

Increasing Public Acceptance of Direct Potable Reuse as a Drinking Water Source in Ventura, California

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Background

California's record-breaking drought highlights the vulnerability of the state's scarce water resources. Climate change, increased demand, and the likelihood of more frequent droughts will continue to place enormous pressure on unreliable water supplies. These concerns are driving cities to look for alternative water sources that are safe, sustainable, and offer long-term drought security.

There are several options available to meet this need, including desalination (treating seawater to remove salts) and importing water from other areas of the state. Some forward-thinking cities, such as Ventura, CA, are looking beyond bringing in new sources of water. Instead, they are focusing on recycling water already in use.

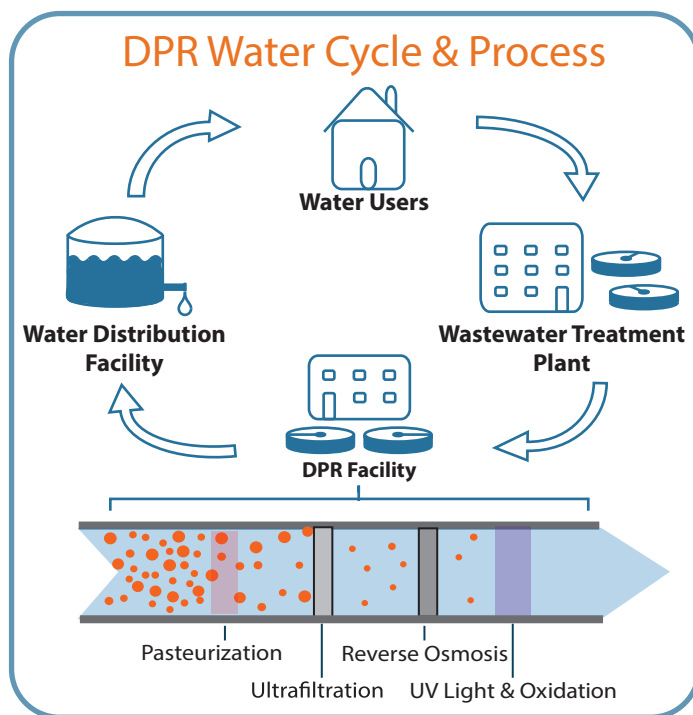
Direct Potable Reuse (DPR) is one of the best options for augmenting Ventura's water supply in a sustainable and reliable way. The DPR process pumps treated, recycled wastewater through four purification steps (pasteurization, ultrafiltration, reverse osmosis, and U.V. light disinfection) to produce high quality drinking water, which is then added directly back into the drinking water system.

WHY DPR?

Cost effective: Under water-scarce conditions, all water bills are expected to rise - but costs are significantly lower than options like desalination.

Drought-secure: DPR provides a localized, reliable source of drinking water - regardless of drought conditions or groundwater levels.

Energy efficient: The highly treated wastewater entering the process is already lower in constituents than seawater, so less energy is needed to purify it. This also results in a lower carbon footprint.



Although DPR comes with economic and environmental benefits, **low public acceptance** due to concerns about the water source and treatment process is a major deterrent to implementation. Often perceived as a risky, last-resort option that is less acceptable than desalination or imported water, DPR projects have been derailed in the past by outspoken public opposition groups. Addressing these concerns and perceived risks early in the planning process is critical for a successful DPR project.

