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Liquid Assets: Water Recycling

BY [BOB NIEMAN](#) | Jun 29, 2009



First, the big picture. The United Nations estimates that by 2025, two-thirds of the world's population will face periodic and often severe water shortages. And the problem is not limited to the developing world. Here in the United States, water managers in 36 states are predicting significant shortfalls within the next decade. Even in regions that do have sufficient supplies, aging infrastructure, inadequate treatment facilities and contamination pose more problems.

Want more? Consider these stats:

- According to the World Bank, fresh water will become the natural resource most likely to cause wars in the 21st century.
- Only 1 percent of the Earth's surface is suitable for drinking water – and this is increasingly at risk from pollution. The rest is undrinkable salt water and glacier ice.
- If the entire world's water were represented by a one-gallon bottle, the amount that could be consumed safely would equal one tablespoon.
- The average household uses 250,000 gallons of water each year.
- The EPA estimates 180 billion gallons of water are used by hotels each year.
- It takes 40,000 gallons to make one car.

- It takes 50,000 gallons to make rayon for a living room carpet.
- It takes 1,000 gallons of water to grow one pound of food.

All life is dependent upon fresh, clean water supply. However, less than 2 percent of the entire water supply is available for consumption and use. As a result, cleaning water for reuse is an effective way to maintain water quality and supply.

Recycling conserves fresh water for drinking and other uses. It benefits the ecosystem, including plants, fish and wildlife, because less fresh water is removed from streams, rivers and other bodies of water. It reduces the cost to transport water from remote locations and helps maintain water supplies in our underground aquifers. It reduces and prevents pollution by decreasing the wastewater discharged to the environment. Sustainability of wetland's and related ecosystems can be greatly enhanced through the practice of recycling and reusing wastewater.

Recycled water can satisfy most water demands, as long as it is adequately treated to ensure water quality appropriate for the use.

Water Recycling in the Coin Laundry Industry

Narrowing our focus, coin laundry operations also are facing unique water challenges as municipalities impose increasing restrictions on wastewater discharge and limit the volume of city-supplied fresh water to operations. What's more, impact fees can make starting up a new laundry in certain cities financially restrictive.

And, of course, utilities – including water – are the single greatest expense when it comes to the operation of self-service laundries.

According to Aqua Recycle, a Georgia-based company that installs commercial water reclamation systems, the major benefits to laundry owners include utility savings and reduced impact fees.

“Water usage is drastically reduced by reclaiming and treating 100 percent of the wastewater,” states the Aqua Recycle Web site. “Approximately 10 percent of the total water used in the wash process is lost through evaporation, and an additional 5 percent is used for backwashing the filters. The net amount of water recycled and sent back to the washing machines is 85 percent of the washing machines total water intake.”

Also, as municipalities struggle to provide adequate sewer capacity to accommodate urban development, incentives are provided in some areas for large-volume water users to conserve water and reduce discharge.

Therefore, with a combination of reduced impact fees, substantial water and sewer savings, and reductions in energy costs to provide hot water, recycling can provide coin laundry operators with much-needed financial relief, as well as new opportunities to grow their business.

But how well does it work in the field?

To be honest with you, it doesn't fit it very well,” admitted Jeff Lebedin, president of Aqua Recycle, which to date has installed his systems in four self-service laundries. “There are a lot of issues that have to be dealt with. First of all, you usually have a large number of small washers [in coin laundries] and nobody really has an idea of how often they're being used, and there are peaks and valleys.

“The way you recycle laundry wastewater – at least the way we do – is very quickly,” he added. “And it takes 10 minutes to go from wastewater discharge to recycled water back into the washing machine. That way you retain all of the heat, and it supports itself in terms of taking that wastewater and getting it back to the washing machine without having to use a lot of city water makeup.

“For most coin laundries, the busiest time is from Friday afternoon to Sunday night. Therefore, you have to size the system based on its highest peak. Sometimes it's hard to get the payback that you're looking for because it's not running continuously seven days a week like a hotel or a healthcare facility, where they're feeding the monster on a consistent basis. You're not going to generate the kind of savings that you would because basically you're only running them at peak capacity for three days out of the week and the other days they're running quite a bit less.

