

BACKGROUND & CONTEXT

- Wastewater treatment and management is crucial in protecting public and environmental health.
- Decentralization is an alternative paradigm regional agencies can adopt to address wastewater challenges in urban coastal areas (Fig. 1).
- However, lack of policy and regulatory framework poses a challenge to the implementation of decentralized wastewater systems.
- Therefore, this research aims to identify relevant policies and regulations necessary to decentralization.

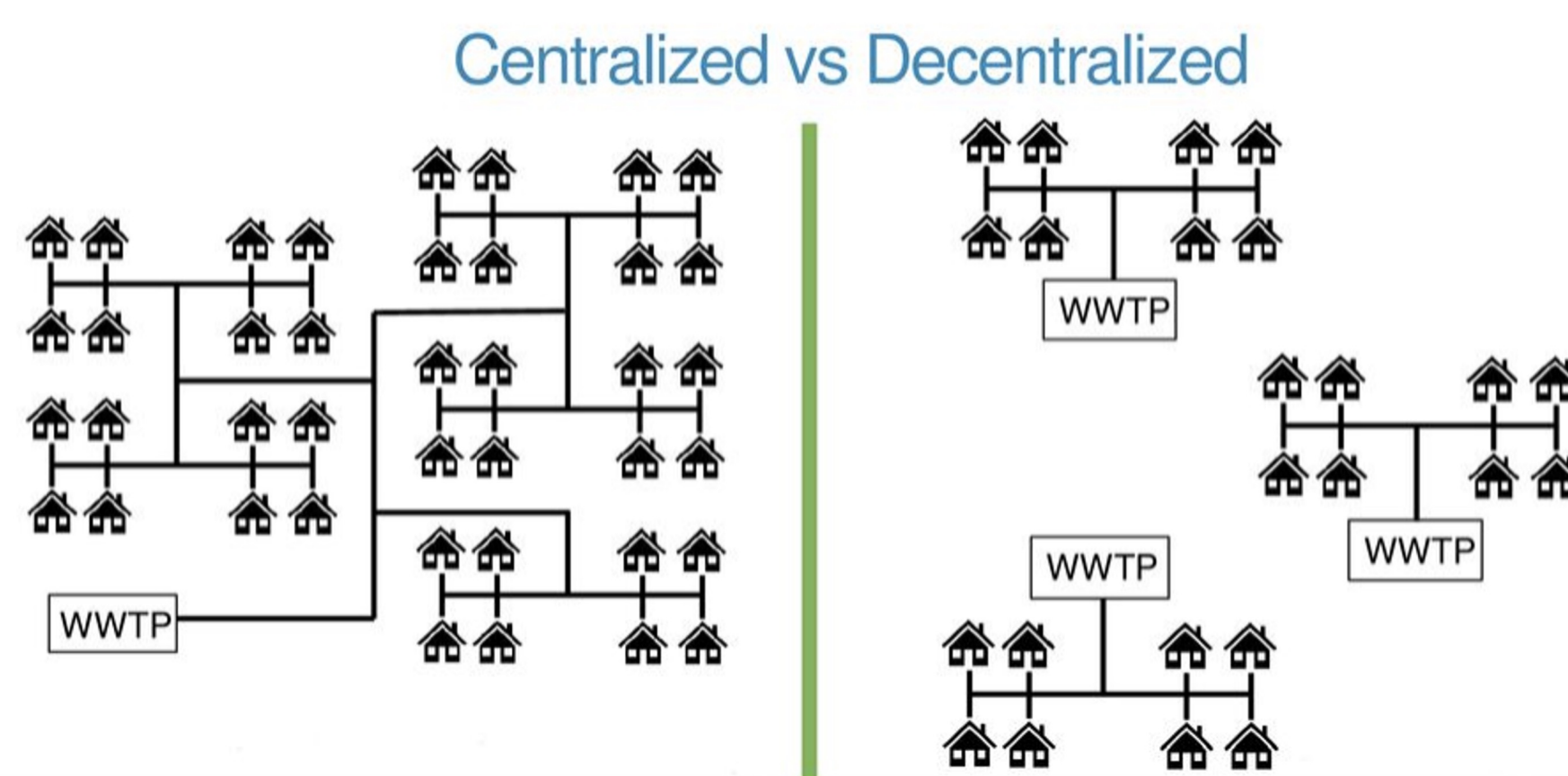


Figure 1. Decentralization refers to the distribution of smaller scale wastewater treatment systems throughout a region. Centralized systems typically include extended collection systems that direct all wastewater to a regional treatment plant while decentralized systems are localized to communities or cities.