Key Findings

Common public concerns, and recommendations for addressing them, reoccur across four main themes:



QUALITY & SAFETY: Perception that the water is clean, safe, and free of any harmful constituents like chemicals or pathogens



EDUCATION: Raises awareness and allows residents to make an informed decision around the use of DPR in their community



EMOTIONAL RESPONSE: Known as the "yuck factor", characterized by a visceral aversion to drinking potable reuse water

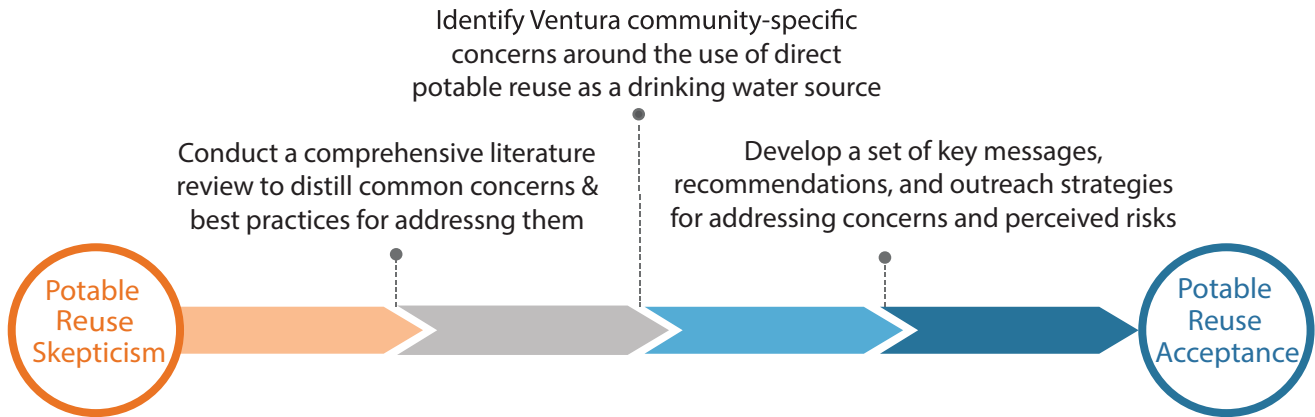


TRUST: Level of confidence in the water authority's ability to maintain health and safety protocols throughout the DPR process



Approach

This project examined extensive ongoing research in water science, psychology, communication, and existing potable reuse case studies to investigate public barriers, perceived risks, and best practices for DPR outreach. Our project developed a series of outreach strategies aimed at increasing public awareness and acceptance of DPR as a drinking water source in Ventura, through three steps:



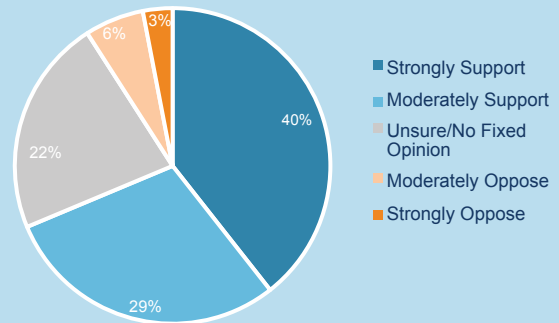
To ensure any recommendations we made were adapted to a Ventura audience, we also developed and distributed a survey to over 250 Ventura residents, which identified specific local concerns and gauges public opinion of DPR in Ventura:

Support for Potable Reuse in Ventura:

Encouragingly, the majority of Ventura survey respondents indicated moderate to high levels of support for the use of DPR as a drinking water source in their city.

At the same time, over 30% of residents feel unsure or oppose the use of potable reuse water - and even in small numbers, opposition can pose a barrier to implementation if left unaddressed.

Q: How do you feel about adding potable reuse water to Ventura's drinking water supply if it was treated to the same quality (or higher) as regular tap water?



Key Findings

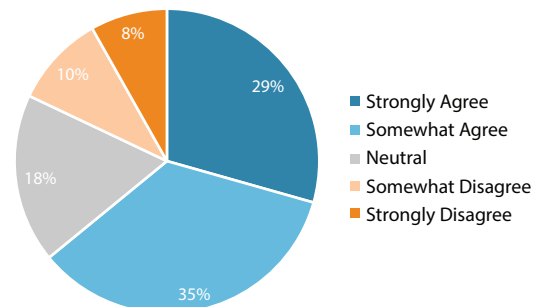
We identified four critical components to overcoming public concerns and perceived risks to the use of DPR in Ventura. Addressing these concerns will help build greater acceptance of DPR as a drinking water source:



Quality & Safety

The most common concerns listed by Ventura residents were the potential presence of pharmaceuticals, viruses, and other chemicals in the water. Educating the public about the treatment process and monitoring protocols to ensure none of these contaminants are present in the water is important for increasing support.

