A Call for Increased Regulatory Ingredient Disclosure for Fragranced Consumer Products. *University of New South Wales Law Journal* 40(4):1366-1391.

Steinemann A. 2017. Health and Societal Effects from Fragranced Consumer Products. *Preventive Medicine Reports* 5:45-47.

Steinemann A. 2017. Ten Questions Concerning Air Fresheners and Indoor Built Environments. *Building and Environment* 111:279-284.

Steinemann A. 2016. Fragranced Consumer Products: Exposures and Effects from Emissions. *Air Quality, Atmosphere, and Health* 9(8):861-866.

Steinemann A, Iacobellis SF, Cayan DR. 2015. Developing and Evaluating Drought Indicators for Decision-Making. *Journal of Hydrometeorology* 16(4):1793-1803.

Steinemann A. 2015. Volatile Emissions from Common Consumer Products. *Air Quality, Atmosphere and Health* 8(3):273-281.

Shukla S, Steinemann A, Iacobellis SF, Cayan DR. 2015. Annual Drought in California: Association with Monthly Precipitation and Climate Phases. *Journal of Applied Meteorology and Climatology* 54:2273–2281.

Sealey L, Steinemann A, Pestaner J, Hughes BW, Bagasra O. 2015. Environmental Factors May Contribute to Autism Development and Male Bias: Effects of Fragrances on Developing Neurons. *Environmental Research* 142:731-738.

Steinemann A. 2015. Drought Information for Improving Preparedness in the Western States. *Bulletin of the American Meteorological Society* 95(6):843–847.

Fontaine MM, Steinemann AC, Hayes MJ. 2014. State Drought Programs and Plans: Survey of the Western United States. *ASCE Natural Hazards Review* 15(1):95-99.

- Rosenberg EA, Wood AW, Steinemann AC. 2013. Informing Hydrometric Network Design for Statistical Seasonal Streamflow Forecasts. *Journal of Hydrometeorology* 14(5):1587-1604.
- Steinemann AC, Gallagher LG, Davis AL, MacGregor IC. 2013. Chemical Emissions from Residential Dryer Vents During Use of Fragranced Laundry Products. *Air Quality, Atmosphere and Health* 6(1):151-156.
- Rosenberg EA, Clark EA, Steinemann AC, Lettenmaier DP. 2013. On the Contribution of Groundwater Storage to Interannual Streamflow Anomalies in the Colorado River Basin. *Hydrology and Earth System Sciences* 17(4):1475-1491.
- Steinemann AC, MacGregor IC, Gordon SM, Gallagher LG, Davis AL, Ribeiro DS, Wallace LA. 2011. Fragranced Consumer Products: Chemicals Emitted, Ingredients Unlisted. *Environmental Impact Assessment Review* 31(3):328-333.
- Rosenberg EA, Wood AW, Steinemann AC. 2011. Statistical Applications of Physically Based Hydrologic Models to Seasonal Streamflow Forecasts. *Water Resources Research* 47(3).
- Shukla S, Steinemann AC, Lettenmaier DP. 2011. Drought Monitoring for Washington State: Indicators and Applications. *Journal of Hydrometeorology* 12(1):66-83.
- Rosenberg EA, Keys PW, Booth DB, Hartley D, Burkey J, Steinemann AC, Lettenmaier DP. 2010. Precipitation Extremes and the Impacts of Climate Change on Stormwater Infrastructure in Washington State. *Climatic Change* 102(1-2):319-349.
- Visitacion B, Booth DB, Steinemann AC. 2009. Costs and Benefits of Stormwater Management: Case Study of the Puget Sound Region. *ASCE Journal of Urban Planning and Development* 135(4):150-158.
- Caress SM, Steinemann AC. 2009. Prevalence of Fragrance Sensitivity in the American Population. *Journal of Environmental Health* 71(7):46-50.
- Caress SM, Steinemann AC. 2009. Asthma and Chemical Hypersensitivity: Prevalence, Etiology, and Age of Onset. *Toxicology and Industrial Health* 25(1):71-78.
- Steinemann AC. 2009. Fragranced Consumer Products and Undisclosed Ingredients. *Environmental Impact Assessment Review* 29(1):32-38.
- Fontaine M, Steinemann AC. 2009. Assessing Vulnerability to Natural Hazards: Impact-Based Method and Application to Drought in Washington State. *Natural Hazards Review* 10(1):11-18.
- Padgett JP, Steinemann AC, Clarke JH, Vandenberg MP. 2008. A Comparison of Carbon Calculators. *Environmental Impact Assessment Review* 28(2-3):106-115.
- Vandenberg MP, Steinemann AC. 2007. The Carbon-Neutral Individual. *New York University Law Review* 82(6):1673-1745.
- Steinemann A. 2006. Using Climate Forecasts for Drought Management. *Journal of Applied Meteorology and Climatology* 45(10):1353-1361.

