

Executive Summary



A framework for utilities considering wastewater and stormwater reuse elements in their water management portfolio

Drivers, Hindrances, Planning, and Benefits Quantification – Economic Pathways and Partners for Water Reuse and Stormwater Harvesting (SIWM8R14)

The Central Issue

The traditional management functions of utilities are to ensure that drinking water and wastewater are treated and discharged safely, and that stormwater is managed according to applicable regulatory standards. However, the utility of the future (UoTF) concept changes the paradigm to embrace a broader range of water management functions and responsibilities. Water reuse technology offers many advantages to a UoTF through the flexibility it offers in wastewater and stormwater management.

Context and Background

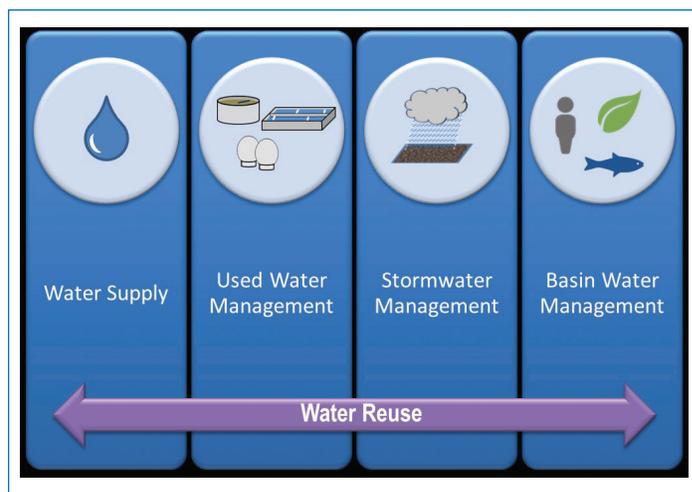
The intent of this research project is provide assistance to utilities that are not among the early adopters of reusing wastewater and stormwater, but may have some interest in it. A wide range of existing tools, reports, and documents are available for technical and economic analysis of water reuse projects, however they often do not serve the utility that is still at the first stages of even considering whether water reuse may be viable. This project, therefore, focused on understanding why utilities are not considering reusing wastewater and stormwater more often, and if they have considered it, what prevents them from implementing water reuse projects.

Findings and Conclusions

Through a nationwide survey of roughly 150 utilities and an extensive literature review, the research team identified trends, developed recommendations, and created a “First Steps” Excel-based tool to help aid utilities considering the reuse of water, including wastewater, stormwater, and industrial process water.

From the survey results, the researchers identified a strong and persistent connection between water reuse and water supply needs. Municipal or state-level organizational goals drive decisions to pursue reuse alternatives. Capital costs are the most significant hindrance due to availability of funding. The research team developed a series of recommendations to help water reuse become a more frequent tool for utilities to meet their water management needs which includes:

- Utilities can consider water reuse as an option for addressing a wide range of needs.
- Strategies to reduce costs, quantify benefits, and use available water reuse funding should be more widely realized.



Water reuse is directly linked to several water management functions.

- Water reuse goal setting matters – namely long-term goals.
- Water supply planning processes should more frequently consider water reuse.
- Partnerships can expand possibilities for water reuse.

The research report investigates planning processes best suited to planning water reuse projects, and evaluation frameworks that can consider water reuse's range of benefits. It also summarizes key benefits of water reuse and methods to quantify them in economic terms. An Excel-based planning tool accompanies the report. Through six key questions, the tool helps a utility determine whether it could benefit from reuse, and provides instruction on water reuse resources.

Management and Policy Implications

This report provides a framework for utilities considering the reuse of source water (wastewater, stormwater, industrial process water) for their overall management portfolio, either directly or in cooperation with other providers. Influential factors that go into the initial decision to plan a water reuse project are highlighted which will help utilities to implement their project successfully.

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Related WE&RF Research

Project Title

Research Focus

Potable Reuse Research Compilation: Synthesis of Findings (Reuse-15-01)

Summarizes key issues and findings from WRRF's research portfolio of projects that investigated the technical feasibility of implementing direct potable reuse projects, as well as the results of complementary research, to provide an accessible resource to communities and decision makers seeking more information on potable reuse, particularly DPR.

Institutional Issues for Integrated "One Water" Management (SIWM2T12)
Pathways to One Water: A Guide for Institutional Innovation (SIWM2T12a)

Governance, regulations, finance, and culture are often cited as barriers to achieving integrated water management and innovation in water technologies. In an effort to clarify and explain these barriers, WE&RF, the Water Research Foundation, and Water Research Australia undertook this study to define those barriers. Three in-depth case studies and 25 snapshot case studies provide practical examples of how agencies and communities worked through institutional barriers so they could practice a more integrated and sustainable approach to water resource management. Case studies looked at initiatives and interactions between different levels of government, private entities, NGOs, and citizens across a range of institutional barriers.

The Water Resources Utility of the Future: A Blueprint for Action (WERF3C12)

The Water Resources Utility of the Future (UoTF) will transform the way traditional wastewater utilities view themselves and manage their operations. They also will transform their relationships with their communities and their contributions to local economies. This Blueprint presents the clean water industry's vision for the future and a series of actions that will help deliver this vision.

Using Graywater and Stormwater to Enhance Local Water Supplies: An Assessment of Risks, Costs, and Benefits (SIWM11C15)

Graywater and stormwater capture and use can expand local water availability while providing additional benefits, such as reduced water pollution (for stormwater) and a drought-resistant year-round water supply (for graywater). The conclusion for this study conducted by a committee of National Academy of Sciences is that there is no single best way to use graywater or stormwater to address local water needs, and many important considerations (including legal and regulatory constraints, potential applications, and source water availability) vary widely with local conditions. Additional information about these factors could make it easier for businesses, households, and water authorities to use stormwater and graywater to augment water supplies.

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