

**Garrick E. Louis, Ph.D., Associate Professor**  
University of Virginia, Systems & Information Engineering; Civil Engineering  
151 Engineer's Way, Charlottesville, VA 22904-4747

- Phone: (434) 982-2742 • Fax: (434) 982-2972 • Email: [louis@virginia.edu](mailto:louis@virginia.edu)
- Internet: <http://www.sys.virginia.edu/research/environment.html>

## **EDUCATION**

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- Carnegie Mellon University, Engineering & Public Policy, Ph.D., August 1996
- Rensselaer Polytechnic Institute, Chemical Engineering, M.Sc., August 1985
- Howard University, Chemical Engineering, B.Sc. May 1983

## **APPOINTMENTS**

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- **The SID Center**, University of Virginia Center for Small Infrastructure & Development, Director. 2008-Present.
- **US Environmental Protection Agency**: Office of Research and Development: National Center for Environmental Research. American Association for the Advancement of Science, 2006 Science and Policy Fellow. 2006-2007.
- **University of Virginia**: Associate Professor of Systems & Information Engineering, 2004 – Present
- **University of Virginia**: Associate Professor of Civil & Environmental Engineering, 2004 – Present. Courtesy appointment
- **University of Virginia**: Assistant Professor of Systems & Information Engineering, 1997 – 2004
- **NASA Langley Research Center**: NASA-ASEE Summer Faculty Fellow, 2000
- **Carnegie Mellon University**, Environmental Institute, Post-doctoral Research Fellow, 1996 –1997
- **Development in Action (DIA)**: Founder/Director nonprofit international network for technical assistance to small development projects, 1995- Present. Consultant to Rockefeller Foundation, Global Environment Division, 1995-1996.
- **The Rockefeller Foundation**: Warren Weaver Fellow, Global Environment Division, 1994 – 1995
- **State University of New York, Maritime College**: Teaching Assistant Professor of Chemistry, 1986 – 1990
- **College of New Rochelle, Rosa Parks Campus, Harlem, New York**: Adjunct Instructor, 1985-1987
- **Creative and Performing Arts Studio (CAPAS), Founding Director of After School Math and Science Tutorial Program, Bronx, NY**, 1985-1990.

## **A. TEACHING: 1999 - 2009**

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### **UNIVERSITY OF VIRGINIA**

#### **GRADUATE**

\* Indicates new course developed and taught. # Indicates new course taught

<b>COURSE</b>	<b>TITLE</b>
SYS 796 <sup>#</sup>	Systems Engineering Graduate Colloquium
SYS 782*	Ethics & Professional Practice for Scientists and Engineers
SYS 670	Environmental Systems Analysis
SYS 650	Risk Analysis – with Yacov Haimes
SYS 6070*	Unit Processes of Environmental Systems
SYS 601 <sup>#</sup>	Introduction to Systems Engineering
SYS 602*	Systems Management and Integration

#### **UNDERGRADUATE**

\* Indicates new course developed and taught, # Indicated new course taught

<b>COURSE</b>	<b>TITLE</b>
SYS 455	Systems Engineering Design Colloquium
SYS 454	Systems Engineering Design II
SYS 453	Systems Engineering Design I
TMP 352*	Science and Technology Public Policy
SYS 301	Systems Engineering Concepts
SYS 301L	Systems Engineering Concepts Lab
SYS 201	Systems Engineering Concepts – Introduction to Systems Engineering

## **B. POSTDOCTORAL AND RESEARCH STUDENTS DIRECTED**

### **POSTDOCTORAL FELLOWS SUPERVISED**

- 2005 – 2008, Jeffrey Rogers. Performance Evaluation, Assessment, and Improvement of Community Water Systems
- 2004 – 2009 Luna Magpili. Resource Allocation for Waster and Sanitation Systems in Developing Communities

### **DOCTORAL STUDENTS SUPERVISED**

- **Peter Whitehead**, *Scenario-Based Portfolio Analysis of Biofuels Crop Production in Southside Virginia*, Expected May 2012.
- **Justin Henriques**, *A Model for Validating Appropriate Technology Selection for Household Energy Systems in Developing Communities*, Systems and Information Engineering, Expected May 2010
- **Emma Fauss**, *Risk Characterization of Commercial Silver Nanotechnology Products*, Systems and Information Engineering, Expected May 2010
- **Ali Bouabid**, *A Capacity-Based Model for Appropriate Technology Selection in Developing Communities*, Systems & Information Engineering, Exp. May 2010
- **Jeffrey Rogers**, *A Standardized Performance Assessment and Evaluation Model for Community Water Systems*, Systems and Information Engineering, May 2005
- **Luna Magpili**, *An Impact-based Method for the Capacity Planning of Sanitation Services in Lower Income Countries*, Systems & Information Engineering, Aug. 2003

### **MASTER OF SCIENCE STUDENTS SUPERVISED**

- **Siddhartha Pailla**, *Capacity Factor Analysis of Requirements for Regional Water and Sanitation Infrastructure Development in Andhra Pradesh*, Systems and Information Engineering, Expected December 2010.
- **Vicki Williams**, *Requirements for Commercially Sustainable Rainwater Harvesting: Case Study of Rajasthan, India*. Systems and Information Engineering, Expected May 2010
- **Justin Henriques**, *Technology Assessment Criteria for Wastewater and Sewage Management Systems in Developing Communities: Case Study of Western Jakarta*, Systems and Information Engineering, August 2008
- **Aldrich Castillo**, *GIS-Enhanced Stormwater Management Planning – A Case Study of Baltimore Washington International Airport*, Systems and Information Engineering, May 2008
- **Aldy Mardikanto**, *Technology Assessment Criteria for Solid Waste Management Systems in Developing Communities: Case Study of Western Jakarta*, Systems and Information Engineering, May 2008
- **Brooke Yamakoshi**, *Requirements Analysis for Community Acceptance of Improved Water Technology: Case Study of Ceramic Water Filters in Tourou Cameroon*. Systems and Information Engineering, May 2008

