

Curriculum Vitae

Sarah Lynn Cunningham, PE

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Education and Certifications

Bachelor of Applied Science, Environmental Engineering, Speed Scientific School, University of Louisville, 1981

Master of Science, Interdisciplinary Studies, in environmental education and environmental history, University of Louisville, 2006

Professional Engineer, Commonwealth of Kentucky, License #16592

Nonformal Environmental Educator Certification, Commonwealth of Kentucky, 2006

Continuing Education:

Environmental Auditing	HazCom, Level I
Environmental Law	Waste-Handling Facility Siting
Environmental Management Systems	Erosion Prevention and Sediment Control
Environmental Education (Project NEED and WET in the City certified)	Drainage Management
Science Education	Groundwater
Adult Education	Coal Mine Reclamation and Pollution Control
Wastewater Treatment	Regulatory Enforcement
Biosolids Management/Beneficial Reuse	Marketing for Nonprofits
Wastewater Microbiology	Personnel Management
Odor Control	Customer Service
Pump Performance Optimization	Influencing Effectively
Energy efficiency (residential, commercial, industrial and automotive sectors)	EEO/AA
Climate Change	Americans with Disabilities Act (ADA)
Land Use Planning	Workplace Violence
Water Conservation	Dealing With Difficult People
Hydropower	People's Law School
Soil Bioengineering	Microsoft Office Suite
Native Landscaping	Public Speaking
Geographic Information Systems	Effective Writing

Experience

Self-employed Professional Engineer and Educator, January 2005 to the present

- Teaching at the K-12, university and non-formal adult levels
- Conducting energy-management and environmental audits and workshops
- Staffing the Louisville Climate Action Network
- Researching and technical writing
- Technical analysis for the KY Resources Council, other groups and individuals
- Serving as an expert witness
- Developing and maintaining web sites

Environmental Education Coordinator, Executive Offices Louisville and Jefferson County Metropolitan Sewer District (MSD) May 2004 to December 2004 (Retired from government service.)

Provided tailored programs to student, adult and community groups, showing each audience what MSD's public health mission meant to their lives and/or classroom learning. Designed needs-based agendas for and led visits from international peers.

CERES Principles Engineer, Executive Offices, MSD December 1993 to May 2004

Facilitated and coordinated the progressive implementation of MSD's commitment to the CERES Principles (Coalition for Environmentally Responsible Economies), including environmental management systems (EMS), environmental auditing, biosolids management (including participation in the National Biosolids Partnership), energy efficiency (E2), pollution-prevention (P2) and public participation with citizen environmental groups. Participated on teams responsible for planning and overseeing construction of capital projects (up to \$65 million).

As Environmental Education Coordinator, served as media source, designed and managed the Ellen Swallow Richards Ecology Learning Center, created and operated the *After We Flush* program for 5th graders, and wrote the related lesson plans and assessments. Led three "Fund for the Arts" campaigns.

As International Affairs Coordinator, planned and provided individualized programs for professional peers from all continents (see below).

Planning Engineer, Engineering Division, MSD June 1990 to December 1993

Reviewed and approved connection requests, and plans and specifications for expanded and new wastewater treatment plants. Wrote design standards for small treatment plants. Managed pilot composting project.

Water Pollution Control Program Manager, Jefferson County Board of Health
January 1985 to June 1990

Regulated the operation, maintenance and effluent of 500 wastewater facilities. Supervised inspection, enforcement and stream monitoring. Oversaw design and development of enforcement tracking software. Drafted regulation revisions.

Also, organized and managed office paper recycling program. Advised businesses, institutions and governmental agencies on office and community recycling programs.

Environmental Engineer, Division of Water
Kentucky Department of Environmental Protection, Frankfort, Kentucky
September 1981 to January 1985

Wrote plain-English field handbook for the coal industry, outlining required erosion prevention and pollution control measures; supervised illustration. Assisted with similar handbook for the construction industry. Approved compliance plans for publicly-owned treatment works (POTW). Surveyed statewide wastewater facility needs, costs and financial impacts; analyzed data and proposed financing methods. Studied on-site wastewater treatment technologies; drafted related policy revisions.