- Steinemann A, Cavalcanti L. 2006. Developing Multiple Indicators and Triggers for Drought Plans. *ASCE Journal of Water Resources Planning and Management* 132(3):164-174.
- Alfaro E, Pierce D, Steinemann A, Gershunov A. 2005. Relationships Between the Irrigation-Pumping Electrical Loads and the Local Climate in Climate Division 9 Idaho. *Journal of Applied Meteorology* 44(12):1972-1978.
- Caress S, Steinemann A. 2005. National Prevalence of Asthma and Chemical Hypersensitivity: An Examination of Potential Overlap. *Journal of Occupational and Environmental Medicine* 47(5):518-522.
- Alfaro E, Gershunov A, Cayan D, Steinemann A, Pierce D, Barnett TA. 2004. Method for Prediction of California Summer Air Surface Temperatures. *EOS Transactions American Geophysical Union* 85:553, 557-558.
- Caress S, Steinemann A. 2004. A National Population Study of the Prevalence of Multiple Chemical Sensitivity. *Archives of Environmental Health* 59(6):300-305.
- Steinemann A. 2004. Human Exposure, Health Hazards, and Environmental Regulations. *Environmental Impact Assessment Review* 24(7/8):695-710.
- Caress S, Steinemann A. 2004. Prevalence of Multiple Chemical Sensitivities: A Population-Based Study in the Southeastern United States. *American Journal of Public Health* 94(5):746-747.
- Steinemann A, Tickner J. 2004. Environment and Health: New Answers, New Questions. *Environmental Impact Assessment Review* 24(7-8):661-665.
- Steinemann A. 2003. Drought Indicators and Triggers: A Stochastic Approach to Evaluation. *Journal of the American Water Resources Association* 39(5):1217-1233.
- Steinemann A. 2003. Implementing Sustainable Development through Problem-Based Learning: Pedagogy and Practice. *ASCE Journal of Professional Issues in Engineering Education and Practice* 129(4):216-224.
- Caress S, Steinemann A. 2003. A Review of a Two-Phase Population Study of Multiple Chemical Sensitivities. *Environmental Health Perspectives* 111(12):1490-1497.
- Beck MB, Fath BD, Parker AK, Osidele OO, Cowie GM, Rasmussen TC, Patten BC, Norton BG, Steinemann A, Borrett SR. 2002. Developing a Concept of Adaptive Community Learning: Case Study of a Rapidly Urbanizing Watershed. *Integrated Assessment* 3(4):299-307.
- Keysar E, Steinemann A. 2002. Integrating Environmental Impact Assessment with Master Planning: Lessons from the US Army. *Environmental Impact Assessment Review* 22(6):583-609.
- Caress S, Steinemann A, Waddick C. 2002. Symptomatology and Etiology of Multiple Chemical Sensitivities in the Southeastern United States. *Archives of Environmental Health: An International Journal* 57(5):429-436.
- Steinemann A. 2001. Improving Alternatives for Environmental Impact Assessment. *Environmental Impact Assessment Review* 21:3-21.
- Norton B, Steinemann A. 2001. Environmental Values and Adaptive Management. *Environmental Values* 10(4):473-506.

