

Colleen C. Naughton, E.I., PhD

QUALIFICATIONS SUMMARY

National and international sustainable development engineer and researcher with 5+ years' experience in Africa (North and West) and concentration in global water, sanitation, and hygiene, climate, and food security. Specialized skills include: Life Cycle Assessment (LCA), Geographic Information Systems (GIS), and integration of ethnographic and engineering research methods and analysis. Professionally proficient in French and fluent in Bambara.

EDUCATION

University of South Florida **May 2016** **Tampa, FL**

PhD in Civil Engineering
Graduate Certificate: Water, Health, and Sustainability
Dissertation: "Modeling Food Security, Energy, and Climate and Cultural Impacts of a Process: the Case Study of Shea Butter in Sub-Saharan Africa."
Major Professor: James R. Mihelcic

University of South Florida **December 2013** **Tampa, FL**

M.S. in Civil Engineering,
Program: Peace Corps Master's International
Concentration: Engineering for International Development
Thesis: "Assessing Appropriate Technology Handwashing Stations in Mali, West Africa." (<http://scholarcommons.usf.edu/etd/4833/>)
Major Professor: James R. Mihelcic

Purdue University **May 2008** **West Lafayette, IN**

B.S. in Civil Engineering, Concentration: Environmental

HONORS AND AWARDS

2018 African Sky Chi Wara Distinguished Award
2014-2015 American Association of University Women American Dissertation Fellow
2014 African Sky "Solomon's List" Leadership Award
2014 Department of Education GAANN (Graduate Assistance in Areas of National Need) Fellow at the Water-Energy-Materials-Human-Nexus
2013-2014 Indeevar and Srinath Memorial Scholarship
2012 University of Florida NSF S-STEM Scholar
2012 Most Supportive Volunteer in Peace Corps-Mali Award
2008 Passed FE Examination, earned EIT
2008 Outstanding Civil Engineering Undergraduate Award at Purdue University
2008 Purdue Senior Design Contests Winner
2006 Chi Epsilon Civil Engineering Honors Society

RESEARCH AND ENGINEERING EXPERIENCE

Assistant Professor, UC Merced **Jan. 2019-Present** **Washington, D.C.**
Designs sustainable and culturally sensitive food-energy-water systems locally, nationally and globally. Develops and utilizes Life Cycle Sustainability Assessment, Geographic Information Systems and Remote Sensing methods. Teaches Introduction to Environmental Science and Technology.

Science and Technology Policy Fellow, AAAS **Sept. 2017-Dec. 2018** **Washington, D.C.**
Environmental and Social Systems advisor at the Millennium Challenge Corporation. Advancing their Geospatial Information Systems strategy agency wide and contributes to Morocco, Tunisia, and Togo country teams. Aims to strengthen compact development and implementation through application of systems and life cycle thinking and enhanced monitoring and evaluation.

Postdoctoral Researcher, USF **Jan. 2016 – Aug. 2017** **Tampa, FL**
Developed, coordinated, and wrote major grant proposals with multidisciplinary teams (engineering, marine science, education and anthropology) and managed existing grants in civil and environmental engineering department. Conducted independent research and publications in peer-reviewed journals related to the global food-energy-water nexus.

Research Coordinator, USF **Jan. 2013 – Dec. 2015** **Tampa, FL**
Organized research, external science advisory board meetings, social media, courses, publicity and reporting for USF NSF Partnerships in International Research and Education (PIRE) and EPA National Center for Reinventing Aging Infrastructure for Nutrient Management. Duties also consisted of grant proposal development and coordination of the USF Peace Corps Master's International Program including mentoring of three graduate students.

Reclaim Developer, USF **Sept. 2013-Aug. 2017** **Tampa, FL**
Social media team member that helped create a strategic plan, website, and international photo and video contest for a global network of researchers and practitioners dedicated to developing geographically-appropriate and culturally relevant engineered systems to recover nutrient, energy, and water resources from waste. <http://usf-reclaim.org/>

Water, Sanitation and Hygiene Engineer, PC **July 2009-April 2012** **Mali, West Africa**
Facilitated formation of rural village committees in water, sanitation, and hygiene and food security and a women's shea butter cooperative in conjunction with masters and doctorate research in the Peace Corps (PC). Wrote grant proposals, designed and supervised water and sanitation improvement projects including latrines, grey water management, pump rehabilitation and repair, well improvement, and bed net distribution. Held several leadership positions: Gender and Development National coordinator, PC Volunteer Leader, and technical and cultural trainer for incoming volunteers.