Q: I feel that potable reuse water is clean enough to drink.





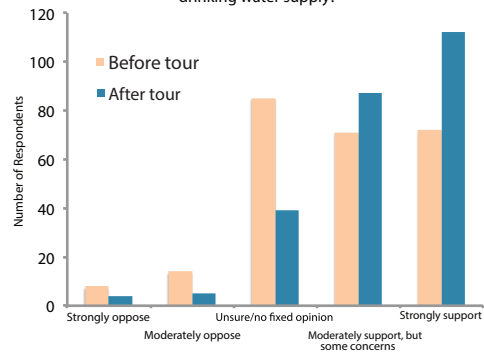
Findings (continued)



Education

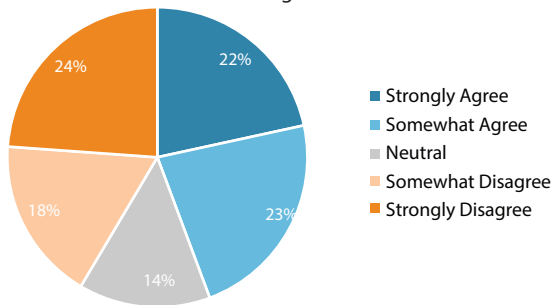
Potable reuse is an unfamiliar topic for many audiences, so **information about the process** should be the first piece of education water authorities offer. Tours of Ventura's DPR demonstration facility were shown to significantly increase levels of support for DPR after participants learned details of the treatment process and safeguards that are in place.

Q: How do you feel about adding recycled water to our drinking water supply?



Emotional Response

Q: The source of potable reuse water does not impact my comfort in drinking it.



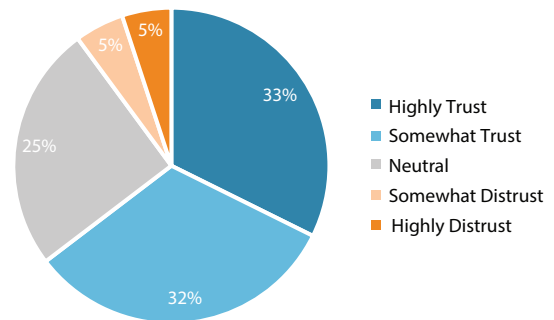
A negative response to recycled water, also known as the **"yuck factor,"** is based on emotional reactions rather than on facts. Even though all water on earth is recycled in some way, many have an instinctive aversion to drinking water that is not considered "natural" - such as purified wastewater. Research indicates the importance of focusing on the rigorous treatment process, rather than source, to overcome this barrier.