- Gilbreath J, Steinemann A. 2000. Hazardous Pesticides in Developing Countries: A Case Study of Zambia, Africa. *Environmental Practice* 2:311-317.
- Simon K, Steinemann A. 2000. Soil Bioengineering: Challenges for Planning and Engineering. *ASCE Journal of Urban Planning and Development* 126(2):89-102.
- Steinemann A. 2000. Rethinking Human Health Impact Assessment. *Environmental Impact Assessment Review* 20:627-645.
- Cosgriff B, Steinemann A. 1998. Industrial Ecology for Sustainable Communities. *Journal of Environmental Planning and Management* 41(6):661-672.
- Shepherd (Steinemann) A. 1998. Drought Contingency Planning: Evaluating the Effectiveness of Plans. *ASCE Journal of Water Resources Planning and Management* 124(5):246-251.
- Shepherd (Steinemann) A, Cosgriff B. 1998. Problem-Based Learning: A Bridge Between Planning Education and Planning Practice. *Journal of Planning Education and Research* 17(4):348-357.
- Coffin S, Shepherd (Steinemann) A. 1998. Barriers to Brownfield Redevelopment: Lessons Learned From Two Great Lakes States. *Journal of Public Works Management and Policy* 2(3):258-266.
- Shepherd (Steinemann) A. 1998. Knowledge-Based Expert Systems: Critiquing versus Conventional Approaches. *International Journal of Expert Systems with Applications* 14(4):433-441.
- Shepherd (Steinemann) A, Bowler C. 1997. Beyond the Requirements: Improving Public Participation in EIA. *Journal of Environmental Planning and Management* 40(6):725-738.
- Shepherd (Steinemann) A. 1997. Interactive Implementation: Promoting Acceptance of Expert Systems. *Computers, Environment, and Urban Systems* 21(5):317-333.
- Shepherd (Steinemann) A, Ortolano L. 1997. Organizational Change and Environmental Impact Assessment at the Electricity Generating Authority of Thailand: 1972-1988. *Environmental Impact Assessment Review* 17(5):329-356.
- Shepherd (Steinemann) A, Ortolano L. 1996. Strategic Environmental Assessment for Sustainable Urban Development. *Environmental Impact Assessment Review* 16:321-335.
- Shepherd (Steinemann) A, Ortolano L. 1996. Water-Supply System Operations: Critiquing Expert-System Approach. *ASCE Journal of Water Resources Planning and Management* 122(5):348-355.
- Ortolano L, Shepherd (Steinemann) A. 1995. Environmental Impact Assessment: Challenges and Opportunities. *Impact Assessment* 13(1):3-30.
- Shepherd (Steinemann) A, Ortolano L. 1994. Critiquing Expert Systems for Planning and Management. *Computers, Environment, and Urban Systems* 18(5):305-314.
- Waern Y, Hägglund S, Löwgren J, Rankin I, Sokolnicki T, Steinemann A. 1992. Communication Knowledge for Knowledge Communication. *International Journal of Man-Machine Studies* 37:215-239.
- Ortolano L, Steinemann A. 1987. New Expert Systems in Environmental Engineering. *ASCE Journal of Computing in Civil Engineering* 1(4):298-302.

Refereed monographs

Steinemann A. 1989. Evaluation of Nonpotable Ground Water in the Desert Area of Southeastern California for Powerplant Cooling. US Geological Survey Water Supply Paper no 2343.

Farrar CD, Sorey ML, Rojstaczer SA, Steinemann A, Clark MD. 1989. Hydrologic and Geochemical Monitoring in Long Valley Caldera, Mono County, California. US Geological Survey Open File Report 80-4033.

Articles in professional journals

Shepherd (Steinemann) A, Hausser W. 1997. Project XL: Reinventing Environmental Regulation by Building New Partnerships. National Association of Environmental Professionals News 22(1):10-11.

Shepherd (Steinemann) A, Simm S. 1997. The Integration of Environmental Impact Assessment with Major Investment Studies for Highway Planning. Environmental Planning Quarterly 14(2):3-10.

Commentary in refereed journals

Steinemann A. 2016. Comment on an Informatics Approach to Evaluating Combined Chemical Exposures from Consumer Products: A Case Study of Asthma-Associated Chemicals and Potential Endocrine Disruptors. Environmental Health Perspectives 124(9):A155.

Books

Steinemann AC. 2011. Microeconomics for Public Decisions. Menlo Park, CA:Askmar Publishing.

Ott W, Steinemann A, Wallace L, eds. 2007. Exposure Analysis. Boca Raton, FL:CRC Press.

Steinemann AC, Apgar WC, Brown HJ. 2005. Microeconomics for Public Decisions. Cincinnati, OH:Thomson/South-Western.

Chapters in books

Steinemann A, Walsh N. 2007. Environmental Laws and Exposure Analysis. In: Exposure Analysis (Ott W, Steinemann A, Wallace L, eds). Boca Raton, FL:CRC Press, 487-513.

Steinemann A, Hayes M, Cavalcanti L. 2005. Drought Indicators and Triggers. In: Drought and Water Crises: Science, Technology, and Management Issues (Wilhite D, ed). Boca Raton, FL:CRC Press, 71-92.

Norton B, Steinemann A. 2002. Environmental Values and Adaptive Management. In: Searching for Sustainability (Norton B, ed). Cambridge, UK:Cambridge University Press, 514-547.

Shepherd (Steinemann) A. 1998. Post Project Monitoring and Impact Assessment. In: Environmental Methods Review: Retooling Impact Assessment for the New Century (Fittipaldi J, Porter A, eds). Washington, DC:Army Environmental Policy Institute.

Ortolano L, Shepherd (Steinemann) A. 1995. Environmental Impact Assessment. In: Social and Environmental Impact Assessment (Vanclay F, ed). Chichester, UK:John Wiley & Sons, 3-30.

