

MillerCoors focusing on water conservation



Michael Sears

Kim Marotta, director of sustainability at mega-brewer MillerCoors, oversees water conservation efforts at the company's U.S. breweries. Water management has become a strategic priority at MillerCoors.

With stressed U.S. water supplies posing long-term peril to its production, MillerCoors is focusing on sustainability

*By John Schmid of the Journal Sentinel
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Crack open a beer and what ripples out is 95% water.

Water quality determines taste. Water is why beer ads tend to mythologize springs, glaciers and aquifers. It's why the MillerCoors brewery in Milwaukee ranks as the biggest user of water in the metro region.

Yet the vast preponderance of water that creates a cold one isn't added at the brewery. Rather, it irrigates the fields that produce beer's next most critical ingredient: barley.

Today, MillerCoors, along with others in the water-intensive brewing industry, is confirming what scientists and environmentalists already figured out: The golden age of cheap, seemingly limitless supplies of fresh water is at an end, even in the world's most developed nations.

"No water, no beer," says Kim Marotta, who oversees water policies at MillerCoors.



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An internal inventory following the 2008 joint venture that combined the U.S. operations of SAB Miller and Molson Coors revealed that three of the venture's eight major U.S. breweries — those in central Texas, southern California and the flagship Coors facility in Colorado — rely on water sources that were already at risk of being overstretched.

The internal audit didn't stop at the breweries. It also found that many of the barley farmers who supply MillerCoors operate in water-stressed regions of Colorado, Montana, Idaho and Wyoming.

"Barley is to beer as grapes is to wine," Marotta said.

So almost overnight, MillerCoors began implementing water conservation strategies at its breweries — not just those deemed most vulnerable, but even in water-abundant Milwaukee. It added valves, sensors and systems that reduce water use. It reorganized workers into "sustainability councils," joined forces with nonprofits like the Nature Conservancy, and moved to the front lines of the conservation crusade.

Also, because the non-water 5% of a beer — basically, the barley and hops — requires torrentially more water to grow and malt than what's added at the brewery, the brewer became enmeshed in agriculture and crop irrigation methods.

All told, it takes [300 barrels of water](#) on average to produce a single barrel of beer, with only three or four of those barrels added at a modern, efficient brewery.

The growing and malting of barley thrust Marotta's water sustainability teams into the heart of the most serious water issue that confronts just about any economy: Agriculture guzzles far more fresh water than all homes, industries, swimming pools and golf courses combined.

Due to inefficient irrigation, like the jumbo center-pivot systems that douse indiscriminately in circular patterns and pump heavily from underground aquifers, agriculture is often the biggest waster of water as well. For many water activists, Exhibit A is the eight-state Ogallala aquifer that irrigates Nebraska, Kansas, Oklahoma and much of the nation's breadbasket. The Ogallala has been falling faster than it recharges for decades.

Irrigation showcase

In 2011, MillerCoors turned a barley farm in southern Idaho, one of its biggest suppliers, into a showcase of smart irrigation. The brewer gave a grant approaching \$1 million to the Nature Conservancy, whose irrigation experts transformed the 5,000-acre farm at the headwaters of Silver Creek into a testing ground for conservation technologies. They installed soil sensors with GPS satellite connections and smartphone apps, all designed to add water efficiently and only as needed. They redesigned the spigots and valves on the long arms of center-pivot devices for more-precise irrigation that also reduces evaporation waste.

The farm saved 270 million gallons in its first two years, enough to supply one of the large MillerCoors breweries for two months. Using the same model, MillerCoors has begun to introduce its watershed management toolkit to other barley farms in the most distressed areas of Colorado, Montana and Wyoming.

Most notable among them is the troubled San Luis valley of Colorado, a major agricultural basin and home to 150 malt barley growers who supply MillerCoors, including one farm directly owned by Coors. San Luis valley farmers have over-pumped the valley's groundwater for decades, in an area without regular rainfall.

MillerCoors' efforts are sure to spill into other industries, experts say. Since 1950, the world population has doubled. Over that same span, water demand has tripled as farmers intensify their efforts to feed those populations, industries expand, middle class affluence spreads in developing countries, and data centers and Internet server farms multiply and need to be cooled.

The [United Nations projects that by 2030](#) nearly half of the world's population could face a scarcity of water, with demand outstripping supply by 40%.

"It's an inevitability that industries in general are going to have to take water conservation more seriously and ignore their own water consumption at their own peril," said Russell McLendon, an environmental anthropologist and science editor at [Mother Nature Network](#), a leading environmental website. "Water is becoming more expensive in general."

The U.S. has avoided the most severe of the world's water bottlenecks so far. But a study by the Natural Resources Defense Council, a centrist environmental nonprofit, predicts that 1,100 counties — one-third of the lower 48 states — will [face higher risks of shortages by midcentury](#). "More than 400 of these counties will face extremely high risks of water shortages," it said.

MillerCoors says it has not been forced to throttle back beer production because of its water issues. But at its three at-risk breweries, it is confronting a welter of water complications that are foreign to anyone accustomed to the abundance of the Great Lakes.

Fort Worth, Texas

In the 1970s, this facility made history of sorts as the inaugural brewer of Miller Lite, the nation's first successful low-calorie, low-alcohol beer ("Great Taste, Less Filling"). It still ferments 9 million barrels of beer a year. But Fort Worth is in the middle of a Texas-sized population boom, and the brewery relies on the [drought-prone Trinity River watershed](#), the main source of drinking water for the populations of Dallas, Fort Worth, Houston— 45% of the Texas population, in all.