- **Yvonne Baki**, *Usability of GIS-Based Groundwater Assessment Information in Regional Planning: Case Study of the Albemarle County Board of Supervisors*. Systems and Information Engineering, December 2007
- **Michael Greenberg**, *An Opportunistic Policy Model for Managing the Risk from Emerging Nanotechnologies*, Systems and Information Engineering, May 2007
- **Tisan Ahmad**, *A Classification Tool for Selecting Municipal Sanitation Service Technologies in Lower-Income Communities*, Systems and Information Engineering, May 2004
- **Ali Bouabid**, *Community Assessment for Sustainable Sanitation Systems in Low-Income Countries*, Systems and Information Engineering, May 2004

#### **MASTER OF ENGINEERING STUDENTS SUPERVISED**

- **Rana Akdogan**, *A Web-Based Model for K-12 Science Education on Water Conservation*, Systems & Information Engineering, Expected May 2011
- **Zhigang Nie**, *A Model for Residual Impact-Based Investment in Integrated Municipal Sanitation Services*, Systems and Information Engineering, Dec. 2003
- **Pat Guilbaud**, *Improving Access to Municipal Sanitation Services in the Caribbean: A Review of Fondwa, Haiti*, Systems & Information Engineering, August 2003
- **Maya Siriwardana**, *A Conceptual Approach to Lifecycle Costing of Drinking Water in the USA*, Systems and Information Engineering, May 2003
- **Navin Agarwal**, *A Utility Communication Architecture for Integrated Municipal Sanitation Services*, Systems and Information Engineering, August 2002
- **Katherine Anderson**, *NASA Aviation Safety Program Systems Analysis and Review of Program Assessment Metrics*, Systems and Information Engineering, August 2002

#### **UNDERGRADUATE THESES SUPERVISED: 2004 - 2009**

##### **2008-2009**

- Alemayehu, Robel. *Designing a Plan for the Safe Water Capacity Building in Limpopo, South Africa*.
  - Cable, Dustin. *A Critique of the System Approach to Management and Analysis of Development Problems*.
  - #Nettles, Caroline. *Lifecycle Assessment of Food Flow to Student Cafeterias at the University of Virginia*.
  - Seok, Julius. *Using a Systems Approach in Managing and Evaluating Water and Sanitation Development Projects*.
- # Civil Engineering Major

### **2007-2008**

- Neyland, Patrick. *A Groundwater Monitoring Framework for Albemarle County, Virginia.*
- Rosson, David. *A Software-Guided Approach to Distributing Groundwater Monitoring Wells in Albemarle County Virginia*
- Short, Christopher. *User Testing of GIS-Based Maps of Groundwater Monitoring Wells in Albemarle County Virginia*
- West, Benjamin. *Requirements Analysis for a System of Groundwater Monitoring Wells in Albemarle County Virginia*

### **2006-2007**

- French, Meagan. *User Testing of GIS Maps of Groundwater Resource Availability and Quality for Use in Rural Development Planning.*
- Hillegas, Patrick. *Economic Valuation of Groundwater Resource Service in Rural Areas: Case Study of Albemarle County Virginia*
- Tan, Michael. *A Survey of Technical Approaches to Ground Water Assessment*

### **2005-2006**

- Abebe, Lydia. *Optimal Material for Building Affordable Homes in Arid Regions.*
- Duval, Guy-Robert. *A Survey of Groundwater Assessment Methods by County Governments in the Blue Ridge Region*
- Fechnay, Nancy. *Rapid Detection of E. Coli for Ground Water Assessment and Mapping*
- Harlan, Daniel. *The Development of A Groundwater Testing Kit for Field Applications*
- Koch, Marshall. *Groundwater Sampling Procedure Development for Rural Areas*
- Foster, Lauren. *A Framework for Implementing Appropriate Technologies in Developing Communities (Undergraduate Research and Design Symposium Team Project Award)*

### **2004-2005**

- \*Agiri, Victor. *A Critical Evaluation of the Hazardous Waste Trade Between Europe and Africa*
- Cherry, Jeffrey. *An Analysis of the Social and Ethical Aspects of Urbanizing Rural America*
- Fomin, Pavel. *A Requirements Analysis of the User Inputs Necessary to Design a Lighter than Air Vehicle*
- Freel, Craig. *Mapping Water Quality in Southwestern Virginia: An Effort to Privatize a Stagnant Economy*
- Hoyer, Brigitte. *A Soft Systems Approach to Assessment and Evaluation of the Community Development Block Grant Program*
- Jones, Alison. *The Human Interfaces for an Innovative Technique for Mapping Private Well Water Quality*
- \*Ocampo-Tan, Jerwin, *An Assessment of Solid Waste Management in Metro Manila, Philippines*

\* Chemical Engineering Major

## **C. EXTERNAL RESEARCH GRANTS AND CONTRACTS**

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### **CURRENT, PREVIOUS, AND PENDING GRANTS : 2003-2009**