Research Activities

Funded Research

Lead Chief Investigator or Co-Chief Investigator on more than \$24 million in funding

Sponsor: Australia Commonwealth Scientific and Industrial Research Organisation (CSIRO), Land and Water
Title: Sustainable Tropical Built Environments
Amount: \$500,000
Position: Lead Chief Investigator
Dates: 2015-2021
Purpose: To develop and implement a sustainable and healthy tropical housing prototype, with features of water and energy efficiency, low emissions and effluents, climate sensitive design, and disaster resilience.

Sponsor: Australia Department of the Environment, Clean Air and Urban Landscapes
Title: Indoor Air Quality
Amount: \$8,880,000 (\$400,000 individual share)
Position: Chief Investigator
Dates: 2015-2021
Purpose: To investigate, measure, and evaluate indoor air pollutants within urban microenvironments and to compare with outdoor air pollutants

Sponsor: National Oceanic and Atmospheric Administration
Title: National Integrated Drought Information System (NIDIS) for California
Amount: \$309,918
Position: Lead Chief Investigator
Dates: 2010-2015
Purpose: To develop and implement a drought early warning system to reduce drought impacts, working with agencies, industries, decision-makers, and stakeholders

Sponsor: National Oceanic and Atmospheric Administration
Title: Regional Integrated Sciences and Assessment, CNAP
Amount: \$3,495,217
Position: Investigator
Dates: 2011-2016
Purpose: To develop and provide science for societal applications in water resources, extreme events, climate related hazards, and environmental management

Sponsor: National Oceanic and Atmospheric Administration
Title: Developing and Evaluating Drought Indicators
Amount: \$199,379
Position: Lead Chief Investigator
Dates: 2013-2015
Purpose: To develop indicators to assess and forecast drought, and to evaluate their effectiveness for providing early warning and reducing impacts

Sponsor: National Oceanic and Atmospheric Administration
Title: Drought Assessment, Prediction, and Decision-Making
Amount: \$95,000
Position: Lead Chief Investigator
Dates: 2011-2016
Purpose: To analyze drought indicators and develop drought forecasts for decision-making

Sponsor: National Oceanic and Atmospheric Administration—SeaGrant
Title: SoundCitizen: Students and Citizens Working Together to Evaluate Sources and Fates of Emerging Pollutants
Amount: \$220,000
Position: Co-Chief Investigator
Dates: 2010-2011
Purpose: To trace emerging pollutants from households, to stormwater, surface water, and wastewater, and into Puget Sound and other water bodies

Sponsor: National Oceanic and Atmospheric Administration
Title: Southern California NIDIS: Drought Monitoring and Forecasting
Amount: \$55,000
Position: Lead Chief Investigator
Dates: 2011-2012
Purpose: To develop a drought monitoring and forecast system for the Southern California region, partnering with industries, agencies, and stakeholders

Sponsor: National Oceanic and Atmospheric Administration
Title: Hydrologic Analysis for California and Nevada Droughts
Amount: \$30,516
Position: Lead Chief Investigator
Dates: 2010-2011
Purpose: To examine historical droughts in California and Nevada, compare drought indicators with impacts, and incorporate results into drought plans

Sponsor: National Oceanic and Atmospheric Administration
Title: State Drought Planning in the Western US
Amount: \$98,248
Position: Lead Chief Investigator
Dates: September 15, 2009 - September 14, 2010
Purpose: To develop and communicate drought monitoring and forecast information for improved drought planning and response in the Western US

Sponsor: Seattle Public Utilities
Title: Toxic Chemicals from Household Consumer Products in Stormwater, Wastewater, and Puget Sound
Amount: \$219,626
Position: Lead Chief Investigator
Dates: April 1, 2008 - December 31, 2010
Purpose: To investigate the relationships among chemicals in household consumer products, their presence in water systems and water bodies, and impacts

Sponsor: State of Washington, Center for Trade and Economic Development
Title: Climate Impacts, Vulnerability, and Adaptations: Infrastructure Systems in Washington State
Amount: \$110,000
Position: Lead Chief Investigator
Dates: July 16, 2007 - June 30, 2009
Purpose: To assess projected impacts of climate change on infrastructure systems, identify vulnerable regions and sectors, and develop adaptations

Sponsor: US Geological Survey
Title: West-Wide Drought Forecasting System: A Scientific Foundation for NIDIS
Amount: \$250,000
Position: Lead Chief Investigator
Dates: September 1, 2006 - August 31, 2011
Purpose: To develop a drought forecast and nowcast system for the Western US, and to provide early warning capabilities and science-based indicators for NIDIS