Recycling Center Coordinator, Paddlewheel Alliance, Louisville, Kentucky
Intermittently from June 1979 to June 1990

Managed weekend drop-off recycling center. Trained and supervised volunteer environmentalists, and court-ordered “first offenders” completing service work.

Student Cooperative-Internships and Part-Time Employment
June 1972 through July 1981

Research Assistant, Environmental Engineering Department; analyzed atmospheric data for the Ohio River Basin Energy Study for the US Congress.

Project Manager, Appalachia - Science in the Public Interest; designed Citizens’ Stream Monitoring Project for physio-chemical analysis.

Associate, Hauck & Associates; edited energy and utility economics reports.

Intern, Jefferson Co. Energy Conservation Office; computed climate-based design criteria for solar heating/cooling and energy-efficiency building code revisions.

Consultant, *The Courier-Journal*; researched beverage container deposit legislation and wrote report for legislators and newspaper editors.

Intern, Jefferson Co. Department of Environmental Protection; researched and responded to environmental impact statements and researched draft legislation.

Publications

Cunningham, S. L., PE, *Do You Want Utilities With That? Avoiding the Unintended Economic Consequences of Poorly Planned Growth on the Provision of Water and Sewer Service*, Center for Environmental Policy & Management and the Environmental Finance Center, University of Louisville, Practice Guide #14, Summer 2006; updated in 2009. Down-loadable via http://cepm.louisville.edu/Pubs_WPapers/practiceguides/PG14.pdf

Cunningham, S. L., "[Louisville CAN Model Kentucky's Energy Future](#)," *Global Connections*, Jefferson Co. Public Schools, for the Partnership for a Green City (JCPS, University of Louisville and Metro Louisville Government), April 2009

Cunningham, S. L., "[Foiled Plans, Fouled Waters](#)," *Sustain*, a publication of the University of Louisville, Fall/Winter 2009 issue

Cunningham, S. L., PE, "[Reducing Two-Stroke Engine Emissions](#)," *The Cumberland*, newspaper of the like-named chapter of the Sierra Club, August 2008

Cunningham, S. L., "[From Smoke Filled Skies to Smoke-Filled Rooms: Louisville's Political Battles Over the 'Smoke Evil'](#)," *Ohio Valley History*, a publication of The Filson Historical Society, the Cincinnati Museum Center and the University of Cincinnati, Spring 2008

Cunningham, S. L., *John James Audubon and Habitat Protection*© lesson plan, River Fields, Inc. May 08; see http://greensmarts.us/files/Audubon_Bicentennial_Lesson_Plan.pdf

Cunningham, S. L., "[Talking to Kids About Climate Change](#)," *Global Connections*, Jefferson Co. Public Schools, for the Partnership for a Green City (see above), April 2008, page 17

Cunningham, S. L., PE, "[STAR FAQs](#)," (Strategic Toxic Air Reduction, Frequently Asked Questions), for the Greater Louisville Sierra Club, 2005

Cunningham, S. L., "[Dispatches from the field](#)," week-long series, *Grist*, about field work on an environmental health project in Tamale, Ghana, sponsored by World Bank Institute and Sister Cities International, 16-20 March 2004

Cunningham, S. L., PE, "Encouraging Women to Become Scientists," *Today's Woman*, January 2003

Adamski, R. E., PE, & Cunningham, S. L., PE, "Sierra Club Guidance on the Application of Sludges: How to Deal with Biosolids and the Club," *Proceedings, 2002 Water Environment Federation/American Water Works Association Joint Residuals and Biosolids Conference*

Cunningham, S. L., PE, *Aqua Venturer Teacher Guide*, Water Environment Federation (WEF), 2002 (also down-loadable via www.aquaventurer.org).

Cunningham, S. L., *After We Flush* interdisciplinary, educational field-trip program, including curriculum map, lesson plans and supplemental materials based on the Kentucky Education

Reform Act, Kentucky Dept. of Education's core content, Bloom's Taxonomy of Cognitive Skills and the Multiple Intelligences theory for pre- and post-visit classroom learning, 2001-2004; won national award from Association of Metropolitan Sewerage Agencies.

