Curriculum Vitae

Miriam Heller, Ph.D.

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EDUCATION

1986 Ph.D., Environmental Engineering and Systems Analysis, Johns Hopkins University, Baltimore, MD.
Thesis: *Location Optimization and Simulation for the Analysis of Emergency Medical Service Systems* (Advisors: J. Cohon & C. ReVelle).

1978 B.S. Biology and Geology, University of Rochester, Rochester, New York

Post-Doctoral Studies and Certifications

2011 Sandia National Laboratory/SAMSI Summer School on Uncertainty Quantification, Albuquerque, NM

2005 Project Management, Associate Certificate, George Washington University, DC

1989 Knowledge Engineering Certificate, Digital Equipment Corporation, Marlboro, MA

1987 Postdoctoral Studies, Institut de Statistiques de Paris, Université Pierre et Marie Curie, Paris VI, France

PROFESSIONAL EXPERIENCE

***Principal and Founder*, MHITech Systems,** Arlington, VA 2008-present

Private consultant specializing in sustainability, e-learning and research development. Some recent engagements:

Water Environment Research Federation, Alexandria, VA 2012-present
- Creating and analyzing four US case studies on water utility responses to extreme weather/climate events.

Institute for Defense Analyses, Alexandria, VA 2009-present
- Defined a new standards-based e-learning content management model with the Naval Postgraduate School.
- Conducting research on the differential socio-economic return on STEM education.

Morgridge Institute for Research, Madison, WI 2009-present
- Analyzed and produced a survey of recent e-learning projects, some associated with sustainability.
- Serving as liaison to federal funding agencies.

Director, Computing Innovation Fellows Program. Computing Research Associates, Washington, DC 2009
- Directed $14.5 million NSF grant to retain postdoctoral computer scientists in research.
- Devised selection process, oversaw review, awarded 60 subcontracts, and created awards tracking systems.

Concurrent Technologies Corporation, Johnston, PA 2010-2011
- Analyzed total life-cycle ownership costs in OSD-funded study of standards integration in training systems.

Visiting Senior Fellow, *EMBARQ, World Resources Institute for Sustainable Transport*, Washington, D.C. 2008-2011
- Reviewed, researched, and wrote papers on urban infrastructure, performance metrics and adaptation.
- Collaborated on formulation of project to estimate GHG emissions in developing cities using global data.

***Director*, IT Research Advancement, University of Southern California** (USC)**,** Washington, D.C. 2007-2008

Responsible for devising, facilitating research collaborations for, and contributing content to 50 research proposals. My domain expertise in sustainability, infrastructure, collaboratories, and education:
- Achieved a 26% funding success rate (vs. 5-20% agency average), with over $6 million in research funded.

National Science Foundation (NSF), Arlington, VA 2000-2007

Program Director, Office of Cyberinfrastructure (OCI), Office of the Director 2004-2007

Responsible for all aspects of inaugural $22.5 million NSF-wide program on Cyberinfrastructure Training, Education, Advancement, and Mentoring; represented OCI internally and at government, professional society, university, and industrial activities. Collaborated with Directorates for Social, Behavioral, Economic Sciences; Education and Human Resources; and Engineering to create and oversee $14 million portfolio of crosscutting investments.
- Charted new directions to broaden participation in and cyber-enable integration of research and learning.
- Managed $8 million/year portfolio of middleware projects, e.g., nanoHUB, GridChem, Open Science Grid.
- Received 2006 Director's Award for Integrated Activities for Learning and Workforce Development.

Competition Coordinator, Human & Social Dynamics, Directorate for Social, Behavioral, & Economic Sciences 2004
Led and coordinated over 30 Ph.D.-level Program Directors and five staff to execute agency's mission to support innovative, merit-reviewed activities in research, infrastructure, and education for HSD.

- Received 2005 Director's Award for Integrated Activities in Human & Social Dynamics for innovative leadership of new $18 million research NSF-wide program and performing the first full NSF Priority Area analysis.

