

## **Artificial Intelligence for Net Zero Water in Smart Cities: A Path to Achieving Sustainable Water Management?**

The urgent need to address global challenges, including climate change, water scarcity, and sustainable development, has propelled the concept of Net Zero goals to the forefront. Aligned with the Sustainable Development Goals (SDGs), the Net Triple Zero goals encompass achieving zero carbon emissions, zero waste, and zero water waste. Net Zero Water holds significant importance for cities as urban areas confront escalating population densities and mounting water demands across multiple sectors. The Net Zero Water goal for cities involves minimizing water demand and maximizing water reuse and recycling to achieve a balance between water consumption and replenishment, ultimately reducing the city's overall water footprint and promoting long-term water sustainability. However, traditional water management systems struggle to effectively navigate the complexities associated with urban water challenges. Integrating Artificial Intelligence (AI) into decision support systems presents promising opportunities to enhance water management practices. By harnessing AI techniques such as machine learning, data analytics, and optimization algorithms, decision-making processes can be elevated, resulting in more informed and efficient water management strategies. This study evaluates the feasibility and effectiveness of employing AI as a solution for urban water management, with a specific focus on the potential benefits offered by AI-enabled decision support systems. Leveraging AI capabilities empowers water utilities and stakeholders to make accurate, timely, and data-driven decisions. Ultimately, the integration of AI into decision support systems holds the substantial potential to advance urban water management, driving the attainment of Net Zero Water goals. By addressing the challenges posed by climate change, water scarcity, and water management issues in cities, AI-driven approaches pave the way for a sustainable and resilient future, ensuring the availability and efficient utilization of water resources for generations to come.

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