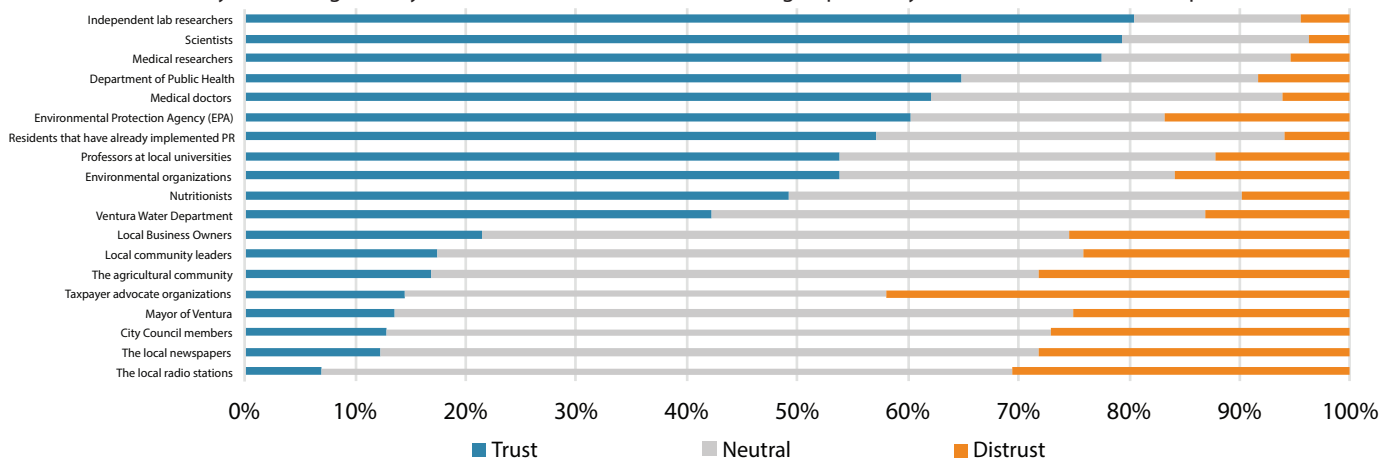
Trust

Trust in water authorities shapes public opinion on water reuse, including perception of **water safety and treatment system reliability**. Therefore, strategies to increase trust in Ventura Water – in particular, frequent distribution of transparent information on the reuse process, monitoring protocol, and water quality results – are an important component of our recommendations. In addition, Ventura survey respondents found independent third party sources, such as **scientists and medical professionals**, most trustworthy for information about DPR.

Q: How much would you say you trust Ventura Water to provide safe drinking water?



Q: Please tell us whether you would generally trust or distrust each of the following to provide you with information about potable reuse water:





Outreach Recommendations

Case studies, along with public perception research and best communications practices, served as the foundation for our recommendations, which we then tailored to Ventura-specific concerns.

Our primary recommendations include **easily-implementable strategies** such as sharing basic information and establishing transparency in the short-term; as well as **longer-term initiatives** to build trust and maintain credibility.

Top Recommendations

Example



Develop a clear explanation of the need for DPR.

"Purified water enhances water supply reliability and helps protect us from droughts by diversifying supply sources—keeping us from relying too much on any one source of water that may run low in a drought. Currently, DPR is the best solution for meeting this need."



Promote examples of potable reuse success stories.

"Orange County's potable reuse project began in 2008 and provides enough water to meet the needs of nearly 850,000 residents every day"



Highlight the role of external experts in developing, implementing, & overseeing the DPR process.

"The water is then treated through reverse osmosis, where it is forced through membranes that remove salt and microorganisms, including viruses, bacteria, and most chemicals of emerging concern."



Develop a clear explanation of the DPR treatment process.



Provide opportunities for public participation early in the DPR planning process.

See our report for a complete list of recommendations.



Conclusions

It is encouraging to see overall levels of support for DPR as high as 69% from Ventura resident surveys - an indication that the community understands the need for a sustainable, long-term, drought-secure water source.

At the same time, opposition from Ventura residents who feel unsure or unsupportive of DPR - even in small numbers - can pose a barrier to project implementation. To overcome this potential opposition, it is important that Ventura Water familiarize itself with community concerns in order to best address them moving forward. Our recommendations lay the foundation for an effective outreach strategy, aimed at increasing public acceptance of DPR, mitigating public opposition, and setting the stage for successful implementation of DPR in Ventura.

Acknowledgements

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Citations

Millan, M., Tennyson, P., & Snyder, S. (2015). Model Communication Plans for Increasing Awareness and Fostering Acceptance of Direct Potable Reuse (p. 260). WaterReuse Research Foundation.

For more information, visit <http://venturapotablereuse.weebly.com>