

**Environmental Engineering**

**and Earth Sciences**

**EEES Department Seminar**

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**Rethinking America's Urban Water Infrastructure: Resource Efficiency, Access, and Public Health*****2019 AAEES Kappe Lecture***Nancy Love, Ph.D., P.E., BCEE*University of Michigan, Ann Arbor*Water infrastructure renewal is receiving significant attention today as many of our systems are meeting (or exceeding) design life. Cities in countries with well developed economies like the U.S. enjoy economic prosperity in part due to the development of heavily centralized water systems that create high levels of water quality and public health, on average. While centralized water infrastructure has served us well, I argue that we should not be constrained to applying 20th century thinking as we plan for the future. The current revolution in information technologies (IT: software, hardware and devices) has the potential to transform urban water infrastructure by creating more resilient and flexible hybrid systems comprised of an interacting collection of centralized and decentralized physical & IT systems. I contend that the development of IT-enabled "smart" hybrid water system solutions has the potential to: improve the efficiency with which we use resources (e.g., water, power, nutrients); enhance equitable access to water services; change consumer and provider behavior around water; and ensure that we sustain a high level of public health, even as more people live in close proximity to each other. In this talk and through the use of case studies from across different regions around the globe, I will explore these scenarios and the changing ways in which people live.As an example, one case study will include the development of "smart" distributed nutrient recovery systems that have been deployed and are being tested at the University of Michigan.*About the speaker:*Portrait of Nancy LoveDr. Nancy G. Love is the Borchardt and Glysson Collegiate Professor of Civil and Environmental Engineering at the University Michigan, and an adjunct Professor at the Institute of Biotechnology at Addis Ababa University. She has B.S. and M.S. degrees in Civil Engineering with an emphasis on Environmental Engineering from the University of Illinois, Urbana-Champaign, and a Ph.D. degree in Environmental System Engineering from Clemson University.She has advised over 70 graduate students and post-doctoral research associates. In collaboration with her students, Dr. Love works at the interface of water, infrastructure, and both public and environmental health in both domestic and global settings. They focus on assessing and advancing public and environmental health using chemical, biological and analytical approaches applied to water systems using both physical experiments and computational models. Specifically, they: evaluate the fate of chemicals, pathogens and contaminants of emerging concern in water with relevance to public health and the environment; use technologies to sense and remove these constituents; and advance technologies that recover useful resources from water. Dr. Love has co-authored: over 100 peer reviewed papers, chapters and reports; over 250 conference presentations; and the 2011 textbook *Biological Wastewater Treatment, 3rd Edition* by Grady, Daigger, Love and Filipe. Dr. Love has held leadership positions in multiple organizations, including with the Water Environment Federation (WEF), the International Water Association (IWA), and the Association of Environmental Engineering and Science Professors (AEESP). She is a Fellow of all three of these organizations as well. She is a licensed professional engineer (P.E.) in the state of Michigan and a Board-Certified Environmental Engineer (BCEE). |

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***Friday, October 11, 2019***

***2:30 PM***

***Rich Lab Auditorium***

***Refreshments following Seminar***

 ***“Attendance is mandatory for graduate students enrolled in EES 8610, EES 9610, and GEOL 8510.”***