Sponsor: National Oceanic and Atmospheric Administration (NOAA)
Title: Using NOAA Climate Forecasts with Hydrologic Assessment to Reduce Drought Vulnerability and Improve Water Management in Washington State
Amount: \$293,283
Position: Lead Chief Investigator
Dates: June 1, 2006-May 31, 2011
Purpose: To develop and implement climate and hydrologic forecasts for water management, and to assess the net economic benefits of this forecast information

Sponsor: National Aeronautics and Space Administration (NASA)
Title: Improving Water Resources Management in the Western US Through Use of Remote Sensing Data and Seasonal Climate Forecasts
Amount: \$1,200,000
Position: Co-Chief Investigator
Dates: 2006-2009
Purpose: To develop hydrologic and climate prediction models for use by three operational water management agencies: the Natural Resources Conservation Service, the US Bureau of Reclamation, and the California Department of Water Resources

Sponsor: State of Washington, Center for Trade and Economic Development
Title: Drought Impact Assessment and Mitigation
Amount: \$100,000
Position: Lead Chief Investigator
Dates: September 1, 2005 - August 31, 2006
Purpose: To assess the impacts from recent droughts, identify vulnerable areas and sectors, and develop indicators to monitor and forecast drought conditions

Sponsor: The Russell Family Foundation
Title: Shelf to Sound: Educational Outreach
Amount: \$40,000
Position: Co-Chief Investigator
Dates: 2010-2011
Purpose: To develop an educational outreach program, using results from the Shelf to Sound research project, and provide guidance on less-toxic products

Sponsor: State of Washington, Department of Ecology
Title: State Drought Plan
Amount: \$80,000
Position: Lead Chief Investigator
Dates: September 1, 2006 - August 31, 2007
Purpose: To evaluate and improve the State of Washington Drought Plan, including indicators and triggers, responses, and climate change adaptations

Sponsor: National Oceanic and Atmospheric Administration (NOAA)
Title: Climate Forecasts for Improving Management of Energy and Hydropower Resources in the Western US
Amount: \$2,000,000
Position: Co-Chief Investigator
Dates: August 2005-August 2008
Purpose: Predict variations in water and energy supplies and demands across the Western US on seasonal time scales, in order to improve joint management of resources

Sponsor: Seattle Public Utilities
Title: Analysis of Endocrine Disrupting Chemicals from Consumer Products in Stormwater and Wastewater in an Urban, Residential Seattle Watershed
Amount: \$120,000
Position: Lead Chief Investigator
Dates: January 2006 - June 2006
Purpose: To analyze the presence and sources of endocrine disrupting chemicals (EDCs) in surface waters and wastewaters of a residential watershed in Seattle

Sponsor: Puget Sound Action Team
Title: The Environmental, Economic, and Societal Costs of Stormwater Runoff in the Puget Sound Region
Amount: \$36,000
Position: Lead Chief Investigator
Dates: January 2006 - August 2006
Purpose: To identify, analyze, and quantify the costs of stormwater runoff in the Puget Sound region, and the benefits of stormwater management

Sponsor: Puget Sound Regional County Agencies
Title: Water and Watersheds Research Consortium
Amount: \$150,000
Position: Lead Chief Investigator
Dates: January 2005-December 2008
Purpose: To address water issues in the region, such as low-impact development, drought, stormwater management, instream flows, and sustainability

Sponsor: National Oceanic and Atmospheric Administration (NOAA)
Title: The Economic Benefit of Incorporating Weather and Climate Forecasts into Western Energy Production
Amount: \$1,938,100
Position: Co-Chief Investigator
Dates: April 2003-August 2004
Purpose: Develop weather and climate forecasts for energy and water management in California, work with agencies and utilities to integrate forecasts into operations, and estimate the economic value of improved forecast information

Sponsor: National Science Foundation, CAREER Award
Title: Civil and Mechanical Systems, Hazard Reduction Program
Reducing Drought Hazards by Improving Drought Plans
Position: Lead Chief Investigator
Amount: \$410,000
Dates: April 1, 1999-September 30, 2006
Purpose: Develop methods to analyze and mitigate risks of drought hazards, using a knowledge based approach

Sponsor: National Science Foundation, Civil and Mechanical Systems
Title: Interstate Drought Hazard Mitigation
Position: Lead Chief Investigator
Amount: \$100,000
Dates: April 2004-March 2006
Purpose: Determine drought indicators for the ACT-ACF basin, and develop an interstate drought management plan for the states of Florida, Georgia, and Alabama

Sponsor: Federal Highway Administration
Title: Consideration of Environmental Factors in Transportation Systems Planning
Position: Co-Chief Investigator
Amount: \$250,000
Dates: April 2001-July 2002
Purpose: Develop methods for transportation agencies to address environmental requirements in strategic decisions and regional transportation plans