#### **Current Grants**

Title:	Water and Health in Limpopo Province, South Africa
Sponsor	May and Stanley Smith Charitable Trust
Dates of Contract Period	09/09 – 08/10
Amount of Award	\$40,000.
Title	Risk Analysis: Informing the Management of Nanoscale Materials
Sponsor	National Science Foundation
Date of contract period	09/01/08 – 08/31/09
Amount of Award	\$51,600
Title	Ethics Training for Engineers in Emerging Technologies and Fieldwork in Developing Communities
Sponsor	National Science Foundation
Date of contract period	09/01/05 – 08/31/09
Amount of Award	\$225,000
Title	Ethics Training for Engineers in Emerging Technologies and Fieldwork in Developing Communities – Research Experience for Teachers
Sponsor	National Science Foundation
Account Code	123900-101-GA 10539-31350
Date of contract period	09/01/06 – 08/31/09
Amount of Award	\$20,000
Title	International Research Experience for Engineers – An Economically Sustainable Rainwater Harvesting System for Rajasthan, India
Sponsor	National Science Foundation
Date of contract period	09/01/06 – 08/31/09
Amount of Award	\$34,000
Title	Heim Graduate Fellowship in Systems Engineering
Sponsor	Don and Jean Heim
Date of contract period	12/07-Present
Amount of Award	\$80,000.

#### **2003 – 2008 Previous Grants (in Descending Order of Expiration Date)**

Title:	Water and Health in Limpopo Province, South Africa
Sponsor	Jefferson Trust
Dates of Contract Period	01/01/08 – 12/31/08
Amount of Award	\$50,000.
Title	American Association for the Advancement of Science – Energy Environment and Natural Resources Fellowship - EPA
Sponsor	AAAS
Date of contract period	09/01/06 – 08/31/07
Amount of Award	\$90,607

Title	A Model for Regional Groundwater Assessment and Mapping in Albemarle County, Virginia
Sponsor	Oak Hill Fund
Date of contract period	06/2005 – 05/2007
Amount of Award	\$239,653
Title	Integrated Municipal Sanitation Systems – PECASE Award
Sponsor	National Science Foundation (NSF)
Date of contract period	09/2000 – 08/2006
Amount of Award	\$549,123
Title	Integrated Municipal Sanitation Systems - Research Experience for Undergraduates
Sponsor	National Science Foundation (NSF)
Date of contract period	09/01/00 – 08/31/06 (with no cost extension)
Amount of Award	\$29,180
Title	Developing a Parametric Design Tool for Lighter Than Air Vehicles
Sponsor	Northrop Grumman TASC
Date of contract period	07/01/05 – 06/31/06
Amount of Award	\$19,630, no cost extension from 2004-05 grant
Title	Performance Assessment and Evaluation of Community Water Systems, Science and Technology to Achieve Results (STAR)
Sponsor	Environmental Protection Agency
Date of contract period	09/01/01 – 08/31/05
Amount of Award	\$29,791. Awarded to graduate student Jeffrey Rogers
Title	Moral Imagination, Invention, and Design
Sponsor	National Science Foundation
Date of contract period	08/15/00 – 07/31/05
Amount of Award	\$164,684
Title	University Teaching Fellowship
Sponsor	UVA Faculty Senate & Office of the Provost
Date of contract period	09/01/02 – 08/31/03
Amount of Award	\$7,000

### **Pending Grants**

Title:	Improving Access to Adequate Water and Sanitation Services in Rural Villages: A Model in Limpopo Province, South Africa
Sponsor	Coca-Cola Africa Foundation
Dates of Contract Period	06/10 – 05/13
Amount of Award	\$1,200,000.
Title:	Water Entrepreneurs for Rural Communities: An Academy Model in Limpopo Province, South Africa
Sponsor	PepsiCo Foundation
Dates of Contract Period	08/10 – 07/15
Amount of Award	\$1,000,000.
Title:	Design for Development (DfD): Diversifying the Engineering Education

	Curriculum
Sponsor	National Science Foundation - CCLI
Dates of Contract Period	01/10 – 12/12
Amount of Award	\$250,000.
Title	Ethics Training for Engineers in Emerging Technologies and Fieldwork in Developing Communities
Sponsor	National Science Foundation
Date of contract period	10/01/09 – 09/30/10
Amount of Award	\$18,900

## SUMMARY OF FIELD RESEARCH PROJECTS

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- **Water & Health in Limpopo (WHIL)** – Investigates the Causal Link Between Access to Improved Water and Sanitation Services and the Status of Community Health in Limpopo Province South Africa. Develops a model for effective, appropriate intervention to provide sustained access to adequate water and sanitation services and related community health. 2008 – Present
- **Capacity Factor Analysis of Water and Sanitation Services in Cimahi-Bandung, Indonesia.** Collaborate with Bandung Technological Institute and the Municipal Government in Cimahi to assess the factors influencing access to water and sanitation services in the district. Evaluate technology options to sustain access. 2007 – Present.
- **Rainwater Harvesting to Supplement Regional Water Supplies in Western Rajasthan.** Collaborating with Birla Institute of Technology and Science – Pilani, and the NGO Aakash Ganga, to assess the feasibility of a regional scheme for rainwater harvesting for the arid areas of Rajasthan. 2006 – Present
- **Factors Influencing Access to Safe Water and Sanitation Services in Tourou, Cameroon** – Use Capacity Factor Analysis to evaluate the rates of access to improved drinking water and ventilated pit latrine services in Tourou. Evaluated the use of these factors as predictors for the adoption of ceramic water filters for point of use water disinfection. 2005 – 2007.
- **Factors Affecting the Success of Community Based Water and Sanitation Projects in the Agadir Region of Morocco that were Supported by the Ministry for Social Development.** – Use Capacity Factor Analysis to evaluate the choice of systems for drinking water supply and for human waste management and their viability in the community. 2005-2007.
- **Capacity Assessment of the Water, Sewage, and Solid Waste Management Services on the Island of Tobago, Trinidad and Tobago.** – Assessment of the service capacity of each service relative to current and 10-year projected demand. Recommended technical alternatives to meet projected service deficits. 2002 - 2005.
- **A Municipal Solid Waste Management System for Bacoor, Cavite in Metropolitan Manila.** - Worked with the Bacoor Municipal Authority to evaluate options for improving MSW management in the municipality. A centralized composting facility was constructed. Capacity factor analysis predicted failure of this system as inappropriate technology. It failed after 2 years of operation due to a lack of spare parts, service personnel, and market for compost. 2000 – 2003.