PEER-REVIEWED JOURNAL ARTICLES

- [1] Naughton, C.C., Akers, P., Yoder, D., Baer, R. Mihelcic, J.R. Can Sanitation Technology Play a Role in User Perceptions of Resource Recovery? An Evaluation of Composting Latrine Use in Developing World Communities in Panama. (2018). *Environmental Science and Technology*, 52(20): 11803-11812.
- [2] Naughton, C.C., Deubel, T., Mihelcic, J.R. Household Food Security, Economic Empowerment and the Social Capital of Women's Shea Butter Production in Mali. (2017). *Food Security*, 9(4): 773-784.
- [3] Naughton, C.C., Zhang, Q., Mihelcic, J.R. (2017). Modeling Energy and Environmental Impacts of Traditional and Improved Shea Butter Production in West Africa for Food Security. *Science of the Total Environment*, 576: 284-291.
- [4] Mihelcic, J.R., Naughton, C.C., Verbyla, M.E., Zhang, Q., Oakley, S.M., Schweitzer, R.W., Wells, E.C., and Whiteford, L.M. (2017). The Grandest Challenge of All: The Role of Environmental Engineering to Achieve Sustainability in the World's Developing Regions. *Environmental Engineering Science*, 34(1): 16-41.
- [5] Naughton, C.C., Lovett, P.N., Mihelcic, J.R. (2015). Land Suitability Modeling of Shea (*Vitellaria paradoxa*) Distribution across Sub-Saharan Africa. *Applied Geography*, 58: 217-227.
- [6] Naughton, C.C., Sissoko H.T., Mihelcic, J.R. (2015). Assessing Factors that Lead to Usage of Appropriate Technology Handwashing Stations in Mali, West Africa. *Journal of Water, Sanitation and Hygiene for Development*, 5(2): 279-288.

SELECT PEER-REVIEWED CONFERENCE PROCEEDINGS

- [1] Manser, N., Naughton, C., Prouty, C., Orner, K., Verbyla, M., Mihelcic, J.R. Improving the Global Competency of Graduate Engineers through Peace Corps Partnership and Long-Term International Service. Making Value for Society. *Proceedings of the American Society for Engineering Education (ASEE) National Conference*, Washington Convention Center, Seattle, WA. June 2015.
- [2] Prouty, C., Orner, K., Naughton, C., Manser, N., Verbyla, M., Trotz, M.A., Mihelcic, J.R. Exploring the Expanding Impact of a Sustainable Development Engineering Course through a Critical Evolutionary Review. Making Value for Society. *Proceedings of the American Society for Engineering Education (ASEE) National Conference*, Washington Convention Center, Seattle, WA. June 2015.
- [3] Verbyla, M.E., Naughton, C.C., Vernaza-Hernandez, V., Feldman, A., Trotz, M.A., Brandt, M.E., Wells, E.C., Mihelcic, J.R. Using Social Media to Create a Global Community of Sustainability-Engaged Students. *Proceedings of 3rd Annual American Society for Engineering Education (ASEE) International Forum*, Indianapolis, Indiana, June 14, 2014.

- [4] Naughton, C.C., Meeks, J., Mihelcic, J.R. Developing Global Partnerships to Achieve a Sustainable Water Supply: Peace Corps Master's International Program. *Proceedings of the Second Annual Civil Engineering Conference: International Conference on Sustainable Urban Water Supply in Developing Countries*, University of Ilorin, Ilorin, Nigeria, July 26-28, 2010.

SELECT CONFERENCE PRESENTATIONS (*asterisk indicates presenter)