Program Director, Directorate for Engineering, Division of Civil and Mechanical Systems (CMS) 2000-2003
Directed $4-10 million/year program on Sustainability, Infrastructure Asset Management, Water and Transportation Systems, Construction, Integrated Hazard Management (including 9/11 research). Charted new research directions for NSF's Directorate in Engineering in four thrust areas: *Energy, Environment, Sustainable Infrastructure, and Critical Infrastructure Complexity and Protection.*

- Developed new research initiatives across NSF Directorates, e.g., Multidisciplinary Research on Critical Infrastructure, and with other agencies—e.g., with the EPA on Sustainable Construction Processes in Technology for a Sustainable Environment, and with USDOT on Exploratory Research in Intelligent Transport Systems.
- Named one of NAE's 2002 Frontiers of Engineering "Young Researchers" for civil infrastructure systems work.

US Fulbright Senior Scholar, **CNRS and les Universités d'Aix-Marseille II et III**, Aix-en-Provence, France 1999-2000
Engaged in research that led to seminal paper on life-cycle material and energy flows of semiconductor fabrication.

Visiting Researcher, **Domaine Universitaire de Saint-Jérome**, Département de Recherche en Informatique, Automatique et Mécatronique de l'Institut Universitaire des Sciences Pour l'Ingénieur, Marseille, France 1995
Researched and wrote articles on potable water demand forecasting using artificial intelligence.

Assistant Professor, **University of Houston**, Industrial Engineering Department, Houston, TX 1992-2000
Associated Faculty, **University of Houston**, Environmental Engineering Program, Houston, TX 1997–2000
Built a nationally recognized research program focused on systems engineering methods and new tools for sustainable civil infrastructure systems and manufacturing. Projects included sustainable water supply prediction; life-cycle costing of treatment technology for sustainable potable water and industrial waste-water; reliability-based lifecycle sewer systems maintenance; semiconductor lifecycle analysis; climate-neutral carpets; environmental cost accounting methods and applications; contained environment regenerative life support system control for NASA; ISO 14000 environmental management systems and standards.

- Secured over $2.3 million in funding from federal, state, municipal, industrial sources (see Research section).
- Supervised twenty-three post-doctoral, graduate, and undergraduate students (see Research section).
- Taught seven courses (four of which I originated) (see Teaching section).
- Published 30 articles, book chapters, and government reports (see Publications section).

Software Consultant/Design Engineer**, Digital Equipment Corporation**, Houston, Texas 1989-1992
Consulted clients and designed environmental management systems and gas/liquids pipeline expert schedulers.

Visiting Researcher, **Campus Engineering Center, Digital Equipment Corp**., Karlsruhe, Germany 1991
Designed and built LISP-based modules for a prototype multimedia courseware authoring system, NESTOR (http://www.springerlink.com/content/772642613n574688).

Assistant Vice President/Business Analyst, **Citicorp Credit Services**, New York, NY 1987-88
Led the analysis of $30 million credit card fraud problem; researched use artificial intelligence with credit division.

- Designed the first Fraud Early Warning System from the first large-scale transaction database (60 million events per day), which served as the foundation for fraud detection and identity theft systems used today (e.g., http://www.citigroup.com/greece/consumer/en/cards/cards06.htm).

Informatics Engineer**, Applications Statistiques Scientifiques Informatiques**, Suresnes, France 1986-87
Devised and implemented environmental systems projects, e.g., prediction of tastes and odors of potable water; wetlands use analysis; expert system to interpret water lab tests; and real-time potable water demand forecasting.

***AAAS Congressional Science and Engineering Fellow/Staff Analyst*, U.S. Congress Office of Technology Assessment**, U.S. Congress, Washington, D.C. 1983-85

Evaluated the Comprehensive Environmental Response, Compensation and Liability Act (Superfund) implementation and future NPL inventory in anticipation of the Superfund Amendments and Reauthorization Act (SARA).

- Published technology and financial cleanup needs forecast, proposed a risk-based alternative cleanup strategy and funding mechanism with a waste-end tax and recommended standardizing the toxic waste inventory.