Sponsor: Georgia Department of Natural Resources
Title: Drought Planning for the State of Georgia
Position: Lead Chief Investigator
Amount: \$50,000
Dates: September 1999-September 2002
Purpose: Direct the drought planning process for Georgia, working with more than 100 stakeholders throughout the state Develop and implement first state drought plan

Sponsor: National Science Foundation-Environmental Protection Agency
Title: Community Values and the Long-Term Ecological Integrity of Rapidly Urbanizing Watersheds
Position: Co-Chief Investigator (with Bruce Beck)
Amount: \$850,000
Dates: January 1998-July 2001
Purpose: Develop watershed management methods for Lake Lanier, GA, integrating stakeholder objectives with scientific models

Sponsor: National Science Foundation
Title: Decision-Making and Valuation for Environmental Policy
A Multi-Criteria, Dynamic, and Place-Based Approach to Ecosystem Valuation
Position: Co-Chief Investigator
Amount: \$94,997
Dates: August 1997-August 1998
Purpose: Design community-based methods for environmental valuation, assessing the intergenerational costs and benefits of development decisions

Sponsor: Georgia Research Alliance
Title: Center for Urban and Regional Ecology
Position: Co-Chief Investigator
Amount: \$300,000
Dates: June 1998-June 1999
Purpose: Investigate the interactions between human activities, ecological changes, and tools for managing the built and natural environment

Sponsor: National Science Foundation
Title: Civil and Mechanical Systems, Hazard Reduction Program
Evaluating the Effectiveness of Drought Response Strategies
Position: Lead Chief Investigator
Amount: \$18,000
Dates: June 1997-December 1998
Purpose: Design and implement knowledge-based system to improve drought planning processes and drought contingency plans

Sponsor: Georgia Research Alliance
Title: Environmentally Conscious Design and Construction of Infrastructure Projects
Position: Co-Chief Investigator
Amount: \$229,000
Dates: June 1996-September 1996
Purpose: Develop methods for sustainability in the planning, design, construction, and operation of urban infrastructure systems

Leadership and Administrative Experience

Innovation Program Research Leader

The University of Melbourne, 2016-present

Leading an interdisciplinary research and engagement program in Tropical Housing and Sustainable Built Environments, and guiding a team of academics, students, and partners from industries, agencies, and organisations

Developing market focused research programs for tropical housing, focusing on resiliency, sustainability, resource efficiency, and health

Creating a model for sustainable tropical housing and village, together with industry and agency partners in tropical Queensland

National Program Leader

Scripps Institution of Oceanography, 2010-2015

Individually led the federal program for drought preparedness for the State of California, bringing together and engaging with over 200 stakeholders from industries, agencies, organizations, academia, and the public

Received the State of California's highest honor for developing useful science for the benefit of society, and for successfully bridging between the academic research community and practitioners

Developed and implemented drought information systems and preparedness programs across the US, including monitoring and forecast products to help assess and predict drought conditions and reduce drought impacts

Research saved one state an estimated \$30 million/year

Program Manager

Scripps Institution of Oceanography, 2012-2015

Provided leadership, management, industry engagement, and public outreach for the Regional Integrated Sciences and Assessment (RISA) California-Nevada Applications Program, a major research consortium for bridging climate science and societal applications

Created and led interdisciplinary teams with over 50 academics, professional staff, and partners, building collaborations among university researchers and the wider community

Engaged directly with over 150 partners from industries, government agencies, organizations, tribes, universities, and key decision-makers in the public and private sector

Individually designed and led the first strategic planning process with the consortium Developed and implemented the first strategic plan, and ensured successful accomplishment of strategic goals

Produced internationally acclaimed research that enables communities to prepare for and reduce impacts of climate-related hazards, including droughts, floods, fires, storms, heat waves, and sea level rise

Director, The Water Center

University of Washington, 2004-2008

Served as Director and research manager for a major interdisciplinary center for research, education, and public outreach, involving schools of engineering, atmospheric sciences, oceanography, environmental sciences, public policy, public health, law, and others across campus

Provided leadership for more than 35 academics, 25 researchers and postgraduate students, 25 advisory board members, 20 professional staff, and interacted with more than 1,000 external constituents from industry, agencies, organizations, and the public

Grew the Center team by more than five-fold (from 20 to over 100) within four years

Designed and led over 50 community-based applications of research, working with government officials, water and energy managers, industry leaders, non-governmental organizations, and tribes, together with university academics, staff, students, and researchers from multiple disciplines

Promoted wide dissemination and application of research program results through publications, presentations, research symposiums (300-400 attendees each event), seminars (over 100 attendees each week), and outreach materials