- [1] *Naughton, C.C., Campbell, B., Hopkins, O., Molyneaux, J., Francis, P. (2018). Millennium Challenge Corporation's Approach to Water, Energy, Food, and Climate Nexus. Poster Presentation, *UNC Water, Food, Energy, and Climate Nexus Conference*, Chapel Hill, NC. April 16-18, 2018.
- [2] *Naughton, C.C., Rose, J., Mihelcic, J.R. (2016). The Global Water Pathogens Project Sanitation Technologies. Oral Presentation, *Africa Water Week 6*, Dar es Saalam, Tanzania. July 18-22, 2016.
- [3] *Naughton, C.C., Deubel, T., Mihelcic, J.R. (2016). The Intersection of Engineering and Anthropology used to Promote Food Security in Sub-Saharan Africa through Shea Butter Process Analysis and Improvement. Oral Presentation, *Society for Applied Anthropology: Intersections*, Vancouver, CA. March 29-April 2, 2016.
- [4] *Naughton, C.C. (2016). Why Shea Butter for Global Food Security and Environmental Sustainability? Oral Presentation, *Shea 2016: Enhancing Farm Value*, March 21-23, 2016, Accra, Ghana.
- [5] *Naughton, C.C., Zhang, Q., & Mihelcic, J.R. (2015). Assessing the food-energy-climate nexus of traditional and improved shea butter processes across sub-Saharan Africa. Oral Presentation, *Association of Environmental Engineering and Science Professors (AEESP) Research and Education Conference*, Yale University, New Haven, CT. June 16, 2015.
- [6] *Naughton, C.C., Adams, E., Mihelcic, J.R. Shea Trees, Shea Butter, and Climate Change. Oral Presentation, *NYC Shea Trade and Industry Conference*, New York City, New York May 11, 2015.
- [7] *Naughton, C.C., Manser, N.D., Prouty, C., Orner, K., Verbyla, M.E., Trotz, M.A., Mihelcic, J.R. (2014). Improving the Global Competency of Engineers through the Peace Corps Master's International Program. Oral Presentation, *American Society for Engineering Education (ASEE) Southeast Section Conference*, Gainesville, Florida, April 13, 2015.
- [8] *Naughton, C.C., Lovett, P.N., and Mihelcic, J.R. (2014). Overview of Shea Tree Populations across Africa: Mapping and Emissions. Oral Presentation, *Shea 2014: The Industry Unites*, March 24-26, 2014, Abidjan, Côte d'Ivoire (Ivory Coast).
- [9] *Naughton, C. and Mihelcic, J.R. (2013). Assessing Appropriate Technology Handwashing Stations in Mali, West Africa. Poster Presentation, *Water & Health Conference: Where Science Meets Policy*, October 14-18, 2013, Chapel Hill, North Carolina.

TEACHING AND MENTORING EXPERIENCE

ENV 6501, Sustainable Development Engineering, University of South Florida, Tampa, FL. Spring 2013, Falls 2013-2016. (Graduate Instructor)

Engaged in curriculum and assignment development, instruction and grading. Co-designed and coordinated construction labs on campus and a Burmese refugee farm. Specific lessons developed and taught include: (1) life cycle thinking, (2) construction materials, and (3) behavior change and water, sanitation, and hygiene (WASH).

CGN 6933, Context Sensitive Wastewater Resource Recovery Systems, University of South Florida, Tampa, Florida, Spring 2014. (Graduate Instructor)

Co-developed, instructed, and evaluated this interdisciplinary and multimedia graduate course. Organized weekly twitter chats and video production.

Peace Corps Master's International Program, University of South Florida, Tampa, Florida, Spring 2013-Spring 2017.

Assisted in program management including bi-monthly workshops and marketing. Mentored students on campus prior to service and two students in completion of their master's thesis.

Peace Corps Volunteer Trainer. Pre-Service Training 2009.

Co-instructed, organized, and developed objectives for water and sanitation technical sessions in hygiene, water treatment and storage, pump installation and repair, well construction and improvement, grey water management, latrine design and construction, and drip irrigation and sessions on cross-culture, medical, safety and security for 81 trainees.

EXTERNAL FUNDING EXPERIENCE

National Science Foundation Research Traineeship- Innovations at the Nexus of Food-Energy-Water Systems (NRT-INFEWS): 21st Century Interdisciplinary Synergies for Food Energy Water Systems (CIS-FEWS)

Amount: \$2,500,000 (5 year) Submitted: 2/10/16 Status: Funded

PI: M. Trotz (USF Civil & Env. Eng.), Co-PIs: S. Habtes (Univ. of Virgin Islands, Bio.

Oceanography), J. Mihelcic and Q. Zhang (USF Civil & Env. Eng.), B. Zarger (USF Anthropology)

Contributed to grant development, writing, revisions, formatting, compilation of current and pending and biosketches, and wrote postdoctoral mentoring plan, letters of support, and data management plan. Aided in FastLane submission.

American Association of University Women \$20,000 Fellowship 2014 – 2015

African Sky

Jan. 2014 – Present

Facilitates in fundraising, allocation, and reporting of annual \$30,000 budget. Currently pursuing other funding through: GOJO industries, Malala Foundation, One Day's Wages.