Consultant, Jack Faucett Associates, Chevy Chase, Maryland 1979

Summer research position focused on energy and environmental modeling to evaluate solar crop grain dying technology cost-effectiveness, transportation demand prediction, noise pollution, etc.

Research Assistant/Lecturer, Johns Hopkins University, Baltimore, MD 1978-85

- Doctoral research on the dynamic effects of location on emergency medical response, testing new capacity-constrained optimizer with pre-COTS discrete event simulator. Advisors: J.L. Cohon & C.S. Revelle.
- Coded multi-objective programming solution to locate storage facilities for spent nuclear fuel assemblies.
- Taught graduate level course in Systems Analysis for Civil and Environmental Engineers in 1981.

HONORS AND AWARDS

National Science Foundation Director's Award for Integrated Activities for Learning and Workforce Development contributions to NSF's Cyberinfrastructure Strategic Planning Group, 2006

National Science Foundation Director's Award in Integrated Programs, Human & Social Dynamics, 2005

National Academy of Engineering, 7th Annual Frontiers in Engineering Symposium, named 1 of 16 "Young Researchers"; 1 of 4 chosen to publish my work in *The Bridge*, 2002

US Fulbright Senior Scholar, France: research yielded seminal paper on life-cycle material and energy flows of semiconductor fabrication, 2000

Lyndon B. Johnson Space Center, NASA, Group Achievement Award, Lunar-Mars Life Support Team, 1998

Artificial Neural Networks in Engineering, Best Engineering Application Paper Nominee, 1996

AAAS US Congressional Science & Engineering Fellow, 1983

PROFESSIONAL RECOGNITION

Think Green: Energy, Education, Environmental Forum, Nanjing, China, April 8, 2010 *Invited Speaker*

Rueschlikon Roundtable on Shaping Public-Private Cooperation to Secure Critical Information Infrastructures, Washington, DC, March 15, 2006, *Invited Participant*

National Academy of Engineers, Chemical Industry and Sustainability Workshop, 2005, *Invited Participant*

National Research Council, Committee on Science and Technology for Countering Terrorism. Panel on Energy Systems, Cities, and Fixed Infrastructure, January 10, 2002 and Panel on Systems Analysis and Systems Engineering, February 14, 2002, *Invited Speaker*

American Water Works Association, IMTech, 2004, *Keynote Speaker*
Information Technology and Infrastructure: Life-Cycle Implications.

Environmental Protection Agency, Millennium Lecture Series, Washington, DC, February 18, 2004, *Invited Speaker*

11th Rinker International Conference on Deconstruction and Materials Reuse, 2003, *Keynote Speaker*

NATO/Carnegie Bosch Institute Advanced Research Workshop on Life Cycle Analysis for Assessing Energy and Environmental Implications of IT, Budapest, Hungary, September 2, 2003, *Invited Speaker*

NATO/Russia Advanced Research Workshop on Vulnerability of Natural and Technogenic Sphere: Estimation of Integrated Risks of Territories and Objects, Moscow, Russia, February 1, 2002, *Invited Speaker*

National Academy of Sciences, Natural Disaster Roundtable Steering Committee, 2001, *Ex-Officio Member*

Gordon Research Conference on Industrial Ecology, 1998, 2000, 2004, *Invited Participant*

National Academy of Engineering, International Conference on Industrial Environmental Performance Metrics, Arnold and Mabel Beckman Center, Irvine, CA, November 1-4, 1998, *Invited Participant*

National Science Foundation, Urban Interactions Workshops, 1997 and 1998, *Invited Participant*

Yale's Environmental Reform: The Next Generation Project, 1996 *Invited Contributor*