Cunningham, S. L., PE, Bell, W. F. and Sweeney, M. W., PhD, PE, *Pollution Prevention Through Energy Efficiency at A Public Wastewater-Stormwater Utility*, Water Environment Federation annual conference, October 2001 (reprinted in *Int'l Water & Irrigation*, Vol. 22, No. 3, 2002)

Cunningham, S. L., "Customer Service for Utilities," *Aspects*, Volume 6, Number 4, United States Ukraine Foundation, Summer 2000

Cunningham, S. L. and Garner, G. R., "Using the CERES Principles as a Management Tool at a Public Utility," *International Workshop on Local Initiatives for Sustainable Cities*, Kanagawa Prefecture, Japan, January 1997

Garner, G. R., Cunningham, S. L. and Bell, W. F., *Lighting Waste Disposal Task Force*, Urban Consortium Energy Task Force, Public Technology, Inc, and US Dept of Energy, July 1996

Cunningham, S. L., "Louisville and Jefferson County, USA: Sustainability Principles," *Local Initiatives: ICLEI Members in Action, 1993-1995*, International Council for Local Environmental Initiatives, Toronto, Ontario, Canada, 1995

Garner, G. R. and Cunningham, S. L., "Implementing the CERES Principles at a Public Utility," *Management of Environmental Problems for Public Officials*, WEF (see above), 1994

Cunningham, W. R. (no relation), Bennett, J., Cunningham, S. L. (editor) and Michaelczyk, B., *US-Asia Environmental Partnership Mission Report, Phuket Province, Thailand*, July 1993—adopted as program reporting standard

Cunningham, S. L., *Regulatory Requirements and Design Guidelines for Small Wastewater Treatment Plants in Jefferson County, Kentucky*, Louisville and Jefferson Co. Metro Sewer District, July 1992

Cunningham, S. L. and Kinloch, D. H., *Citizens Alternative Plan*, a comprehensive solid waste management plan for Louisville, 1991

Cunningham, S. L., "From Blue Angels to Variable Can Rates," *Bicycle*, Jun 1990

Cunningham, S. L., *Best Management Practices for Surface Coal Mining*, Division of Water, Natural Resources and Environmental Protection Cabinet, Commonwealth of Kentucky, 1984

Cunningham, S. L., *A Survey of the Impact of Container Legislation in Six States upon Energy Conservation, Litter Reduction and Jobs*, The Courier-Journal, 1980

International Technical Assistance

- 2006 Cincinnati-Ukraine Partnership workshop on constructive engagement with community groups for Ukrainians working in solid waste management programs
- 2005 Workshop on Housing and Communal Services, in Kiev, Ukraine, for officials of cities participating in the US-Ukraine Foundation's Community Partnership Project, member of instructional team
- 2004 Technical reconnaissance team in Tamale, Ghana, for pilot Millennium Development Goals project of Sister Cities International and World Bank Institute
- 2000 USAID/US Ukraine Foundation Community Partnership Project mission to Donetsk, Ukraine, focusing on water infrastructure and economic development
- 1998 USAID/US-Ukraine Foundation Community Partnership Project reconnaissance mission to Donetsk, Ukraine
- 1997 International Workshop on Local Initiatives for Sustainable Cities, Kanagawa Prefecture, Japan; delivered paper and assisted with drafting workshop resolutions
- 1993 USEPA Asia Environmental Partnership charter mission to Phuket, Thailand
- 1991 International Ecological Wastewater Engineering Conference, Trosa, Sweden; associate case study chairperson

Since 1994, also hosted peer-to-peer professional exchange visitors from the following nations (typically involving the Louisville and Jefferson County Metropolitan Sewer District, the Louisville International Cultural Center and/or Sister Cities of Louisville):

Australia

Africa: Egypt and Ghana

Asia: Bhutan, China, India, Japan, Korea, Thailand, Vietnam

Europe: Bulgaria, Czech Republic, Estonia, Germany, Hungary, Latvia, Lithuania, Moldova, Romania, Russia, Slovak Republic, Spain, Sweden and Ukraine

North America: Canada and Mexico

South America: Argentina, Brazil, Bolivia and Ecuador

Languages

Generally functional in German. Also studied Spanish, French, Hebrew, Norwegian, Ukrainian and Grade 1 Braille to varying levels of competency.

