

A Legitimate Reason to Have a Beer

Microbrews give communities a taste of high-purity potable reuse



By Rick Warner and Barry Liner

Beer is a product that everybody likes to talk about. The explosion of microbreweries around the United States gave Clean Water Services (Portland, Ore.) an idea for a program to start conversations about the reusable nature of all water. The utility began partnering with Oregon home brewers in 2014 to brew beer from reclaimed water to demonstrate that water should be judged by its quality, not its history.

Sustainable Beer Smackdown

The utility produced a batch of high-purity water that far exceeds safe drinking water standards and provided it to local home brewers. The beers, using the Pure Water Brew brand, were featured at WEFTEC 2014 and WEFTEC 2015 as part of the Sustainable Beer Smackdown. Each successive year, the Smackdown has gained new contenders. In September 2016, at the WEFTEC 2016 Innovation Pavilion, Hillsborough County in Florida introduced its New Water Brew, joining Clean Water Services and the Activated Sludge beers from the Milwaukee Metropolitan Sewerage District and The Water

Council (Milwaukee, Wis.). In addition, CDM Smith (Boston), in partnership with the Water Replenishment District of Southern California, served up an Indian pale ale called the FAT Californian, named after the full advanced treatment (FAT) model of treatment for potable reuse applications.

This year, the Reuse Beer Smackdown dovetailed nicely with the release of the WEF Water Reuse Roadmap, a collaborative effort by WateReuse (Alexandria, Va.), Water Environment & Reuse Foundation (WE&RF; Alexandria, Va.), and the National Water Research Institute (NWRI; Fountain Valley, Calif.). Such efforts serve to engage industry professionals, public leaders, and imbibers everywhere in this conversation about clean water, not only for its role in health, but also in supporting big and small businesses.

The importance of legitimacy in reuse

While the beer events are fun and engaging, the most important aspect of these efforts is the focus on creating an authentic conversation with the larger community about water quality. These conversations are the cornerstones of a sociological concept known as “legitimacy.”

Legitimacy is more important as communities consider reuse projects, particularly potable water reuse. Reuse projects have often been met with public opposition, despite having

proven that the technology and water quality meet or exceed drinking water standards. Oftentimes, technical professionals such as engineers and scientists believe the public will accept new technologies when it is provided with information through marketing and public education. Such outreach efforts need to be authentic to achieve public support.

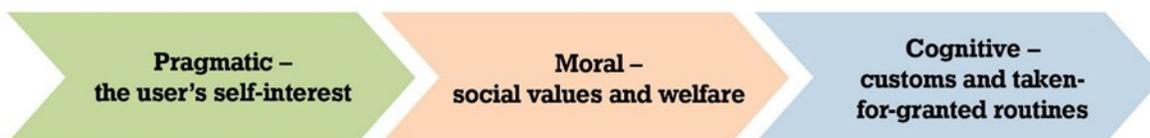
Three levels of legitimacy need to be addressed to have a successful project.

- The Pragmatic level focuses on the user’s self-interest, seeking to answer questions such as “How do I benefit personally?” and “How am I involved in the decision-making process?”
- The Moral level deals with social values and welfare, addressing questions like “How is quality and process safety guaranteed?” and “Is the organization trustworthy?”
- The final level, Cognitive, deals with customs and routines that are taken for granted. “Does the technology fit with my daily life?” and “Is the technology essential, with no feasible alternatives?” are examples of the inquiries that community members need answered.

Orange County and Nevada strive for legitimacy

One example of how legitimacy can produce successful results is the Orange County Groundwater

Three Levels of Legitimacy



Replenishment System in California. Through its dedication to the outreach efforts, utility managers were recognized as trustworthy and competent experts in the community. (Learn more in the publications listed in “Further Reading”). Taking the lessons that Orange County learned to heart, a northern Nevada utility values legitimacy as part of a feasibility study that may someday lead to Nevada’s first potable reuse project.

Essentially, the feasibility study must show that every aspect of the treatment train is robust and redundant. The utility takes full ownership from the home lateral to the final compliance testing, ensuring the public it should have the full confidence in the water utility. This also includes looking carefully at pretreatment ordinances, collection systems, resource recovery treatment processes, and the most advanced water purification processes.

One cornerstone of the feasibility study is a demonstration-scale project. Not only will this project show that treatment technologies are able to perform and meet stringent regulations, but community leaders and the general public also will be able to visit and see water purification processes in action. The public will be able to meet with the utility’s operations and laboratory staff, and these events will showcase the agencies’ technical skills and dedication to quality and also give the utility an opportunity to interact and share ideas with customers.

Building trust and confidence with each community is vital. The Northern Nevada Regional Effluent Management Team driving this feasibility effort includes representatives from the City of Reno, Truckee Meadows Water Reclamation Facility, Truckee Meadows Water Authority, the City of Sparks, Washoe County, and the Northern Nevada Water Planning Commission. It is an exciting time to be in the water business, and the Northern Nevada Effluent Management Team demonstrates that utility leaders take the trust the public has afforded them very seriously.

Rick Warner is a senior engineer at Washoe County, Nev., and President of the Water Environment Federation (Alexandria, Va.). **Barry Liner** is director of the Water Science & Engineering Center at WEF.

Further Reading

Binz, C., S. Harris-Lovett, M. Kiparsky, D. L. Sedlak, and B. Truffer (2016). “The thorny road to technology legitimation—Institutional work for potable water reuse in California.” *Technological Forecasting and Social Change* 103: 249–263.

Harris-Lovett, S.R., C. Binz, D.L. Sedlak, M. Kiparsky, and B. Truffer (2015). “Beyond user acceptance: A legitimacy framework for potable water reuse in California.” *Environmental Science & Technology* 49(13): 7552–7561.

Jordi, Andres (2015). “Legitimacy—The key to successful implementation.” *Eawag Aquatic Research News*, October 2015. https://www.eawag.ch/fileadmin/Domain1/News/User_Acceptance_englisch.pdf.

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Local beers created by utilities and microbreweries were showcased at WEFTEC 2016. (Photo: Water Environment Federation)