SELECTED PROFESSIONAL MEMBERSHIPS AND SERVICE

American Association for the Advancement of Science, *Member* since 2007
American Association of University Women, *Member* since 2008
American Chemical Society, *Member* 2000-2009
Environmental Science & Technology, *Reviewer*
American Society of Civil Engineers, *Member* since 2001
Committee on Adaptation to Climate Change, *Member* 2011
Committee on Sustainability (formerly TAC Subcommittee on Sustainability), *Member* since 2000
Subcommittee on Professional Certification in Sustainable Engineering, *Member* since 2009
American Society of Civil Engineers/Engineers Without Boarders, EPA P3, *Judge* 2009, 2010
Journal of Infrastructure Systems, Editorial Board, *Member and Reviewer* since 2003
American Society of Engineering Educators, *Member* 2007-2009
Environmental Protection Agency, A Research Strategy for Sustainability, Expert Panel*, Member* 2005
Founder Societies, United Engineering Foundation, Greenhouse Gas Measurement Group, *Member* 2010-present
Carbon Management Technologies Conference, Adaptation and Sustainable IT Metrics sessions, *Organizer and Moderator* 2011-2
Green IT Council, Board of Advisors, *Member* 2011
Interagency Forum on Climate Change Impacts and Adaptation, *Participant* 2011
International Society of Industrial Ecology, *Member* 1998-2006
Journal of Industrial Ecology, *Reviewer*
National Science Foundation
Directorate for Engineering, Proposal Review Panel, *Member* 1995, 1998, 2008, 2010
Large Cyberinfrastructure Project Site Review Team, *Member* 2007, 2011
Directorate for Computer & Information Sciences & Engineering, Proposal Review Panel, *Member* 2008
Directorate for Education & Human Resources, Proposal Review Panel, *Member* 2011
Statistical and Applied Math Sciences Institute (SAMSI), Research Triangle Park, 2011-12 Program on Uncertainty Quantification and Sustainability, *Co-Organizer* 2010-present
US Department of Homeland Security, *Critical Infrastructure Protection Decision Support System (CIPDSS)*, *Reviewer* February 28-March 1, 2006
US Government Accountability Office, *Report to the Committee on Public Works, U.S. Senate, Wastewater Facilities: Experts' Views on How Federal Funds Should Be Spent to Improve Security*, GAO-05-165, *Expert Participant* January 2005.

FOREIGN LANGUAGES

Fluent in French, Certificat, Cours de Civilisation Française de la Sorbonne, Paris, France, 1985
Conversational in German, Recipient of the Steuben Award, NY, 1974

ACADEMIC RESEARCH

Research and In-Kind Donations

Material and Energy Flow Analysis in the French Semiconductor Industry, 1999-2000 Fulbright Senior Scholar, Fulbright Scholar Commission, Stipend, 12/1999-7/2000.
Global Climate Change, Shell Interdisciplinary Scholars Program, $200,000, 2/1999-3/2001.
Membrane Systems Cost Estimator Expert, American Desalting Association, US Bureau of Reclamation, $40,000, 9/1998-8/1999.
Full Costing of Remediation Alternative to improve Corporate Decisions with Environmental Impacts, University of Houston Environmental Institute/Energy Lab, $9,000, 12/1997-8/1998.
Program for Sustainable Civil Infrastructure and Environmental Systems, Gensym Center of Excellence, Gensym Corporation, $302,200 list value, unlimited software.
Membrane Selection System for the Metal Finishing, EPA Gulf Coast Hazardous Substance Research Center, $80,077, 9/1995-8/1998.
Bioremediation: Scientific, Social and Business Issues, Shell Interdisciplinary Scholars Program, $200,000, 1997-1998.

Life-Cycle Environmental Costing for Managing Pollution Prevention in the Chemical and Refining Industries: A Cross-Border Approach, Texas Hazardous Waste Research Center/ Gulf Coast Hazardous Substance Research Center, $42,661, 9/1995-8/1997.

Systemic Change in Urban Infrastructure – Intelligent Renewal of Urban Infrastructure, National Science Foundation, $911,195 and City of Houston, $500,000, 9/1995-8/1999.

A Proposal for Joint US-Mexican Benchmarking of Accounting for Environmental Costs, EPA / Gulf of Mexico Business Council for Sustainable Development, $50,000, 6/1995-5/1996.

Life-Cycle Environment Costing for Managing Pollution Prevention in the Chemical and Petroleum Refining Industries, EPA Gulf Coast Hazardous Substance Research Center, $30,000, 6/1994-5/1995.