University of Louisville Teaching Engagements

Assisted with the design and delivery of the UofL Speed School of Engineering graduate course, “Green Design and Sustainable Development” (CEE 590/694), Spring 2008

Sample guest lectures for other courses:

Biology 522/622 – Aquatic Ecology
Geography 561 – Geography for Educators
Health and Sport Sciences 564 – Women’s Health Issues
Philosophy 305 – Special Topics (Humans, Animals and the Environment)
Philosophy 328 – Environmental Ethics
Elementary Education 605 – Teaching Elementary Science Methods
Elementary Education 623 – Integrating Mathematics and Social Studies
Secondary Education 619 – Urban and Rural Watersheds
Secondary Education – Geography Matters
Sociology 209 – Principles and Concepts
2004 Summer Teacher Academy

Sample K-12 Guest Teaching Engagements

Culminating Lecture, 2009 Assumption High School Mission Week program
Lincoln Foundation’s month-long Summer Math & Science Program, assisted with program redesign (to include hands-on/minds-on research projects) and delivery, 2008
2007 and 2008 Adventures in Water Festivals, for Louisville Water Co. and River Fields, Inc.
Eliahu Academy, Earth Day Celebration, 2006
“Women in Science Begins in Grade School” program
Assumption High School, four Social Justice classes, 2007
Louisville Nature Center’s (weeklong) Eco Summer Camp, 2007
Presentation Academy, Class of 2007, 14 January 2004, “Problem Solving and Goal Setting”
Festival of Faiths, 6 sessions on environmental ethics for middle-schoolers, November 2003

Sample Adult Teaching and Speaking Engagements

American Society of Civil Engineers webinars: “Introduction to Green Design” and “Avoiding the Economic Consequences of Poorly Planned Growth on the Provision of Water and Sewer Service—Mitigating Strategies and Alternatives,” 2008 to the present

Various venues, presentations on climate change and ways communities can reduce their carbon footprints, on behalf of the Louisville Climate Action Network, 2007 to the present

University of Louisville’s observance of National Public Health Week, “Climate Change: Our Health in the Balance” panel discussion, 9 April 08

Kentucky Institute for Art Education, 23 June 2004, “Integrating Art and Poetry into Environmental Science Curricula”

American Society of Civil Engineers, Louisville Chapter, 14 May 2004, “The Millennium Development Goals: Louisville and Tamale, Ghana,” co-presented with Steve Hubbs, PE

Kentucky Science Teachers Association annual meeting, Lexington, KY, 7 November 2003, “Teaching Science at a Wastewater Treatment Plant”

Festival of Faiths, “Colloquium on Faith and the Environment” panelist, 13 November 2003, Louisville, KY

American Rivers Coalition’s Lewis & Clark Bicentennial workshop, 24 October 2003, “Environmental History Then and Now”

American Society of Civil Engineers, Kentucky Section, annual meeting, 3 October 2003, “Teaching engineering to middle school students”

KY-TN Water Environment Association, 21 May 2003, “Energy Efficiency at Wastewater Treatment Plants” full-day workshop, co-presented with MSD coworker Walter Bell

Environmental Innovations Summit for Cities and Counties, 18-20 September 2002, Washington, DC, “EMS for Cities and Counties” and “Water and Wastewater Innovations” panel discussions and day-long “Developing an EMS” workshop

Five Cities Conference (wastewater/stormwater management utilities of Cincinnati, Indianapolis, Louisville, St. Louis), 23-25 April 2002, presented three sessions: a) pollution prevention and cost saving, b) public education and IT and c) energy efficiency.