Designed and produced Water Center brochures, fact sheets, website, and a quarterly research newsletter sent to over 3,000 people

Managed a range of human resources activities, including hiring, performance evaluation, and compensation

Individually responsible for and conducted all major aspects of financial management, budgeting, reporting, and resource allocation decisions

Conducted significant development activities, established fellowships for faculty and students research, and more than tripled the level of donor support for the Center

Developed and implemented the Center's first Strategic Plan, the result of a two-year process with more than 200 affiliates

Implemented plan over five years, and achieved all major leadership, research, education, outreach, and financial goals for Center

Teaching

University of Melbourne:

- Sustainable Infrastructure Engineering (~400 Master of Engineering students)
- Independent Research, Master of Engineering

Courses Taught at the University of Washington:

- Microeconomic Policy Analysis
- Sustainability: Principles and Practice
- Water Resources, interdisciplinary course
- Environmental Health, directed research

Courses Taught at Georgia Tech:

- Water Resources Planning
- Environmental Impact Assessment
- Sustainable Urban Development
- Microeconomics for Planning and Policy
- Economic Analysis in Planning

Supervised and graduated more than 30 PhD and Masters thesis students

Teaching Awards:

- Hesburgh Award (Highest national award for university teaching program), 1999
- Junior Faculty Teacher of the Year (Highest University Award), Georgia Tech, 1997
- Outstanding Teacher of the Year (Highest College Award), Georgia Tech, 1996

Additional Teaching Activities (selected examples):

- New Faculty Orientation and Teaching Seminars: Invited presenter each year, for 15 years, at the University of Washington and Georgia Tech. Developed sessions for faculty and PhD students on ways to create synergies among teaching, research, and service. Individually authored the Peer Evaluation of Teaching guidelines for Georgia Tech.
- Mentor to over 100 students and early career researchers from underrepresented populations (in terms of gender, disability, ethnicity, or economics), resulting in a near-100% successful recruitment and retention rate at the universities. Also mentor to junior faculty for developing and writing successful research proposals, resulting in a 75% success rate in their obtaining competitive federal funding within one year.
- Service-learning courses: Developed new courses and revamped existing courses at the University of Washington and Georgia Tech to incorporate service-learning and engagement. Students designed and implemented projects, working collaboratively with members of the community, agencies, industries, and organizations. As the result of one course, student projects formed the master development plan implemented by the community.

Educational Outreach Activities

Significant Activities and Events

Media Coverage (television appearances, radio presentations, newspaper interviews, etc):

Research covered by more than 1,000 newspapers, magazines, and radio and television stations, including the Wall Street Journal, Washington Post, National Public Radio, CBS News, ABC News, NBC News, Scientific American, USA Today, WebMD, Herald Sun, Discovery Channel Magazine, Prevention Magazine, UK Daily Mail, The Australian, Herald Sun, Sydney Morning Herald, The Age, The Daily Telegraph, New York Daily News, Hindustan Times, and Singapore National Radio

International coverage spans six continents, including the countries of Canada, Australia, Vietnam, New Zealand, Germany, Singapore, Japan, United Kingdom, India, Pakistan, China, Mexico, Guyana, Philippines, Nigeria, Slovenia, Uganda, Spain, Ghana, Italy, and Indonesia

Readership for magazines and newspapers exceeds 200 million

Conducted more than 200 media interviews in the past four years

Research results used in legislation, policies, and practices:

United States S 1697 (2009), Household Products Labeling Act; United States S 696 (2013) Safe Chemicals Act; Nevada, AB 2342 (2011), Indoor Air Quality; Vermont, 18 VSA Ch 39 (2010) Health and Cleaning Products in Schools; Missouri, RSMo, Ch 161365 (2009) Green Cleaning in Schools; Georgia Drought Management Plan (2003); Arizona Drought Management Plan (2004); United States Environmental Protection Agency, Indoor Air Quality workplace guidelines (2014); United States Access Board, Fragrance-Free Policy, 7-26 (2000); Centers for Disease Control, CDC-SM-2009-01 (2009), Indoor Environmental Quality Policy

Internationally, more than 100 industries, agencies, and schools have changed their policies and practices, based on my research results and partnerships with them

Director of Educational Outreach Activities:

The Water Center Annual Review, 2005-2008 (300-400 attendees each year)

Environmental Health Lecture Series, 2007 (more than 300 attendees)

The Water Center Seminar Series (75-100 attendees each week)

The Watershed Review (quarterly research newsletter to more than 3,000 constituents)

Environmental Health community-based research applications (more than 50 projects)

Teaching and Learning Effectiveness Workshops (developed and led over 25 workshops)