Environmental Accounting for Managing Pollution Prevention in the Chemical and Refining Industries, NSF-Management of Technological Innovation, $297,698, 10/1993-9/1995.

Neural Network Prediction of Potable Water Demand, University of Houston, $2,000, 6-8/1993.

Contracts

EMA Services, Inc., St. Paul, MN subcontracted with the following entities on the projects shown:

- American Water Works Association Research Foundation on Creating Effective IT Solutions, contributed to questionnaire design and content and served as QA/QC analyst for overall project, 2002.
- Water Environment Federation on Utility Business Information System for Competitive Performance, conducted and wrote literature review on water industry performance metrics, 1999.

Texas Natural Resource Conservation Commission, Austin, TX subcontract with Gelb Inc., 1997

- Conducted a requirements analysis for a Consolidated Environmental Reporting Project.

Sematech, Inc., Austin, TX under subcontract with Oregon State University, Corvallis, Oregon, 1995

- Developed a cost-of-ownership model for tools in the semiconductor fabrication industry.

World Resources Institute, Washington, DC, 1993-95.

- Studied and published two cases on environmental accounting practices in Fortune 100 firms.

Supervision of Research

N. Nimmagadda, System Dynamics Modeling: an Application to Sewer Infrastructure, M.S. 2000.

N. Jain, Environmental Accounting for Bioremediation Costs, M.S. 1999.

K. Aithala, ExSTrEME: Expert System for Treating Effluent from Metal Finishing and Electroplating, M.S. 1998.

H. Qin, Reliability-Based Life-Cycle Costing System for Sewer Rehabilitation, M.S. 1998.

T.R. Hatfield, Modeling NASA's Regenerative Life Support System to Validate Its Control Software, M.S. 1998.

Q. Wang, Hybrid Box-Jenkins & Neural Network Method: An Application in Forecasting Daily Water Demand, MS 1996.

R. Saudale, Activity Based Environmental Cost Analysis System, M.S. 1996.

S. Garlapati, MEMFES: Membranes for Electroplating and Metal Finishing Expert System, M.S. 1996.

H.S. Thind, Forecasting Nonlinear Time Series Using Artificial Neural Networks: an Application to Daily Municipal Water Demand, M.S. 1994.

J. Mukherjee, Ph.D., Post-Doctoral Research, Infrastructure System Dynamics Modeling, 1996-1997.

Supervised 13 Part-Time Undergraduate Researchers from Industrial, Chemical, Civil, and Electrical and Computers Systems Engineering, and Computer Science.

Served on 8 Ph.D. and 8 M.S. Committees in the Departments of Mathematics and Industrial, Electrical and Computer, and Civil and Environmental Engineering.

TEACHING

University of Houston: Environmental Perspective in Management and Engineering (originated course); Industrial Ecology (originated course); Building Knowledge-Based Systems (original course material); Design of Artificial Intelligence Systems (original course material); Stochastic Operations Research; Deterministic Operations Research; Operations Research and Analysis of Systems; four classes for Industrial /Mechanical Systems Design capstone course.

The Johns Hopkins University: Computer Science for Engineers (Teaching Assistant for Applied Physics Laboratory); Systems Analysis for Civil Engineers (Lecturer: Department of Geography and Environmental Engineering); Dynamic Programming (Teaching Assistant: Department of Mathematical Sciences).