- **Community Based Access to Public Water Supply Service in the Town of Shipman, Nelson County, Virginia.** - Documented the operation of the Self Help Virginia Program in providing access to public water supply for a low-income rural community with failing private wells. 2000 – 2001.

**SITES OF ENGINEERING STUDENTS WITHOUT BORDERS PROJECTS:**

- Ciudad Juarez, Mexico – 2004, 2005
- Veracruz, Nicaragua – 2005
- San Mateo Ixtatan, Guatemala – 2005, 2006, 2007, 2008, 2009
- Limpopo Province, South Africa – 2006, 2007, 2008, 2009
- Tourou, Cameroon – 2006, 2007
- Wum, Cameroon – 2008, 2009
- Punta Gorda, Belize – 2009

**COUNTRIES VISITED IN 2009 BY STUDENTS AFFILIATED WITH THE SID CENTER:**

In June - September 2009 two engineering students affiliated with the Center for Small Infrastructure and Development (the SID Center – formerly the Center for Water, Health, Environment, and Development – WHEAD) participated in the Pacific Partnership Humanitarian Mission by the US Navy. They were part of the Engineering Group and conducted civil construction projects in the following countries:

- Tonga
- Samoa
- Solomon Islands
- Kiribati
- Marshall Islands

**D. PUBLICATIONS – (POSTDOC & STUDENT AUTHORS UNDERLINED):  
2004 - 2009**

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- Louis, G., L. Magpili, and C.A. Pinto, “Risk Based Sequential Resource Allocation of Competing Sanitation Investments,” *International Journal of Environment and Waste Management*, In Print. Fall 2009.
- Louis, G., L. Magpili, and C.A. Pinto, “Multi-Criteria Decision Making and Composting of Waste in the Municipality of Bacoor in the Philippines,” *International Journal of Environmental Technology and Management, Special Issue on Composting for Municipal Solid Waste*, In Print. Spring 2008. PP 351-368.
- Rogers, J., and G. Louis, “Conceptualization of a Robust Performance Assessment and Evaluation Model for Consolidating Community Water Systems,” *Journal of Environmental Management*, Spring 2008. <http://dx.doi.org/10.1016/j.jenvman.2008.01.010>
- Rogers, J., and G. Louis, “Risk and Opportunity in Upgrading the US Drinking Water Infrastructure System,” *Journal of Environmental Management*, V. 87. 2008. PP. 26-36.
- Rogers, J., and G. Louis, “A Method for the Comparative Performance Assessment and Evaluation of Consolidating Community Water Systems as a Regional Water System,” *ASCE Journal of Infrastructure Systems*, V. 13, N. 4 December 2007, 280-286.
- Louis, G., and L. Magpili, "A Life-Cycle Capacity-Based Approach to Allocating Investments in Municipal Sanitation Infrastructure," *Structure and Infrastructure Engineering*, Vol 3, No. 2. June 2007, 121-131.
- Rogers, J., and G. Louis, “A Financial Resource Allocation Model for Regional Water Systems,” *International Transactions in Operations Research (ITOR)*, 14 (2007). 25-37.
- Louis, G., and J. Shih, “A Flexible Inventory Model for Municipal Solid Waste Recycling,” *Socio-Economic Planning Sciences*, 41 (2007). 61-89.
- Rogers, J., and G. Louis, “A Risk Based Asset Management Tool for US Water Infrastructure Systems,” *Water Asset Management International*, V.2, N.4., December 2006. Pp. 4-11.
- Rogers, J., and G. Louis, “A Standardized Performance Assessment and Evaluation Model for Community Water Services,” *Journal American Water Works Association*, October 2005. Pp. 76-86.
- Louis, G. “A Historical Context for Municipal Solid Waste Management in the United States (1850-1980),” *Waste Management & Research*, 2004. V22, Pp. 306-322.
- Louis, G., “A Risk-Based Method for Evaluating NASA Technology for Use in the National Airspace System,” *Public Works, Management & Policy*, Volume 9, Number 1, July 2004. Pp. 66-86.
- Louis, G., “Strategic Risk Management: Enhanced Benefit-Cost Evaluation of Community Sanitation Projects,” *Journal of the American Water Works Association*, February 2004. 67-76.