Service

(selected examples)

Departmental Service:

Leader, Mentoring Committee, University of Melbourne, 2015-

Research Committee, University of Melbourne, 2015-

Academic Search Committee, University of Melbourne, 2015-

Building Warden, University of Melbourne, 2015-

Director, The Water Center, University of Washington, 2004-2008

Faculty Adviser, UW Student Chapter of the American Water Resources Association, 2004-2008
Won Outstanding Chapter of the Year (highest national award) in 2006

Chair, Endowed Professorships Committee, Civil and Environmental Engineering (CEE), 2008

Chair, Committee to the College of the Environment, CEE, 2007

Chair, Edward Wenk Jr Endowed Lectureship Committee, CEE, 2007

Faculty Adviser, UW Student Chapter of Engineers Without Borders, 2004-2007

Faculty Mentor, Hubert H Humphrey Fellows Program, CEE, 2006

Director, Dual Master's Degree Program in Water Resources Planning - MS Civil and Environmental Engineering / MS City and Regional Planning, Georgia Tech, 1996-2004

Director, Dual Master's Degree Program in Environmental Management - MS Civil and Environmental Engineering / MS City and Regional Planning, Georgia Tech, 1996-2004

Chair, Peer Evaluation of Teaching Committee, Georgia Tech, 2002-2003

School and University Service:

Leader, Early Career Researcher Mentoring Program, Melbourne School of Engineering, 2016-

Leader, Engineering Innovation Program, Tropical Sustainable Housing, 2016-

Leader, Media Working Group, Melbourne School of Engineering, 2015-

Executive Committee, Melbourne Sustainable Society Institute (MSSI), 2015-

Melbourne Sustainable Society Institute (MSSI), Future Cities Research Cluster, 2015-

Growth Strategy Committee, School of Engineering, University of Melbourne, 2015-

Promotions Committee, School of Engineering, University of Melbourne, 2015-

Faculty Mentoring Program, College of Engineering, University of Washington, 2004-2008

Steering Committee, Disability Studies Program, University of Washington 2007-2012

Chair of Civil and Environmental Engineering, Search Committee, 2007

Chair, College Awards and Scholarships Committee, Georgia Tech, 1995-2000

Chair, College Sustainability Work Group, Georgia Tech, 1998-2000

Director, Institute Committee for Peer Evaluation of Teaching, Georgia Tech, 2002-2004

Chair, United Way Charitable Campaign, Georgia Tech, 1996-1998

Institute Student Honors Committee, Georgia Tech, 2000-2003

Executive Board Member, elected position, highest level of faculty governance, Georgia Tech, 1996-1998

Leader, Annual New Faculty Orientation, Georgia Tech, 1996-2000

Academic Senate, Georgia Tech, 1996-1998

Faculty Senate, Georgia Tech, 1996-1998

Government Appointments and Agency Service

NSF International/American National Standards Institute (ANSI), Joint Committee for Health-Based Standards for Consumer Product Emissions, 2010-present

National Science Foundation IGERT, External Advisory Board Member, Indoor Environmental Science and Engineering, 2009-present

Appointed to Seattle Mayor's Green Ribbon Commission, 2005

Appointed as Special Adviser on Water Resources to Governor of Georgia, 2000

Appointed to President's National Drought Policy Commission workgroups, 2000

Appointed as Special Adviser on drought issues to States of Florida, Georgia, and Alabama, 2000

Editorial Board, *Environmental Impact Assessment Review*, 2001-present

Editorial Board, *PeerJ*, 2012-present

Engagement with Government Agencies, Industries, and Organizations

(Selected examples from past year)

Agencies	Australian Government, Department of Health Australian Government, Department of the Environment and Energy Australian Government, Department of Agriculture and Water Resources Australian Government, Department of Human Services Australia Government, Bureau of Meteorology National Industrial Chemicals Notification and Assessment Scheme World Bank Asian Development Bank Gates Foundation, PATH Health Canada, Consumer Product Safety Bureau US Environmental Protection Agency US Food and Drug Administration US Army Corps of Engineers US National Institutes of Health US Green Building Council US Department of Energy US Department of Agriculture Victoria Environment Protection Agency City of Melbourne City and County of San Francisco California Department of Water Resources Safe Work Australia WorkSafe Victoria Department of Health and Human Services, Victoria Townsville City Council
Industries and Organisations	Lancini Group, Townsville Finlay Construction, Townsville Flanagan Consultants, Townsville Radcliffe International CHOICE Physicians for Social Responsibility Healthy House Institute David Suzuki Foundation Women's Voices for the Earth The Bullitt Foundation International WELL Building Institute Ecostore Arup IBM