SIDDHARTHA **ROY** Ph.D.

1145 Perry St., #408, Blacksburg, VA 24061
cell: 540.521.6193; e: sidroy@vt.edu;
w: www.siddhartharoy.org

EXPERTISE SUMMARY

Siddhartha Roy is an environmental engineer with 10 years of engineering, research, and consulting experience in the areas of drinking water (chemistry, treatment, & infrastructure), public health (WASH, contamination, citizen monitoring, & exposure modeling), and environmental justice. He and his team's scientific and humanitarian relief work, with residents of Flint Mich, helped uncover the Flint Water Crisis.

ACADEMIC HISTORY AND LICENSES

Virginia Tech, Blacksburg, VA
- 2018 *Ph.D. in Civil/Environmental Engineering*
- 2015 *M.S. in Environmental Engineering*

Nirma University, Ahmedabad, India
- 2010 *B.Tech. in Chemical Engineering*

State of Virginia, Engineer in Training (EIT)
- 2020 *Environmental Engineering License #0420072931*

EXPERIENCE

2012+ **Virginia Tech Department of Civil and Environmental Engineering** – Blacksburg, VA
Research Scientist (10/2020-present)
Postdoctoral Research Associate, US Water Study Team founding co-leader (2018-20)
Student Leader and Communications Director, Flint Water Study Team (2015-18)
Head Grant Writer/Researcher, Guatemala project, Engineers Without Borders USA (2013-15)
Graduate Research and Teaching Assistant, Laboratory of Dr. Marc Edwards (2013-18)

- Project Manager on multiple water infrastructure and treatment, corrosion (control), waterborne metals/pathogens, emergency response, sustainability impact, and blood lead modeling projects.
- Mentor to 14 advisees in conducting research, publishing, and winning awards.
- We used citizen science, open data sharing, field sampling, lab experiments, investigative journalism and social media to expose the Flint, MI Water Crisis (2014-15). Our efforts led to declaration of a "Public Health Emergency" by President Obama, garnered over $1.2 billion in relief, and informed the 2018 Michigan Lead and Copper Rule and President Biden's 2021 $1 Trillion Infrastructure Bill (HR 3684).
- Used lead in sewage and blood datasets to estimate timing and magnitude of childhood water lead exposure during the Flint crisis and ran bio-kinetic models to estimate fetal deaths.
- Led water sampling campaigns in 300+ homes in Chicago, IL and 3 suburbs; these datasets revealed harmful and persistent lead in drinking water issues (*Chicago Tribune* front page)
- Contributed to the design of and raised $26,450 from Boeing, Bechtel, Pratt & Whitney, and crowdfunding to sponsor a septic tank system for a Guatemalan boarding school.
- Grants won from EPA ($10K), WaterRF ($60K), industry ($16.2K), and philanthropy (>$125K)
- *PhD Dissertation:* Interplay of water chemistry and entrained particulates in erosion corrosion of copper and nonleaded alloys in potable water systems
- *Coursework:* Water and Wastewater Treatment, Aquatic Chemistry, Environmental Statistics, Environmental Microbiology, Env. Engineering Principles, Public Health Fundamentals, Electrochemistry/Corrosion, Water Resources Policy & Econ., Politics of Developing Areas

2010-12 **Cognizant Technology Solutions** – Pune, India
Programmer Analyst, Innovation Lead

- Business Intelligence and Data Analytics: Merck Europe, Middle East & Africa Project

No visa sponsorship required. US Permanent Residency (EB-1A: "Extraordinary Ability") approved 03/22.
Green Card/Employment Authorization for any employer expected 08/22.