**CONFERENCE PROCEEDINGS: 2004 - 2009**

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- Cunningham, T., N. Botchwey, V. Netshandama, J. Boissevain, K. Firehock, G. Learmonth, G. Louis, R. Dillingham, “Understanding Water Perceptions in Limpopo Province: A Photovoice Community Assessment,” *IEEE Conference on Environmental Pollution and Public Health*, Beijing, China. June 2009.
- Louis, G., A. Castillo, J. Henriques, A. Mardikanto, V. Williams, B. Yamakoshi, “Community Access to Improved Water and Sanitation Systems: A Systems Approach,” *International Symposium on Sanitation and Environmental Engineering*, International Water Association. Florence, Italy. June 2008
- Castillo, Louis, G., L. Magpili, “A Mass Balance of Integrated Municipal Sanitation Systems: Case Study of Bacoor, Cavite, Philippines,” *International Symposium on Sanitation and Environmental Engineering*, International Water Association. Florence, Italy. June 2008.
- Louis G., Magpili L., “Using International Health Standards to Prioritize Investments in Human Services Infrastructure in Developing Countries,” *2007 Annual Meeting of the Society for Risk Analysis*, San Antonio, TX. December 2007.
- Louis G., Y. Baki, J. Rogers, “Requirements Analysis for a Groundwater Assessment Information Management and Decision-Making Tool: Case Study of Albemarle County Virginia,” *Virginia/West Virginia Water Research Symposium*, Blacksburg, VA. November 27-29, 2007
- Tan M., P. Hillegass, M. French, G. Louis. (Faculty advisor), “Making Sustainable Development Decisions in Albemarle County,” *Virginia/West Virginia Water Research Symposium*, Blacksburg, VA. November 27-29, 2007
- Louis G., Risk Analysis in Planning for Sustainable Development in Developing Countries, *2006 Annual Meeting of the Society for Risk Analysis*, Baltimore, MD. December 2006.
- Rogers, J., G. Louis, “A Case Study of a Comparative Performance Assessment and Evaluation Method for Consolidating Community Water Systems,” *Virginia Water Science and Technology Symposium – 2006*, Blacksburg, VA. October 23-25, 2006.
- Rogers, J., G. Louis, “Structural and Non-structural Consolidations: Practical Solutions for Financially Challenged Small Community Water Systems,” *Virginia Section, American Water Works Association – 2006 Annual Meeting*, Williamsburg, VA. October 10-13, 2006.
- Louis, G., “A Model for Preparing the NSF CAREER Proposal,” *2006 Annual Conference of the American Society for Engineering Education*,” Chicago, IL. June 18-21, 2006.
- Donohue, S., G. Louis, P. Beling, W. Scherer, M. Smith, K.P. White, “An Innovative Model for the Administration of Undergraduate Capstone Projects at the University of Virginia,” *2006 Annual Conference of the American Society for Engineering Education*,” Chicago, IL. June 18-21, 2006.
- Louis, G., and A. Bouabid, “A Capacity Factor Approach for Acquisition of Water and Sanitation Infrastructure by Developing Communities, Workshop.” *International Conference on Sustainable Engineering Development in Africa*, Yaoundé, Cameroon. June 4-8, 2006.
- Louis, G., “A Fieldwork Model for Service Learning in Engineering Education,” *National Science Foundation/National Academy of Engineering, National Conference on Service Learning in Engineering*,” May 24-25, 2006. Washington, DC.

- Louis, G., and L. Magpili, “Risk-Based Sequential Allocation of Competing Sanitation Infrastructure Investments,” *2005 Annual Meeting of the Society for Risk Analysis*, Orlando FL, December 4-7, 2005.
- Magpili, L., and G. Louis, “Capacity Assessment and Mapping of Sanitation Services,” *Proceedings of the Asian Development Bank Workshop on Best Practices in Sanitation and Wastewater Management*, Manila, the Philippines, September 2005.
- Magpili, L., and G. Louis, “An Integrated Approach to Sanitation Services,” *Proceedings of the Asian Development Bank Workshop on Best Practices in Sanitation and Wastewater Management*, Manila, the Philippines, September 2005.
- Pinto, C.A., and G. Louis, “Using Capacity Factors For Multicriteria Decision Making in Sanitation Options,” *Proceedings of the Asian Development Bank Workshop on Best Practices in Sanitation and Wastewater Management*, Manila, the Philippines, September 2005.
- Rogers, J., and G. Louis, “A Case Study of a Method for Robust Performance Assessment and Evaluation for Community Water Systems that Operate as a Regional Water System,” *Virginia Sections of the American Water Works Association and the Water Environment Association 2005 Joint Annual Meeting*, Virginia Beach, VA, September 26 – 29, 2005.
- Rogers, J., and G. Louis, “A Data Envelope Analysis Based Decision Support System for Community Water Systems,” *International Federation of Operational Research Societies 2005 Annual Meeting*, Honolulu, Hawaii, July 1- 15, 2005.
- Louis, G., and L. Magpili, “Capacity Assessment for Sustainable Municipal Sanitation Infrastructure,” *International Workshop on Integrated Life-Cycle Management of Infrastructures*, Hong Kong: 9-11 December 2004
- Louis, G., and A. Bouabid, “A Community Assessment Model for Sustainable Sanitation Systems in Low Income Communities,” *International Council on Systems Engineering, Mid-Atlantic Regional Conference*, Arlington, VA. November 2004.
- Rogers, J., and G. Louis, “A Standard Efficiency Metric: The Building Block for a Robust Performance Assessment and Evaluation Model in the Community Water Services Sector,” *International Council on Systems Engineering, Mid-Atlantic Regional Conference*, Arlington, VA. November 2004.