Water Recycling Benefits

Clearly, the benefits of water recycling include water savings, energy savings, sewer discharge savings and environmental savings.

“Most of the places where we install systems are where they're getting hammered with high impact fees,” Lebedin said. “A lot of times, they can put in a system that will pay for all of their impact fees, and that will pay for the system immediately.”

Many states also offer energy rebates, so there may be opportunities to save money and have your city help pay

for your recycling system. This can be especially helpful when building a new store, where, in some markets, new laundry facilities are getting zapped with impact fees on a per-machine basis.

Michael Greene – who built Green Apple Laundry in Seminole, Fla., from the ground up last year – included an Aqua Recycle system in his new 4,800-square-foot facility. Thus far, he has noticed its impact on his monthly utility bills.

“It certainly has helped from a water efficiency point of view,” Greene said. “And I’m warming already-warm water, so I save a little bit on the gas side, too.

“Definitely investigate it closely,” he advised other owners who might be considering installing such a system. “Over time, certainly in some water-strained areas, we’re going to see higher water rates. In Florida right now, we’re still under drought conditions, and they’re thinking of jacking up water rates for businesses at least while drought conditions remain. Under that scenario, the payback really speeds up. Also, in some areas of the country, it might be a real marketing and public relations plus, depending on the local demographics.”

Whether or not to install such a system depends heavily on water rates in your particular marketplace, as well as on the requirements of the government, added Greene, whose system cost him in the “low six figures.”

“Look at the economics of it,” Greene noted. “It will work for a large, high-volume laundromat, but it’s still a rather significant additional expense. The best scenario is if you’re building a coin laundry from scratch or doing a significant renovation. Set up the plumbing for it, but wait until your business gets close to the breakeven point before you make the investment.”

Water Recycling Challenges

One of the major challenges facing water recycling systems in the coin laundry environment revolve around the uncertainty of what’s being washed on a day-to-day basis, as well as what’s being used to wash these items.

“Our success is based on our ability to manage the chemicals that go into the washing machine and also to manage what is getting washed,” explained Lebedin, whose smallest recycling system tarts at about \$50,000, not including shipping and installation. “Our customers are normally hotels, healthcare facilities and correctional institutes that have a consistent amount of linen going through them every day – bed sheets, pillow cases and towels. And most of it is fairly clean; you might have some food and beverage stains, but it’s usually a small percentage.

“When you get into coin laundries, you just don’t know what people are going to bring in. You get people who don’t want to wash their diapers at home so they bring them to the laundromat. You’ve got restaurants that are washing all of this greasy, oily stuff through there. You might have somebody tie-dyeing T-shirts in the machines. You just don’t know.”

And the other big “unknown” is the form of detergent used in a self-service laundry’s washers. A lot of laundry customers use powdered soaps to clean their clothes, and these products are tough on recycling systems.

“Powdered soaps are very corrosive, and they contain a lot of suspended solids that are hard for our system to filter through, so we require laundries with our systems to have somebody monitoring that,” Lebedin said. “You have to have an attendant there. We require everybody to use liquid soaps.”

All in all, Lebedin sees four major stumbling blocks to recycling water in a self-service laundry setting.

“In general, coin laundries don’t fit our profile,” he said. “Number one, it’s often owner-operated. Number two, the owners are usually not that technically capable of managing the equipment and conducting the maintenance on their own. Number three, we are concerned about the types of items that are being washed. And, number four, the customers are using residential chemicals that are not designed properly for recycling, so we have to add additional chemicals to keep the system from potentially going septic or smelling.”

Lebedin added that, while water recycling can certainly work effectively in a coin laundry, he doesn’t want to put his company in a position where there are going to be problems after the installation.