AWARDS

2021 Wunderkind 2021 *(early career heroes of science and medicine in North America)*, STAT/Boston Globe
2020 Young Leadership Award 2020-22 *(global prize)*, International Water Association
2019 New Face of Civil Engineering Professionals *(national)*, American Society of Civil Engineers
2019 Early Career Award for Public Engagement with Science Finalist, American Assoc. for Adv. of Science
2017 Graduate Student of the Year (*university-wide*), Virginia Tech
2015 Water Is Life Award, American Civil Liberties Union Michigan
2014 Engineers Without Borders-USA Global Leadership scholarship (*national*), Black and Veatch Foundation

SKILLS

General: project planning and management, technical writing, grant writing, budgeting, fundraising, leadership, mentoring, client communication, intercultural communication, public speaking, outreach
Scientific: experimental design, hypothesis-driven research, interdisciplinary collaborations, surveys, bench-scale experimentation, laboratory probes, spectrophotometers, sample characterization
Statistical software: R, Excel, SPSS Statistics, Qualtrics, QDA Miner, Minitab
Programming languages: WordPress, HTML, C, C++, Pascal, SQL, Markdown

SCHOLARSHIP

Total peer-reviewed articles = 17 (848 citations); conference talks = 31 (ACE, WQTC, ACS, APHA). Select list:

1. Are there excess fetal deaths attributable to waterborne lead exposure during the Flint Water Crisis? *Journal of Exposure Science and Environmental Epidemiology.* 2021.
2. Citizen science chlorine surveillance during the Flint, MI water emergency. *Water Research.* 2021.
3. Efficacy of Corrosion Control and Pipe Replacement in Reducing Citywide Lead Exposure during the Flint Water System Recovery. *Environmental Science: Water Research & Technology.* 2020
4. Lead Release to Potable Water during the Flint, Michigan Water Crisis as revealed by Routine Biosolids Monitoring Data. *Water Research.* 2019.
5. Cavitation and Erosion Corrosion Resistance of Nonleaded Alloys in Chlorinated Potable Water. *CORROSION.* 2018
6. Preventing another Lead (Pb) in Drinking Water Crisis: Lessons from Washington DC and Flint MI contamination events. *Current Opinion in Environmental Science & Health.* 2018.
7. Flow-induced failure mechanisms of copper pipe in potable water systems. *Corrosion Reviews.* 2017.
8. An Evaluation of the Readability of Drinking Water Quality Reports: A National Assessment. *J. Water Health*. 2015.

Technical reports = 5. Select list:

1. Practical Applications of NSF/ANSI 53 Lead Certified Filters: Investigating Lead Removal, Clogging and Consumer Experience. *U.S. Housing and Urban Development*. 2022.
2. Corrosion of Nonleaded Pump Impeller Alloys in Chlorinated Potable Water (#4658). *Water Research Fdn*. 2018.
3. Hard $CaCO_3$ Particles Formed by Water Heating Exacerbate Copper Erosion Corrosion. *Copper Dev Assoc*. 2016.

PUBLIC UNDERSTANDING OF SCIENCE

- *TED Talk*: Science in service to the public good (https://go.ted.com/Cyoj), over 1 million views
- *Documentaries:* PBS NOVA 'Poisoned Water' (on Netflix), Discovery®, BBC
- *Media coverage (60+):* BBC, Chicago Tribune, NPR, The Guardian, The New York Times, WIRED
- *Public talks (85+):* World Health Organization, MIT, Northwestern, Princeton, Stanford, Georgetown, Middlebury, Tufts, Wesleyan, Notre Dame, UCLA, Science Museum of Virginia, E.U. SAFEWATER
- *Opinion essays:* CNN, American Scientist, Aeon, Undark, Scientific American, Retraction Watch
- *Research/data websites launched and curated:* www.uswaterstudy.org, www.flintwaterstudy.org (1M+ visits)

SERVICE

- U.S. EPA "Social and Community Science" *Federal committee Expert Member* (2022-present).
- Co-organizer: US-Jordan forced displacement/Syrian refugee crisis conference session (2019).
- *Instructor:* Six courses for water plant operators sponsored by Virginia Dept. of Health (2018-21).
- *Tutor:* Math and Science – 4th Grade, Kipps Elementary, Blacksburg Refugee Partnership, 2018.
- *Reviewer (2020-21)*: National Science Foundation grants, US Stockholm Junior Water Prize judge.