#### **CONFERENCES AND WORKSHOPS WITHOUT PROCEEDINGS : 2004 - 2009**

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- Louis, G., “The Center for Water, Health, Environment, and Development at UVA,” *Presentation to the US Navy Pacific Partnership 2009 Mid Planning Conference*, San Diego CA. March 23-34. 2009.
- Louis, G., M. Gorman and N. Swami, “Ethics Education for Scientists and Engineers in Emerging and Developmental Technologies,” *NSF Engineering Education and Centers Grantees Conference*, Reston VA. February 2-3, 2009.
- Louis, G., “Ethics Education for Scientists and Engineers in Emerging and Developmental Technologies,” *NSF Ethics Education for Scientists and Engineers PI Meeting*, Arlington VA. January 8-9, 2009.

- Louis, G., “Risk and Sustainable Development: A New Frontier for Risk Analysis. Overview of the Issues,” (Poster). *Society for Risk Analysis 2008 Annual Meeting*, Boston, MA. December 6-10, 2008.
- Louis, G., “The Center for Water, Health, Environment, and Development at UVA,” *Presentation to the CEO and Engineering Director of Infilco- Degremont Inc.*, Richmond VA. October 28. 2008.
- Louis, G., “Public Health Priorities and Safe Drinking Water,” *Society for Risk Analysis, Second World Congress on Risk*, Guadalajara, Mexico, June 8-11, 2008
- Louis, G., “The Center for Water, Health, Environment, and Development at UVA,” *Presentation to the Water and Environmental Quality Center I/UCRC Planning Meeting for Temple University and New Jersey Institute of Technology*, Trenton, NJ. July 13-15. 2008.
- *Society for Risk Analysis Second World Conference on Risk*, Guadalajara, Mexico. June 8-11, 2008. Conference Organizer and Session Chair, Risk, Water and Infectious Diseases.
- Henriques, J., and G. Louis, “Development of Capacity Factor Analysis to Select Sustainable Drinking Water Supply and Grey Water Reuse Systems for Developing Communities: Case Study of Cimahi Indonesia,” *University of Pittsburgh Mascaro Center for Sustainability Innovation, Engineering Sustainability 2009 Conference*, Pittsburgh, PA. April 19-21. 2009.
- Louis, G., Bill Wallace, Dennis Warner. Discussants, Roundtable on Addressing the Intersection of Humanitarian Action, Social Justice and Sustainable Community Development, *Workshop, Engineering, Social Justice, and Sustainable Community Development*, National Academy of Sciences, Washington DC. October 2-3, 2008.
- Louis, G., Factors Affecting Sustained Access to Safe Drinking Water, *UVA Sustainability and Health Symposium*, Charlottesville, VA. February 2007.
- Louis, G., *Workshop on International Research and Education in Engineering*, National Science Foundation, Purdue University, West Lafayette, IN. October 2007.
- Louis, G., *Innovations for Sustainability in EPA’s 2004 CNS Projects*, AAAS Fellows Final Project Presentation to EPA National Center for Environmental Research, Washington DC. August 2007.
- *Workshop on Envisioning Technological Opportunities in Indian Agriculture*, National Academies, Board on Agriculture and Natural Resources, Keck Center, Washington DC, July 6-7, 2007.
- EPA Sustainability Outcomes and Indicators Working Group – Energy Subgroup Report to the Innovation Action Council, Washington DC. February 2007.
- *Workshop of the External Advisory Committee to the Ethics Education for Scientists and Engineers Program*, National Science Foundation, Arlington, VA, January, 2007.
- *EPA Collaborative Science and Technology Network for Sustainability 2004 Grantees Conference*, EPA, Washington DC. Dec. 2006.
- *EPA Community Action for a Renewed Environment Workshop*, Environmental Protection Agency, Seattle, WA. October 2006.
- Louis, G., “A Model for Preparing the NSF CAREER Proposal,” *2006 Annual Conference of the American Society for Engineering Education*,” Poster. June 18-21, 2006. Chicago, IL.

- Louis, G., “A Fieldwork Model for Service Learning in Engineering Education,” *NAE/NSF/EPICS Symposium on Service Learning in Engineering Education*, National Academies, Washington DC. May 24-25, 2006. Poster.
- Louis, G., Remarks to the Graduate Student Panel, Carnegie Mellon University, *Fusion Forum Workshop on Diversity Student Recruitment and Retention in Science and Engineering*, Pittsburgh PA, April 7-9, 2006.
- National Academy of Engineering, 2005 Frontiers of Engineering Symposium, Session Organizer, *Engineering for Developing Communities*, Niscayuna, NY, September 2005.
- National Science Foundation Directorate of Engineering, Meet the Director Workshop with CAREER and PECASE recipients, Arlington, VA. November 2004.
- Conrad N. Hilton Foundation Humanitarian Conference, *Health, Development, and Conflict: Lessons Learned*, New York, NY, October 28, 2004.
- National Academies of Science, Institute of Medicine, Global Environmental Health in the 21<sup>st</sup> Century: From Governmental Regulation to Corporate Social Responsibility, Moderator – Improving Community Health Globally, The Institute of Medicine’s Roundtable on Environmental Health Sciences, Research, and Medicine, Washington DC, October 13-14, 2004.
- National Academy of Engineering, 2004 Frontiers of Engineering Symposium, Beckman Center, Irvine CA, September 9-11, 2004.
- National Academy of Engineering, Meeting for Organizers of the 11<sup>th</sup> Annual Symposium on Frontiers of Engineering, Beckman Center, Irvine CA, September 10, 2004.
- National Academies of Science, Panel on World Health for the 2004 Hugh O’Brian Youth Leadership Congress, Washington DC, July 26, 2004.
- National Academy of Engineering, Grainger Challenge Grant for Sustainability, Meeting of the Steering Committee, Washington DC, July 14-16, 2004.