PUBLICATIONS

Peer-reviewed papers

1. Kim, S. and Heller, M. (2006). Emerging Cyberinfrastructure: Challenges for the Chemical Process Control Community, *Computers and Chemical Engineering*, 30 (10-12):1497-1501.
2. Heller, M. (2003). Infrastructure Security, Dependencies, and Asset Management. *Proceedings of the ASCE Pipeline 2003 International Conference*, Baltimore, MD, July 13-16, 2003, ASCE: Reston, VA.
3. Williams, E.D., Ayres, R.U., and Heller, M. (2002). The 1.7 Kilogram Microchip: Material Use and Emissions in Semiconductor Fabrication. ACS' *Environmental Science & Technology*, 36:5504-5510, http://stuff.mit.edu/afs/athena/course/2/2.813/OldFiles/www/readings/WilliamsMicrochip.pdf.
4. Heller, M. (2002). Interdependencies in Civil Infrastructure Systems. *Frontiers of Engineering Reports on Leading-edge Engineering from the March 2002 NAE Symposium on Frontiers of Engineering,* National Academy of Engineering, 2002, pp. 47-55.
5. Williams, E.D., Ayres, R.U., and Heller, M. (2002). Energy and Chemical Use in the Production Chain for Microchips. *Proceedings of the 2002 IEEE International Symposium for Electronics and the Environment*, 3/2002.
6. Heller, M. (2001). Interdependencies in Civil Infrastructure Systems. *The Bridge,* Wash., DC: National Academy of Engineering, 31(4):9-15, http://www.nae.edu/cms/Publications/TheBridge/Archives/7320/7487.aspx.
7. Heller, M. and Saudale, R. (2000). Information Architecture Plays Key Role in Corporate Environmental Cost Analysis. *Journal of Engineering Valuation & Cost Analysis*, 3:403-418.
8. Heller, M., von Sacken, E.W. and Gerstberger, R.L. (1999). The Integrated Water Utility Business of the Future. *Journal American Water Works Association*, 91(11): 72-83.
9. Heller, M., Garlapati, S., and Aithala, K. (1998). Expert Membrane System Design and Selection For Metal Finishing Waste Water Treatment. *Expert Systems with Applications*, 14:341-353.
10. Qin, H., and Heller, M. (1997). Integrating Reliability Modeling into an Activity-Based Life Cycle Costing Framework for Sewer Systems. In J.G. Chen and A. Mital (Ed.), *Advances in Industrial Engineering Applications and Practice*, 2:1027-1032, San Diego,CA: IJIE.
11. Wang, Q., and Heller, M. (1996). Hybrid Box-Jenkins and Neural Network Forecasting Potable Water Demand. In C. Dagli, M. Akay, C. L. P. Chen, B. Fernández, and J. Ghosh (Ed.), *Intelligent Engineering Systems Through Artificial Neural Networks*, 6: 801-807, New York: ASME Press.
12. Heller, M. (1996). Adding Environmental Dimension to Life-Cycle Costs. *Journal of the Society of Logistics Engineers*, 30(2):5-12.
13. Garlapati, S., and Heller, M. (1995). MEMFES: Membranes for Electroplating and Metal Finishing-Expert Selection for Materials Recovery. In J. Chen, F. Attia, and D. Crabtree (Ed.), *EXPERSYS-95*, (pp. 433-438), San Francisco, CA: IITT.
14. Heller, M. (1994). Knowledge-Based Solutions for Environmentally Conscious Manufacturing. In J. G. Chen, F. Attia, and D. Crabtree (Ed.), *EXPERSYS-94* (pp. 213-218), Houston, TX: IITT.
15. Heller, M., and Thind, H. (1994). Forecasting with Cascade Correlation: An Application to Potable Water Demand. In C. Dagli, B. Fernández, J. Ghosh, and R. Kumara (Ed.), *Intelligent Engineering Systems Through Artificial Neural Networks*, 4 (pp. 1155-1160), New York: ASME Press.
16. Heller, M., Cohon, J.L. and ReVelle, C.S. (1989). The Use of Simulation in Validating a Multiobjective EMS Location Model. *Annals of Operations Research*, 18:303-322.
17. Byrd, R.H., Goldman, A.J., and Heller, M. (1987). Recognizing Unbounded Integer Programs. *Operations Research*, 35(1):140-142.

18. Heller, M., ReVelle, C., and Cohon, J. (1983). Modeling Emergency Ambulance Systems. In *IASTED International Symposium: ASM'83-Applied Simulation and Modeling*, (pp. 165-168), San Francisco, CA: ACTA Press.

19. Heller, M., Hogan, K.B., Appino, P.A., Cohon, J.L., and Revelle, C.S. (1982). An emergency medical services simulation model for Baltimore city: an overview. *In Proceedings of the 14th conference on Winter Simulation - Volume 2 (WSC '82), 6-8 December,* 2:413-418, San Diego: Winter Simulation Conference.

