

Project Information Summary



Unlocking the Nationwide Potential of Water Reuse: Task C (5197C)

Principal Investigator: Miriam Hacker, The Water Research Foundation

Project Team: Ohio State University, University of New Mexico, Stanford University, University of Pennsylvania, Independent Consultant

Research Program Manager: Miriam Hacker

Year Funded: 2022

Project Duration: 44 months

Total Project Value: \$5,356,929

Goal and Objectives

Task C aims to support the social development of water reuse through three main objectives:

1. Creating an index to identify water reuse potential in the United States with a water equity lens
2. Identifying and compiling organizational and social considerations for reuse at a national scale
3. Developing a compendium of best practices for community engagement through local case studies.

Background and Motivation

Institutional factors for water reuse require tailored support for local implementation. Such factors include market structures, policies, political cycles, and existing regulatory frameworks, which can play significant roles in whether water reuse is adopted in a community. Thus, there is a need to identify which institutional, organizational, and social aspects contribute to or impede upon the adoption of water reuse. This task reinforces a fit-for-purpose approach, summarizing findings by geographic distribution and supporting the development of an interactive map. Subtasks identify: the institutional, organizational, and social aspects that impact the adoption of water reuse; the public dialogue surrounding water reuse; and which key stakeholders are involved in decision-making during uptake.

Regardless of the end use, water reuse implementation will require a well-designed plan for public education, outreach, and community engagement. One existing barrier is the ambiguity contained in the terms 'community' and 'engagement,' presenting a challenge for practitioners and city engagement specialists to develop targeted approaches for reuse. Prior work has been done to understand communication and outreach strategies. However, additional work is needed to understand how communication can best align with community engagement. We see opportunities to examine how community engagement is defined in the context of reuse, support defining 'community' and 'engagement' in the context of water reuse, and identify current practices to develop a baseline for present and future project engagement activities.

Research Approach

Task C1 – Quantify Water Reuse Potential Across the Nation to Identify New Water Reuse Opportunities.

1. Review existing literature on methodologies and approaches for quantifying water reuse drivers, including water availability and incorporating water equity considerations. Results will be used to develop an index for mapping water reuse potential.



- Using the conceptual framework, data from publicly available sources (e.g. US Census, United States Geological Survey, USEPA, National Oceanic and Atmospheric Administration) will be retrieved to quantify variables in the index.
- Existing information on water availability and feedback from current reuse projects will be used to validate the index for mapping water reuse potential.
- The final index for mapping water reuse potential will be integrated into an ESRI Storymap, along with a report documenting the development of the index and resulting patterns for where opportunities exist for various types of water reuse.

Task C2 – Synthesizing Organizational and Social Barriers and Interventions at a National Scale.

- Analyze existing literature to develop a document that summarizes existing resources, challenges, and opportunities in the United States by source type and end use.
- Analyze media outlets to frame public discussions around water reuse in the United States and how they have changed over time.
- Work with private, public, and civil sector practitioners across the six regions to co-produce needs for organizational and social factors influencing uptake, along with community engagement strategies for perception and risk communication.
- Develop a map to holistically visualize patterns for non-technical factors, showing national community engagement water reuse.

Task C3 – Synthesize Organizational and Social Factors' Influence on Water Reuse Projects in Specific Locations, Identifying Community Engagement Best Practices.

- Collect and analyze existing national and international literature on community engagement for types of water reuse. Findings will include general themes and nuance across the various water reuse applications.
- Conduct an in-depth media and policy analysis for three case study locations to construct a timeline of adoption for agricultural and potable water reuse applications.
- Develop an interactive story map to establish a baseline understanding of community engagement approaches, including common definitions and assessment recommendations.
- Develop best-practice guidelines/a guidebook for community engagement strategies, focusing on efforts to engage underserved communities.

Overview - Research Approach (Task C)		
Stakeholders	Data types	Analysis
Community-based organizations	Interviews	Media analysis
Government agencies	Literature (grey and academic)	Spatial analysis
Non-governmental organizations	Media articles	Systematic literature review (PRISMA)
Private companies	Questionnaires	Thematic content analysis
Utilities	Regional workshops	
	Spatial data	

Deliverables

- Nationwide index assessing potential for water reuse (ESRI Storymap)
- National-scale findings for social and organizational barriers and catalysts for water reuse, aggregated by type of application (report)
- Compendium of best practices for community engagement, including three in-depth case studies and an overview of existing resources for engagement activities (report)



- Interactive map available to public and practitioners with index, case studies, and patterns for social/organizational factors across the United States (ESRI Storymap)

For more information, contact:

Lyndsey Bloxom,
lbloxom@waterrf.org

The Water Research Foundation

1199 N. Fairfax St., Ste 900 Alexandria, VA 22314-1445	6666 W. Quincy Ave. Denver, CO 80235-3098
---	--

www.waterrf.org

This project information summary is made available to WRF subscribers for informational purposes only. The project information summary describes the planned approach for the research project; however, project methods may be modified during the course of the project as new information is uncovered and preliminary hypotheses are investigated. For updates on the status of the project, review the project updates or contact the WRF research manager. This information has not been reviewed by WRF to determine whether it contains patentable subject matter or third-party copyrighted materials, nor has the accuracy of its information or conclusions been evaluated. Accordingly, the information is not considered published and is not available for general distribution. Do not distribute outside your organization. WRF assumes no responsibility for the content of this project information summary or for the opinions or statements expressed. The mention of trade names or commercial products does not represent or imply the approval or endorsement of WRF.
©2023 The Water Research Foundation. ALL RIGHTS RESERVED. No part of this content may be copied, reproduced, or otherwise utilized without permission.