#### **SELECTED INVITED TALKS: 2004 - 2009**

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- Louis, G., “Natural Resources and Compost,” Meriwether Lewis School 2<sup>nd</sup> Grade Class Lecture, Charlottesville VA. April 22, 2009.
- Louis, G., “Integrating Research and Teaching,” *NSF- QEM CAREER Workshop*, New Orleans, LA. February 27-28, 2009.
- Louis, G., “A Capacity Factor Approach to Improved Water and Sanitation Systems in Developing Communities,” *Guest Lecture in PLAC 556 – Green cities, Green Sites*. UVA School of Architecture, April 8, 2009.
- Louis, G., “A Capacity Factor Approach to Improved Water and Sanitation Systems in Developing Communities,” *Guest Lecture in Center for Global Health Seminar Series*. UVA School of Medicine, April 8, 2009.
- Louis, G., “Necessary Factors for Sustained Access to Safe Drinking Water and Sanitation Services in Developing Communities,” *National Academies and U.S. Department of State Forum on Cutting-Edge Technologies for Water Services: Applications in Africa*, Washington DC. June 27, 2008.
- Louis, G., “Sustainable Infrastructure Systems: A Key to Development and Smart Growth,” *George Mason University, Civil and Environmental Engineering Seminar*

- Series*, Fairfax, VA. October 7, 2007.
- Louis, G., “Sustainable Infrastructure: A Key to Development,” *Howard University Omega Chi Epsilon Ernest E. Just Lecture*, Washington DC. April 26, 2007.
  - Louis, G., “Sustainable Infrastructure: From Development to Smart Growth,” *Lafayette College Engineering Seminar Series*, Easton PA. March 21, 2007.
  - Louis, G., “Engineering for Developing Communities: The Role of Small Infrastructure,” *University of California-Berkeley, Energy and Resource Group*, March 1, 2006.
  - Louis, G., “Sustainable Infrastructure Systems: Analysis and Applications,” *Auburn University Dept. Industrial and Systems Engineering*, Auburn AL, November 2, 2005
  - Louis, G., “Sustainable Infrastructure: The Case of Water and Wastewater Security,” *George Mason University, Civil and Environmental Engineering Seminar Series*, Fairfax, VA. May 5 2005.
  - Louis, G., “Poverty and Infrastructure: The Case of Rural Virginia,” *University of Virginia, Department of Political Science and Department of History Lecture Series*, Charlottesville, VA. March 30, 2005.
  - Louis, G., “Integrating Research and Teaching,” *National Science Foundation and Quality Education for Minorities Inc., NSF Career Proposal Workshop*, Las Vegas, NV., March 12, 2005.
  - Louis, G., “Writing the NSF CAREER Proposal,” *National Science Foundation and Quality Education for Minorities Inc., NSF Career Proposal Workshop*, Las Vegas, NV., March 11, 2005.
  - Louis, G., “Lifecycle Analysis of Transportation Infrastructure,” *University of Virginia Systems and Information Engineering Advanced Masters Program Seminar.*, Charlottesville, VA. February 25, 2005.
  - Louis, G., “Integrating Research and Teaching,” *National Science Foundation and Quality Education for Minorities Inc., NSF Career Proposal Workshop*, Washington DC. February 5, 2005.
  - Louis, G., “Writing the NSF CAREER Proposal,” *National Science Foundation and Quality Education for Minorities Inc., NSF Career Proposal Workshop*, Washington DC. February 4, 2005.
  - Louis, G., “World Health and Sustainability,” *Engineering Students Without Borders and Student Pugwash Joint Fall Meeting*, Charlottesville, VA. November 16, 2004.
  - Louis, G., “The Role of Pre-K Education Services in Rural Economic Development,” *University of Virginia, Curry School of Education*, Charlottesville, VA, Oct., 2004.
  - Louis, G., “Expanded Opportunities for Systems Engineering Students,” *INCOSE Central Virginia Fall Meeting*, Fredericksburg, VA. September 27, 2004.

## **E. SERVICE**

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### **MEMBERSHIP IN PROFESSIONAL SOCIETIES**

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- American Association for the Advancement of Science (AAAS)
- American Society of Civil Engineers (ASCE)
- American Society for Engineering Education (ASEE): Committee on Systems Engineering
- Institute of Electrical and Electronics Engineers (IEEE)
- Society for Risk Analysis (SRA) – Councilor 2005-2008

### **EDITORIAL AND PEER REVIEW ACTIVITIES : 2004 - 2009**

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- NSF Site Visit Panel Member, Spring 2009.
- Co-Editor, Proceedings of the *2009 IEEE Systems Engineering Design Symposium*.
- Editor, Proceedings of the *2008 IEEE Systems Engineering Design Symposium*.
- National Defense Science and Engineering Program Review Panels, 2008.
- EPA Review Panel, 2004-2008.
- NSF Review Panels, 2004 - 2009.
- Fundação para a Ciência e la Tecnologia, (Portugal's National Science and Technology Foundation), Review Panel Member 2005.
- *ASCE Journal of Infrastructure Systems* – Reviewer, 2001, 2003, 2006
- *Journal of Environmental Engineering* - Reviewer, 2002, 2004, 2005, 2006