Book Chapters

1. Gafford, W. and M. Heller (2010). ADL and Enterprise Content Management. In R. A. Wisher, P. Jesukiewicz and B.H. Khan (Eds.). *Learning on Demand: ADL and the Future of e-Learning*.

2. Committee on Science and Technology for Countering Terrorism, National Research Council. (2002). Making the nation safer: the role of science and technology in countering terrorism. National Academies Press: Washington, DC.

3. Heller, M., von Sacken, E.W. and Gerstberger, R.L. (2001). Water Utilities as Integrated Businesses. In W.C. Lauer (ed.), *Excellence in Action: Water Utility Management in the 21st Century*. American Water Works Association: Denver, CO, pp. 275-300.

4. Shields, D., Beloff, B., and Heller, M. (1998). Environmental Cost Accounting for Chemical and Oil Companies: A Benchmarking Study. In M. Bennett and P. James (ed.), *The Green Bottom Line.* Greenleaf Publishing: Sheffield, UK, pp. 188-211, http://www.greenleaf-publishing.com/productdetail.kmod?productid=12.

5. Heller, M., Bernazeau, F., and Wiesner, M. R. (1998). New Trends and Technologies. In J.B. McEwen, (ed.), *Treatment Process Selection for Particle Removal.* American Water Works Association Research Foundation (ISBN 0-89867-887-0), Denver, CO, pp. 321-342.

6. Heller, M., Shields, P.D., and Beloff, B. (1995). Environmental Accounting Case Study: Amoco Yorktown Refinery. In D. Ditz, J. Ranganathan, & D. Banks, (eds.), *Green Ledgers: Case Studies in Corporate Environmental Accounting*. World Resources Institute (ISBN 1-56973-032-6), Washington, DC, pp. 47-81.

7. Shields, P.D., Heller, M., Kite, D., and Beloff, B. (1995). Environmental Accounting Case Study: Du Pont. In D. Ditz, J. Ranganathan, & D. Banks, (eds.), *Green Ledgers: Case Studies in Corporate Environmental Accounting. World Resources Institute* (ISBN 1-56973-032-6), Washington, DC, pp. 123-138.

8. Heller, M. (1995). Chapter 18: Drinking Water Quality Houston Region. In *Developing Environmental Foresight: Report of the Socioeconomic Subpanel*, Houston Environmental Foresight, J.D. Wilson, S. Strawn, D. Hitchcock, Houston Advanced Research Center, Mitchell Center For Sustainable Development, The Woodlands, Texas, pp. 423-432.

9. Anselme, C., Bordet, J. P., and Heller, M. (1987). Statistical Data Analysis and Modeling. In J. Mallevialle & I. H. Suffet, (eds.), *Identification and Treatment of Tastes and Odors in Drinking Water*, American Water Works Association Research Foundation (ISBN 0-89867-392-5), Denver, CO, pp. 123-210.

Publications: Reviewed Government and Other Reports

1. Shields, D., Beloff, B., and Heller, M. (1997). Environmental Cost Accounting for Chemical and Oil Companies: A Benchmarking Study. *US EPA-Office of Pollution Prevention and Toxics.* EPA-742-R-97-004, June 1997.
2. U.S. Congress, Office of Technology Assessment. (1985). Superfund Strategy. OTA-ITE-252, http://www.fas.org/ota/reports/8526.pdf.

Conference Proceedings

1. Brophy, S. and M. Heller. Cyber and Virtual Innovation. In J. Murday (ed.) *NSF Workshop Report: Partnership for Nanotechnology Education,* 26-28 April 2009, University of Southern California, Los Angeles, CA, www.nsf.gov/crssprgm/nano/reports/educ09_murdyworkshop.pdf.

2. Heller, M., Humphrey, T., Jones W., Nelson, P., and J. Paniati. (2002). Exciting Opportunity for ITS Work. *Public Roads,* May/June 2002, Washington, DC: FHWA, http://www.tfhrc.gov/pubrds/02may/05.htm.