A 2011 drought was the worst on record for the region, said Ken Klaveness, executive director of the Trinity Waters conservation group. A system of reservoirs captures rainwater and uses pipelines to even out surpluses and shortfalls.

"Texas will not continue its economic growth at the pace it's used to without addressing its water issues," Klaveness said.

Fort Worth is where MillerCoors began its most aggressive conservation efforts. It has helped organize a consortium of 100 landowners, farmers and ranchers in the water basin who have signed onto a [protocol of conservation practices](#).

Irwindale, Calif.

Irwindale, about 20 miles east of Los Angeles, sits on an aquifer that was so depleted over the last century that a court stepped in 40 years ago to create a "water master" authority, which adjudicates allocations to each user. Even with carefully parceled out allotments, however, the water master often needs to purchase imported water to replenish the aquifer — most often from northern California or the Colorado River.

About a fifth of the water in Irwindale's basin is imported, using a system of large-scale conduits and pumps that are common in California, said Audrey Templeton, MillerCoors sustainability manager. Environmentalists say those water imports add to the cost of the water, as well as the prodigious energy used to pump it and all the greenhouse gases that go with that energy.

Adding to the headaches, California just ended its [driest year on record](#).

Unnatural water transfers over the last century in California mean that even the most attentive don't always know the source of their water. "California in many ways has continued to treat water like an inexhaustible resource, to the point that most people don't even think about, or aren't even aware of, where their water comes from," said Noah Garrison, a California-based staff attorney at the Natural Resources Defense Council who specializes in water issues.

Golden, Colo.

Adolph Coors founded the flagship of the Coors brewing empire in 1873 in this former gold rush town in the foothills of the Rockies. Under the system of Western water rights, which favor established users over newcomers, Coors grandfathered his brewery into private well rights.

Golden relies on the Clear Creek watershed, which is replenished by snowmelt from the Rockies. But mountain snowmelt is not evenly distributed on Colorado's semi-arid plains, and Golden is surrounded by a region that is water-stressed.

Templeton said MillerCoors drew up its list of at-risk locations based on a metric called "per-capita water availability." It did not provide the measure.

The city of Golden says it cannot monitor the Coors well, source of the slogan, "Brewed with pure Rocky Mountain spring water." But with an annual capacity exceeding 11 million barrels of beer, the Coors brewery is a major user — it's the biggest single brewery in the nation.

Like many cities in Colorado, [Golden actively encourages conservation](#), with a goal of cutting per-capita water use by 15% in five years. "Conservation is part of the culture we live with out here," said Dan Hartman, the city's public works director.

A water barometer

The brewing industry provides a natural barometer for the economic impact of global water issues. Between them, the parent companies of MillerCoors — SABMiller and Molson Coors — operate 206 breweries around the world that illustrate localized differences.

In arid South Africa, for instance, [SABMiller needs more than three times more water](#) to make Castle lager and Carling Black Label than the company's 1839-founded Plzensky Prazdroj brewery in the Czech Republic, maker of the world's first golden pilsener, Pilsner Urquelle. The reasons are almost exclusively related to irrigation, the company said.

Many breweries already made strides in lowering water use, according to the Brewers Association, a U.S. brewing trade group.

A little over a decade ago, the average brewery needed seven barrels of water to make one barrel of beer, including water to cool equipment and rinse kettles (but not including the exponential volumes used to nourish crops). Most breweries today are around a 5-to-1 ratio, with MillerCoors doing better than the industry average.

MillerCoors breweries range from its most efficient in Eden, N.C., at 3.1 barrels of water per barrel of beer, to its highest in Golden, at 4.1 barrels of water. The Milwaukee brewery uses 3.5 barrels of water per barrel of beer brewed.

Water conservation efforts also are underway at Anheuser-Busch InBev, brewer of Budweiser, Stella Artois and Guinness, the only U.S. brewing group bigger than MillerCoors. Anheuser-Busch has cut its water use by 19% since 2009, [according to its website](#).

Brewers overseas are equally protective of their water supplies. In Germany, the ancestral homeland of Milwaukee's brewery barons, the national brewery trade association rallied last year to defeat legislation that would have allowed hydraulic fracturing, a process of injecting water, chemicals and sand underground to pressure out oil and natural gas.

The association, the Deutscher Brauer-Bund, feared that "fracking" could endanger underground water supplies and argued that it would violate the nation's 500-year-old beer purity laws.

In the U.S., a group of more than three dozen craft brewers, including Lakefront Brewing in Milwaukee, launched a campaign last year to support new provisions meant to enable the U.S. Environmental Protection Agency to better enforce clean water laws.

Recent court decisions have undermined the EPA's watchdog role, they argue. Calling themselves "[Brewers for Clean Water](#)" and sponsored by the Natural Resources Defense Council, they are pressing Congress and the White House on new laws to safeguard water quality.

But an equally big challenge remains the prevailing mentality of many Americans, said Karen Hobbs, senior analyst for water policy at the Natural Resources Defense Council and lead organizer of the brewers' group.

"We turn on the tap and expect there to be clean water," Hobbs said. "We take it for granted."

<http://www.jsonline.com/business/millercoors-focusing-on-water-conservation-b99221942z1-250498381.html?r=7111F6593790E3R>