

By Neda Simeonova



Raising a Glass to Reuse

Modern desert cities around the world, such as Phoenix, Tucson, Las Vegas, Dubai and Cairo, undoubtedly raise many questions about their sustainability and excessive dependence on non-renewable resources that place much stress on the environment, specifically water availability.

Because of their arid climates, the amount of surface water available can vary dramatically from year to year, season to season and place to place.

So how do states such as Arizona plan for their water future?

According to the Arizona Department of Water Resources' "Securing Arizona's Water Future" report, the state uses approximately 6.96 million acre-ft of water annually. Seventy percent of that water is used for agriculture, 8% for industry and 22% for municipal use.

While the state relies on four key categories of water supplies—Colorado River water, other surface water sources, groundwater and reclaimed water—treated effluent, or reclaimed water, has become an increasing water source for the state.

Tucson Water was one of the first water utilities in the nation to recycle water, treating it for irrigation and other non-drinking uses. The city has been producing and delivering reclaimed water that is treated specifically for applications such as irrigation, dust control and industrial uses since 1984 to nearly 1,000 sites.

The use of reclaimed water in the state offsets the use of drinking water and currently is a significant part of Arizona's water budget. To ensure the proper and safe use of reclaimed water, the quality of all reclaimed water is closely regulated by the Arizona Department of Environmental Quality and the U.S. Environmental Protection Agency (EPA).

In addition to Arizona, an increasing number of communities located in drought-impacted states are engaging in discussions about the possibility of using recycled water to meet potable demands as well. The advances in treatment technologies not only are increasing the use of recycled water throughout the nation, but making the idea of augmenting potable water resources with recycled water more palatable.

Unfortunately, recycled water regulations and standards currently are developed and implemented only at the state government level, and lack of coordination between the states has resulted in various recycled water standards across the nation. According to EPA's 2004 Guidelines for Water Reuse, 26 states have adopted water recycling regulations, 15 states have guidelines or design standards, and nine states have no regulations or guidelines. Additionally, communities looking to recycle wastewater face numerous challenges—cost being the primary concern—however, treatment of wastewater for specific applications may address some of these cost concerns.

States such as Arizona, Florida and Texas are recognized leaders in the use of reclaimed water and reuse programs; and hopefully, as the idea continues to take root, water-rich states also will consider developing water reuse programs.

High-performance treatment, balanced with appropriate end use requirements, quickly is turning this once poor-quality wastewater into a valuable resource, delivering safe, reclaimed water for various applications.

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