3. Heller, M. (2002). Life-Cycle Infrastructure Risk Management : R&D Needs. Discussion paper presented at the *Columbia-Wharton/Penn Roundtable on Risk Management Strategies in an Uncertain World*, April 12-13, 2002 IBM Palisades Executive Conference Center, Palisades, New York, http://www.ldeo.columbia.edu/chrr/documents/meetings/roundtable/pdf/notes/heller_miriam_note.pdf.

4. Heller, M. (2002). Part II. Civil Infrastructure Complexity: Theory, Practice, and Restructuring for Education and Research. In DeMarco, C. (ed.), *A Workshop on Critical Infrastructure: Needs in Interdisciplinary Research and Graduate Training*, co-sponsored by the White House Office of Science and Technology Policy and The National Science Foundation, White House Conference Center, Washington, DC., June 14-15, 2001.

5. Roberts, D. J., Davis, J.L., Cleveland, T., and M. Heller. (1999). Modeling Microbially-Induced Concrete Corrosion. *Proceedings of the Water Environment Federation Collection System Rehabilitation and O&M Specialty Conference* (pp.1-10), Salt Lake City, Utah, August 1999.

6. Heller, M. and Aithala, K. (1998). An Object-Oriented Architecture for Designing Wastewater Treatment Trains with Emphasis on Membrane Processes. *Proceedings of the American Desalting Association Conference & Exposition*, Williamsburg, VA: American Desalting Association, pp. 114-131.

7. Heller, M., and Garlapati, S. (1996). An Expert System for Determining Membrane System Performance and Cost. In *Proceedings of the American Desalting Association Conference and Exposition*, pp. 328-347. Monterey, CA: American Desalting Association.

8. Heller, M., and Wang, Q. (1996). Improving Potable Water Demand Forecasts with Neural Networks: A Core Technology for Integrated Resource Management. In *Universities Council on Water Resources Annual Meeting* 1996, 6:250-260. San Antonio, TX:UCOWR.

9. Shields, D., Heller, M., and Beloff, B. (1995). Environmental Accounting for Managing Pollution Prevention in the Refining Industry: The Case of Amoco Yorktown. In the *1995 Third International Conference of the Decision Sciences Institute*, pp.172-174, June 12-14, Puebla, Mexico: DSI.

10. Heller, M., and Hirschorn, J. (1984). Update on Hazardous Waste-End Tax Option. *U.S. Congress Office of Technology Assessment* presented to the Subcommittee on Commerce, Transportation and Tourism of the House Committee on Energy and Commerce, 98th Congress, Jan. 25, 1984.

11. Heller, M., Hogan, K. B., Appino, P., Cohon, J., and Revelle, C. S. (1983). An Emergency Medical Services Simulation Model for Baltimore City. In W. Vogt & M. Mickle (Ed.), *14th Annual Pittsburgh Conference on Modeling & Simulation*, 14 (3):977-981. Pittsburgh, PA: Instrument Society of America.

SELECTED RECENT INVITED SEMINARS AND PRESENTED

Climate Change Adaptation Challenges to Infrastructure Engineering. Invited Speaker, George Mason University, Fairfax, VA, April 27, 2011.

Innovations in Cyberlearning for Sustainable Science and Engineering. Invited Speaker, International Conference on Sustainable Science and Engineering, University of Arizona, Tucson, AZ, January 12, 2011.

Innovations in Cyberlearning for Sustainability. Invited Speaker, Think Green Global Forum, New York Institute of Technology/Nanjing University of Posts and Telecommunications, Nanjing, China, April 8, 2010.

Carbon Legislation and Cap and Trade Update. Invited Speaker, United Engineering Foundation Founder Societies Carbon Measurement Initiative, Greenhouse Gas Measurement Workshop, Hyatt Regency Scottsdale Resort and Spa at Gainey Ranch, Scottsdale, AZ, December 7, 2009.

The Future of Urban and Regional ~~Mobility~~ Livability: Systems Engineering for People. Invited Plenary Panel Speaker, Union Panamericana De Asociaciones De Ingenieros (UPADI), Brasilia, Brasil, December 1, 2008.