“We try to manage it on the front end and saying, ‘OK, if you want to do this, you’re going to have to do this, you’re going to have to do this and you’re going to have to do this,’” he explained. “We don’t want anyone to think this is a plug-and-play. We are taking wastewater, removing all of the contaminants and reusing it in the washing process. You have to take some really responsibility for that. It’s not plugging in a TV where you’ve got 300 channels instantly.”

Negative customer perception is another huge hurdle currently keeping water-recycling systems from becoming more commonplace in the industry. According to a number of laundry distributors, although such systems work well, a large percentage of laundry customers are still squeamish about washing their clothes in recycled water.

Indeed, rather than heralding the fact that they're running environmentally conscious operations, some laundry owners with such recycling systems prefer to not advertise this information at all.

"In terms of how the system has helped my business, other than the cost savings on the water, I can't say for sure," Greene explained. "As much as I've had positive reactions from customers, I've also had some negative reactions. Some people just don't understand the need to save water or that the technology exists to recycle water effectively."

"Your competitors can use the fact that you're recycling water to their advantage by telling customers that they won't get as good a quality wash with recycled water," Lebedin admitted. "They can use it as a negative connotation, rather than a positive one."

The Future of Water Recycling in this Industry

So what is the future of water recycling in an industry that clearly needs this type of technology?

"My feeling is that it has got to come from the coin laundry industry, rather than us," Lebedin said. "One of the things that we'd like to see the coin laundry industry do is start buying washing machines that have automatic chemical injection, rather than everybody bringing in whatever they will."

According to Lebedin, the chemical aspect is one of the biggest issues, regarding whether or not water recycling will become widely accepted in the self-service laundry industry.

"Until the coin laundry industry addresses how the linens and clothes are being washed, we will face this challenge," he said. "People think, 'Hey, the more detergent you put in there, the better the wash.' So coin laundry customers put a lot of junk into the machines that isn't necessary. Sometime down the road, instead of laundry customers buying their own and putting it in there, laundry owners should start charging people X amount, which includes the detergents and everything that's needed so it's something that is controlled by the laundry operation and not by the customers. I think that would take it a long way."

Lebedin said he would like to see the industry become more proactive as far as water recycling within its stores.

"I think, down the road, there may be some regulations, as water continues to be a problem," he said. "It would help to see the coin laundry industry itself try to self-regulate one way or another in terms of controlling some of these variables before government officials start coming in and dictating it."

"As these municipalities continue to run out of money and as their facilities continue to deteriorate, they're going to require businesses to chip in more and more," he added. "And you're going to see water and sewer rates continue to rise. You're also going to see more and more regulations stating that laundry owners can't discharge this kind of stuff without treating it first, one way or the other. Things going to change and the more the coin laundry industry addresses it before it is addressed to them, the better chance it has of avoiding problems."

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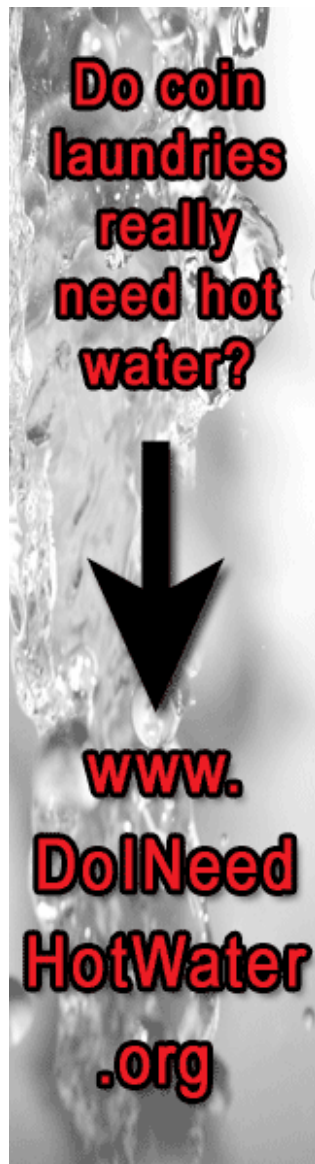
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