### **OFFICES HELD AND COMMITTEE ASSIGNMENTS**

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- Center for Small Infrastructure and Development, The SID Center, Director. 2008-Present.
- Society for Risk Analysis,
  - Councilor,
  - Chair – Education Committee, Council Member – Membership Committee
  - Program Committee, *Second World Congress on Risk*, Guadalajara, Mexico. June 2008.
  - Conference Organizing Committee, *Workshop on Risk Analysis Priorities for Emerging and Nanoscale Materials*, September 2008, Washington DC.
  - Symposium Organizer and Chair, Risk and Sustainable Development, SRA 2008 Annual Meeting, December 2008. Boston, MA.
- *2008 IEEE Systems and Information Engineering Design Symposium*, Conference Organizing Committee, Charlottesville, VA. April 2007.
- Member of 2006 Committee of Visitors for NSF Early Career Award for Scientists and Engineers (CAREER) program.
- National Academy of Engineering, Organizer of Session on Engineering for Developing Communities, 11<sup>th</sup> Annual Symposium on Frontiers of Engineering, September 2005.

- IEEE – Systems & Information Engineering Design Symposium, Organizing Committee, April 2005.
- American Association of Engineering Societies, Engineers Forum on Sustainability (AAES-EFSD), Liaison with the World Federation of Engineering Organizations, Committee on Technology (WFEO-ComTech), Development of Distance Learning and Certification Programs for Sanitation Service Providers in Africa, 2002-2005

#### **ADVISING GOVERNMENT AGENCIES**

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- *Integrating Research in Sustainable Infrastructure Systems across EPA's Office of Research and Development*, AAAS Science & Policy Fellowship, Environmental Protection Agency, September 2006- August 2007.
- *Evaluating Options for Implementing the Senator Paul Simon Water for the Poor Act*, AAAS Science & Policy Fellowship, Collaboration with US Department of State, Office of the Assistant to the Secretary, September 2006- August 2007.
- *Assessment and Mapping of Water, Sewage, and Solid Waste Management Infrastructure in Tobago*, Advisory services to the Tobago House of Assembly, August 2001 – August 2005
- *Solid Waste Management Options for Bacoor-Cavite Municipality of Metropolitan Manila*, Technical Advisory Services to the Office of the Mayor of Bacoor, December 1999-October 2002.
- *Community-Based Alternatives for Closure of Manila's Payatas Landfill*, Advisory Panel to the Secretary for Overseas Development Assistance, Office of the President, Republic of the Philippines. October 2002.

#### **SERVICE TO DEPT. SYSTEMS AND INFORMATION ENGINEERING: 2004 - 2009**

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- Member, Systems & Information Engineering Chair Search Committee, April 2008 – Present.
- Chair, Undergraduate and Professional Studies Committee – UVA, Systems and Information Engineering, 2007 – 2009.
- Member Promotion and Tenure Committee - UVA, Systems Engineering. 2007 – Present.
- Co-Chair 2007 SIEDS Organizing Committee
- Advisor: UVA Chapter of the *International Council on Systems Engineering*, 2002-2006

#### **SERVICE TO THE SCHOOL OF ENGINEERING & APPLIED SCIENCE (SEAS): 2004 - 2009**

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- SEAS Undergraduate Curriculum Committee Member. 2007 - 2009
- Founding faculty advisor to UVA Chapter of *Engineers Without Borders*, 2003-Present
- Civil Engineering Faculty Search Committees, 2004-2008
- SEAS Deans Search Committee, 2004

#### **SERVICE TO THE UNIVERSITY OF VIRGINIA**

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- University Libraries Committee – Subcommittee on Ethics. 2003 - Present

- Office of African American Affairs, Mentor in the Faculty-Student Mentoring Program, 1998-Present
- Member of the Institute for Practical Ethics, 2000-Present
- Provost's Equal Opportunity Affirmative Action Committee (EOAA), 2002-Present
- Member of the Provost's Advisory Committee on Historically Black Colleges and Universities, 2005-Present
- Black Faculty and Staff Association, Founding Chair, 2002-2005.

## **F. SELECTED HONORS AND AWARDS**

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- University of Virginia, *Leadership in Academic Matters Fellow*, 2009.
- *American Association for the Advancement of Science (AAAS), Diplomacy Fellow Award*, 2006-2007.
- *American Association for the Advancement of Science, Energy, Environment, and Natural Resources (EENR) Fellow*, 2006-2007.
- *Member of US Delegation to 2006 Japan-America Frontiers of Engineering Symposium, National Academy of Engineering, Tsukuba, Japan. November 2006.*
- *Faculty Advisor for the 2008 and 2006 IEEE Systems & Information Engineering Design Symposium, Best Paper Award – Economic, Financial, and Environmental Systems.*
- *Co-Faculty Advisor for 2006 Undergraduate Research and Design Symposium Team Project Award Winner, Univ. of Virginia, School of Engineering and Applied Science,*
- *National Academy of Engineering, Annual Symposium on the Frontiers of Engineering, Niskayuna, NY. September 2005.*
- *American Water Works Association, 2005 Best Paper Award, Small Systems Division. June 2005.*
- *University of Virginia, University Teaching Fellowship 2002.*
- *National Academy of Engineering, Annual Symposium on the Frontiers of Engineering, Irvine, CA, September 2001 (Postponed to March 2002).*
- *Presidential Early Career Award for Science and Engineering (PECASE), National Science Foundation Bio-Engineering and Environmental Systems, October 2000.*
- *National Science Foundation Career Award, Bio-Engineering & Environmental Systems Division, February 2000.*