RESEARCH QUESTIONS

- What are key policies and strategies to shift toward decentralization in urban coastal settings?
- What are the opportunities and challenges associated with decentralization in urban coastal settings?

INTERNSHIP & METHODS

Interned with the Comprehensive Planning Unit in a consulting capacity

- Goal of internship:** identify and recommend decentralized treatment technologies
- Method:** conduct literature review on several technologies and how they were implemented in other coastal regions

RESULTS

OPPORTUNITIES

- Water reclamation and reuse
- Development of green infrastructure
- Reduced stress on centralized system

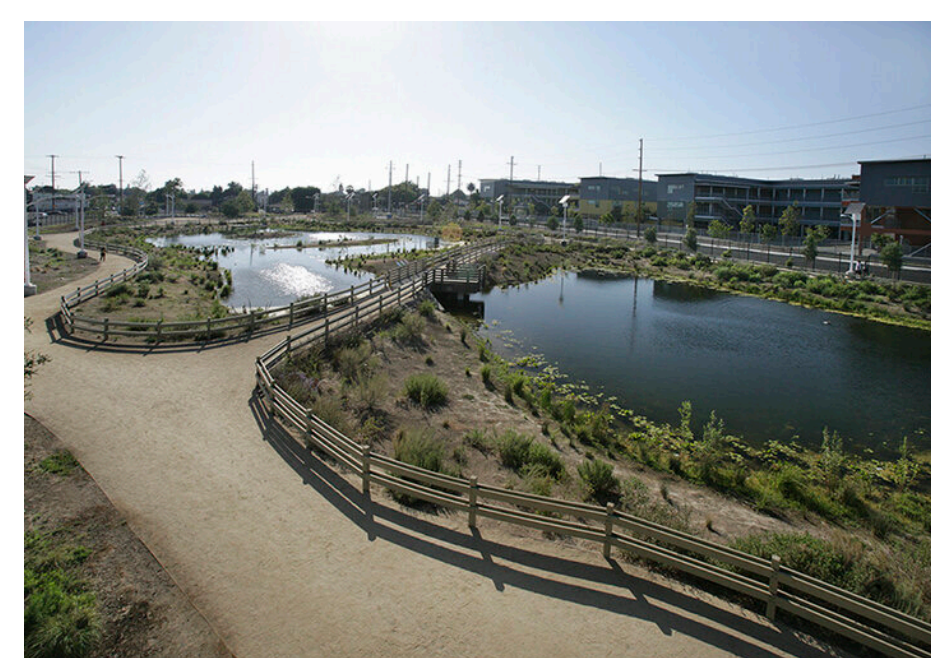


Image 1. The South LA Wetland Park provides services beyond stormwater treatment.

CHALLENGES

- Lack of control over many systems under private management
- Potential for green gentrification

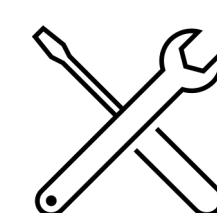


Image 2. The Bullitt Center is an example green architecture.

POLICIES/REGULATIONS



Water quality standards



Operating and maintenance requirements

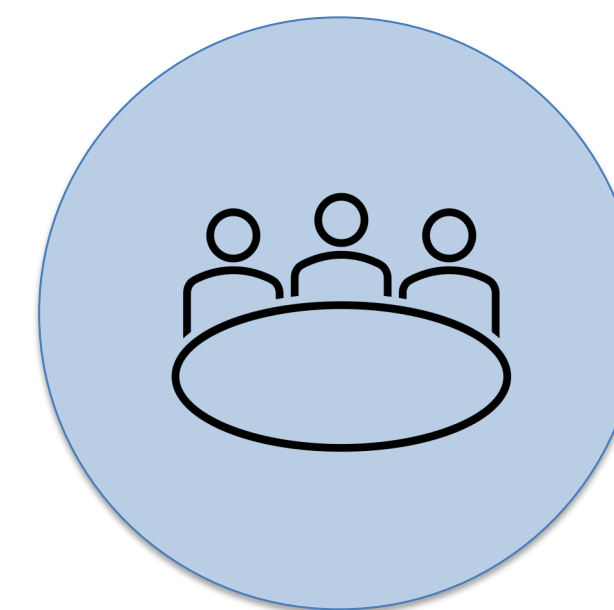


Monitoring and reporting requirements

STRATEGIES



Implement at various scales



Collaborate with community members



Streamline permitting process

KEY TAKEAWAYS

- Developing a regulatory framework enables the widespread implementation and use of decentralized wastewater systems (Fig. 2).
- Decentralized wastewater systems provide opportunities for various sustainable and green initiatives while diverting excessive flow away from centralized system.
- Decentralization requires coordination and collaboration between the public and local government agencies.

