



**Politecnico
di Torino**

Department of Environment,
Land and Infrastructure
Engineering



NET ZERO URBAN WATER: REINVENTING WATER SELF-SUFFICIENT CITIES IN THE US SOUTHWEST

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ABSTRACT

The Colorado River supplies over 40 million people in the United States Southwest with their daily water supply and is currently unable to meet these demands. Faced with the challenges of climate change, population growth, and aged infrastructure, urban water systems in the Southwest, as sociotechnical systems, will need to evolve to become more sustainable. A Net Zero Urban Water (NZUW) approach meets the needs of a given community with a locally available and sustainable water supply, without detriment to interconnected systems and long-term water supply. NZUW is an integrative approach with progressive targets assessed using a quantitative framework to expand adaptive and responsive solutions for urban water self-sufficiency. Transitioning to a NZUW future will require considerable changes related to water availability, sources, technology, management, costs, and the urban landscape. Specific results from recent investigations in governance and policy challenges and public perception and preference in a NZUW transition in the US Southwest will be discussed.

BIO

Courtney Crosson is a licensed architect, associate professor, and Director of the Drachman Institute for the Built Environment at the University of Arizona, where she teaches classes on water in the built environment and community outreach design studios. Her current research advances decentralized water systems to address pressing problems facing cities—whether water scarcity in the U.S. Southwest or safe and affordable water access in informal settlements in Nairobi, Kenya. She is the Principal Investigator on a four-year National Science Foundation grant to investigate how to transition cities in the US Southwest to a net zero urban water future. Her work has been published in peer-reviewed journals in architecture, engineering and planning. She has won numerous national awards for her teaching, outreach and research including the Association for Collegiate Schools of Architecture and American Institute of Architects' 2024 Practice and Leadership Award.