Environmental Protection Agency Centers for Water Research on National Priorities Related to a Systems View of Nutrient Management: Center for Reinventing Aging Infrastructure for Nutrient Management (RAINmgt)

Amount: \$2,499,074 (5 year)

Current: 08/01/13-07/31/17

PI: J. Mihelcic (USF Civil & Env. Eng.), Co-PIs: M. Trotz (USF Civil & Env. Eng.), E.C. Wells (USF Anthropology & Patel School of Global Sust.), C. McKayle (Univ. of Virgin Islands, Mathematics)

Contributed to grant compilation and editing. Facilitated grant management including: organizing External Science Advisory Boards, designed and implemented community engagement webinar and training, and drafted annual reports.

National Science Foundation Partnerships in International Research and Education (NSF PIRE): Context Sensitive Implementation of Synergistic Water-Energy Systems

Amount: \$3,900,644 (5 year)

Current: 01/01/13-12/31/17

PI: J. Mihelcic (USF Civil and Env. Eng.), Co-PIs: J. Cunningham, S. Ergas, M. Trotz, D. Yeh, Q. Zhang (USF Civil and Env. Eng.), S. Olmstead (UofT), Y. Kuwayama, J. Shih (Resources for the Future), J. Zimmerman (Yale), T. Boyer (UF), A. Davis (UMD), E. Coney (CDC)

Assisted in grant management including: organization of research meetings, website design and update, social media, and annual reports compilation.

USAID and Peace Corps

2009 – 2012

Developed grant proposals and was awarded over \$8,000 from Peace Corps and USAID funding throughout service for WASH, food security, and gender projects.

OTHER SCHOLARLY PROJECTS

Co-author for Sanitation Technologies section of the Global Water Pathogens Project (GWPP). <http://www.waterpathogens.org/>

Naughton, C., Katirji, Z., and Wright Wendel, H.E. *Solutions Manual for Environmental Engineering: Fundamentals, Sustainability, Design*; 2nd Edition James R. Mihelcic and Julie Beth Zimmerman, John Wiley & Sons, New York, 2013.

Reviewer of Mihelcic, J.R., Zimmerman, J.B. *Environmental Engineering: Fundamentals, Sustainability, Design*, 1st Edition, John Wiley & Sons, 2009.

Reviewer of Mihelcic, J.R., E.A. Myre, L.M. Fry, L.D. Phillips, B.D. Barkdoll. *Field Guide in Environmental Engineering for Development Workers: Water, Sanitation, Indoor Air*, American Society of Civil Engineers (ASCE) Press, Reston, VA, 2009.

LEADERSHIP AND SERVICE

Current Professional Organization Memberships: Association of Environmental Engineering and Science Professors (AEESP), American Society of Civil Engineers (ASCE), Global Shea Alliance, Society for Applied Anthropology (SfAA).

Peer-reviewed Journal Article Reviewer: Applied Geography and Environmental Research Letters.

Associate Director, African Sky **Jan. 2014 – Present**
Developed strategic plan, program goals and objectives for non-profit organization serving communities in Mali. Manages four program directors in health (water, sanitation, and hygiene), food security, education, and community arts.

President, American Association of University Women (AAUW) **Aug. 2014-2016**
President, founding member, and previous event coordinator of USF chapter of this national organization. Organized professional development workshops and seminars, Great American Teach-In at a middle school, and Equal Pay Day campus activity.

Education Director, African Sky **June 2012 – Jan. 2014**
Designed, managed, and monitored adult women’s literacy program and center and primary school construction projects with compressed earth block technology in Mali.

Design Team Member, Engineers without Borders (EWB) - USF **2008-2009**
Participated in ferrocement rain water catchment system design, water and sanitation committee management and gender inclusion for their project in the Dominican Republic.

Habitat for Humanity Detroit and Pontiac, MI **May – Aug. 2008**
Led work crews and participated in construction processes, implementing practical civil engineering concepts for building homes.

Community Development Agent, BRIDGE **June – Aug. 2007**
Collaborated with village leadership to lead village of 2,000 inhabitants in capacity building in Ghana to improve livelihoods, sanitation, health, and education.

COMPUTER SKILLS

Adobe Premiere Pro, ArcGIS, QGIS, AutoCAD, SimaPro, SPSS, Microsoft Office.

LANGUAGES

English **Native Speaker** **USA**

French **Professional Proficiency** **USA, Mali, France**
Three years of French language experience in Mali, West Africa and five years of formal coursework (undergrad and graduate levels). Passed French Intermediate (B1) examination at Alliance Française in Nice, France in June 2012.

Bambara **Fluent** **Mali, West Africa**
Passed ACTFL exam at the Advanced/high level on April 5, 2012. 174 hours of language training and four years of research and work experience in Mali.