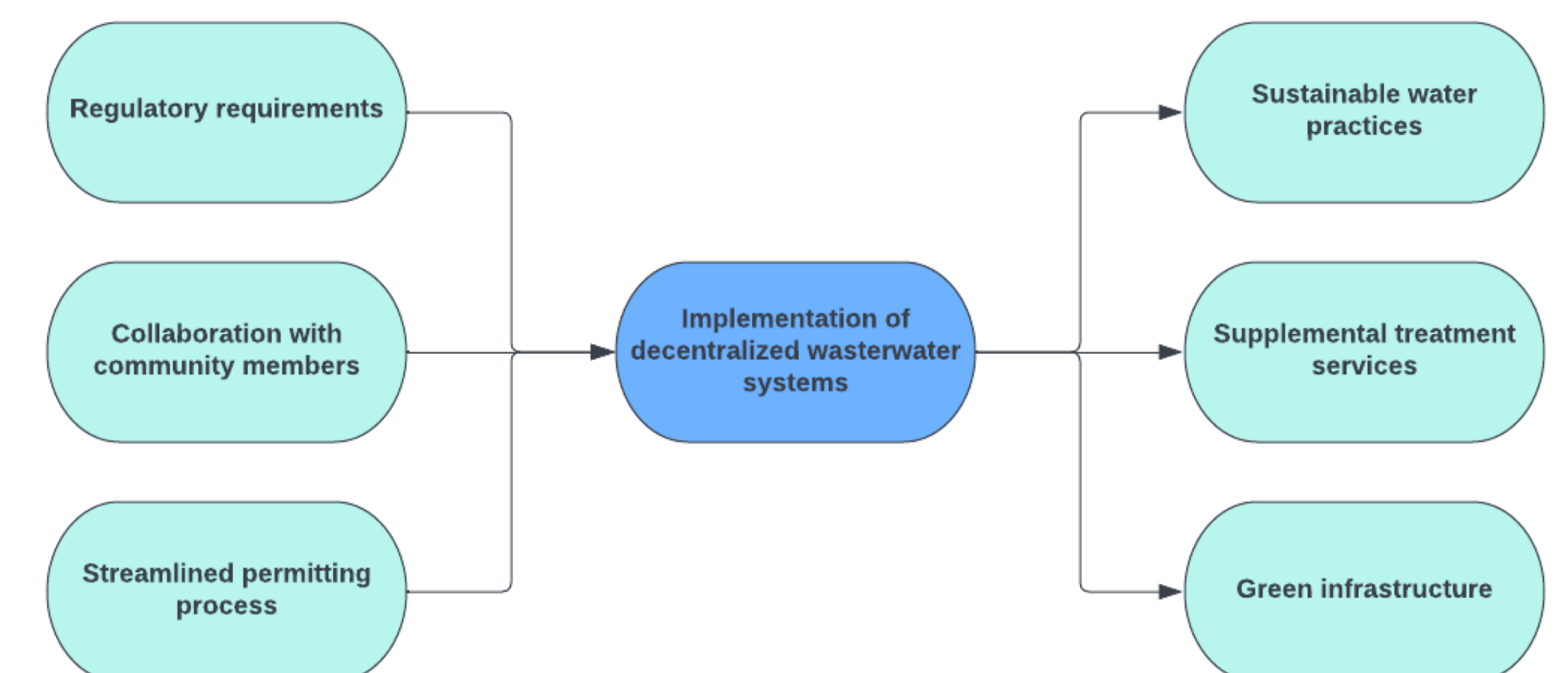


Figure 2. A framework that includes regulatory requirements to ensure proper function of decentralized systems, collaboration with various communities, and streamlined permitting process can lead to various benefits.

SIGNIFICANCE

These findings are important because they demonstrate a path toward wastewater resiliency in urban coastal settings.

- With the combined effects of climate change and population growth on aging infrastructure, centralized wastewater treatment system in densely populated coastal jurisdictions are at risk of malfunction.
- By developing a framework to shift toward decentralization, coastal jurisdictions can protect the health and environment of their communities through systems that address their specific needs.

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