Coalition for Environmentally Responsible Economies, annual conference, 18 April 2002, “Tools for Sustainability Reporting for Smaller Companies and Non-Profit Organizations”

International Facilities Managers Association, 20 March 2002, energy efficiency talk and tour

American Society for Quality annual meeting, 14 March 2002, Indianapolis, panel discussion on environmental management systems

KY Pollution Prevention Center, energy efficiency workshops for industry, 2000-2002

National Water Environment Federation’s “WEF Teach” program for secondary school science teachers; taught concurrent sessions and presented *Aqua Venturer* plenary session on connecting social studies and science to entice greater student interest in science, 2002

National Water Environment Federation/American Water Works Association Joint Residuals and Biosolids Conference, 4–6 March 2002, Austin, TX, “Building Public Support and Tackling Politics” Session—and New York Water Environment Association annual meeting, 4 February 2002—*Sierra Club Guidance Application of Sludges: How to Deal with Biosolids and the Club*, co-presented with R. E. Adamski, former NYC Wastewater Treatment Director.

Louisville Forum appearances, on wastewater infrastructure, air quality and energy efficiency

Honors, Fellowships & Scholarships

- 2007 One of two Louisville residents selected to become an authorized trainer for the international theclimateproject.org educational initiative
- 2002 Association of Metropolitan Sewerage Agencies, national award to *After We Flush* for being an “outstanding and innovative . . . educational program”
- 2002 Lawn Care for Cleaner Air Award
- 2001 DinnerWorks table designer, Louisville Visual Art Association
- 2000 “My Millennium” series participant, four-page “poster,” The Courier-Journal
- 1992 Young Career Woman Award, Business & Professional Women
- 1991 Spirit of Louisville Honored Volunteer Award
- 1989 German Marshall Fund of the United States and Institute for European Environmental Policy Fellowship; two-month internship with European recycling, composting and wastewater treatment program managers
- 1983 USEPA Safe Drinking Water Graduate Fellowship grantee
- 1974-76 U of L Speed Scientific School scholarships
- 1973 US Department of Health, Education & Welfare Scholarship
- 1972 First International Meeting of Environmental Engineers, Tel Aviv, Israel; only high school student selected to deliver a paper

Community Involvement

Current Affiliations

Kentucky Association for Environmental Education
Kentucky Resources Council
Louisville Climate Action Network (Louisville CAN!), co-founder
Louisville Regional Science Fair, judge, environmental category and special award
Metro Louisville Solid Waste Management District, Advisory Committee
National Coalition Building Institute, Kentucky Chapter, Peacekeeper
Partnership for a Green City’s Climate Change Committee, plus six subcommittees
Speed Scientific School, University of Louisville, *ad hoc* career counselor
theclimateproject.org, presenter and district manager, IN, IL, KY, MO and OH
US Green Building Council, Kentucky Chapter

Sample Past Leadership Positions

Coalition for Environmentally Responsible Economies, Report Working Group
Coalition for the Advancement of Regional Transportation, board
Environmental Alternatives, Inc., board president
Good Neighbor Food Cooperative, board president
Jefferson County Cooperative Extension Service Council, Secretary
Louisville Forum, board
Paddlewheel Alliance, various leadership roles
Pedestrian Safety Committee, Chair
Sierra Club, Cumberland Chapter, Louisville Group, Executive Committee
Transportation Tomorrow (local light rail project) Working Group
Tyler Park Neighborhood Association, board member
Water Environment Federation, Public Education Committee

International Travel

Africa

Ghana, one week in 2004
Kenya, one week in 1988

Asia

Japan, two weeks in 1997
Thailand, two weeks in 1993
Japan, Hong Kong and China, two weeks in 1988
Israel, two weeks in 1972

Central America

Costa Rica, ten days in 1997

Europe

Ukraine and the Netherlands, two weeks in 2005
Scotland, England and Italy, three weeks in 2003
Ukraine, two weeks in 2000
Finland, one week in 2000
Ukraine, two weeks in 1998
Western and Central Europe, two weeks in 1993
Scandinavia, two weeks in 1991
Western and Central Europe, three months in 1989
England and Western Europe, two weeks in 1985
Ireland, one week in 1979
England and Western Europe, three weeks in 1974

References and media experience available upon request.