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Water conservation is essential – and easy
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Sustainability Desk

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On the western edge of Nebraska sits Ogallala, a small town of 5,000 souls. It is the namesake of an ancient aquifer that formed between two and six million years ago. In 1911 the aquifer, which at that time contained a volume of water equal to the Great Lakes, was first tapped to irrigate western farmlands.

In the space of 100 years, the Ogallala aquifer has been reduced to 25% of its original volume, never to be replenished. Though improvements in irrigation technology have extended its life, it is certain to be depleted in our children's lifetime. Demand for food, however, will not be depleted, and the demand for water to supply that food resource will grow simultaneously with the aquifer's diminishing agricultural output. The fact that the Ogallala supplies irrigation water for 20% of the nation's agricultural output should concern us all.

The Great Lakes contain 90% of the open fresh water in North America, and 22% of the world's fresh water supply. President George W. Bush signed the Great Lakes Compact in October of 2008, a triumph of international cooperation, diplomacy, conservation, and recognition of the value of the Great Lakes as a national treasure. But all bets are off when we are faced with the need to shore up a collapsing agricultural system and a hungry populace.

In Michigan we have a special responsibility to demonstrate to the rest of the world what good water stewardship is really all about. If we value this national treasure at our shores, we have an obligation to lead the nation in water conservation technology, use, and quality. This is a tall order for a region where water is so abundant, and the supply is so cheap.

What can you do? How about cutting your water bill in half without changing your habits or noticing a difference in the way you use water? Or, if you want to dig deeper, you can make some fundamental changes in the way you use water at work and at home. Let's start with changing water consumption by design. The U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) guidelines has a number of recommendations.

The low-hanging fruit includes installing flow restrictors on faucets and showerheads. New aeration technology reduces flow by as much as one-half to a quarter of older versions without a noticeable difference in flow rates. You can install one-half-gallon-per-minute (gpm) flow restrictors on lavatory faucets, and 1.8 gpm shower heads for significant water savings with no perceived change in performance.

Newer toilets with "dual flush" controls will reduce your flush fixture water use by as much as two thirds. Don't reduce flows on faucets that do hard labor, like kitchen faucets, laundry sinks, and garden hoses. If you want to fill a bucket, you won't want to stand around longer to get it done. Be practical.

Change your landscaping ethic. Find nurseries that specialize in native species, which have spent millions of years figuring out how to live in this climate without irrigation. Take out sections of lawn and replant with natives. They have the added benefit of reducing your required amount of mowing and fertilizing. There are even some species of grasses called "no mow" that grow between 3" and 6" tall. Properly planned, native plants will also draw butterflies and birds.

For those who irrigate intensively, this type of water use is 60% of their water bill. Available new controls can monitor soil moisture conditions, tie in to weather stations, and shut off your system if it's raining. A savings of 50% is not uncommon with a modest investment in controls technology. Or invest in more efficient delivery technology. Drip irrigation systems in combination with some of the controls and low-moisture plants may provide irrigation water savings in the 75% range.

Feeling creative? Harvest rainwater. Yup, just like grandpa did on the farm with the old cistern. Today we have many different gadgets to capture and reuse rainwater, which is free and can be used for more than just irrigation. Harvested rainwater can also be used to flush toilets, wash the car and even heat and cool your building (as they do at the new Grand Rapids Public Museum).

We have a serious problem with storm water. Having paved much of "Paradise," all of the hard surfaces in Michigan flow directly into our streams and rivers, carrying large volumes of water and pollutants. That's why we are seeing more spring flooding. Building codes have changed since the 1970s to require storm water retention on commercial properties, and over the next decade we can expect to see requirements for storm water treatment.

A number of design elements can be implemented to reduce and treat storm water runoff, starting with rainwater harvesting. The re-use of the resource captures a volume of water and prevents it from being released in a single rain event. Instead, it is stored and released as part of a building function.

Another option is the installation of a vegetated roof system. A green roof looks great, absorbs rainfall, keeps a building cooler, provides habitat, produces oxygen, extends the roof's life, and reduces the amount of storm water piping you must construct in a commercial project.

Rain gardens are now common for treating parking lot storm water discharge. Soil and plant materials are used to absorb pollutants deposited on parking lot surfaces. Using native species, these gardens look beautiful while providing natural habitat.

Another approach is to challenge assumptions about how much business parking you really need. Parking codes are designed to meet worst-case scenarios; green design is about best-case scenarios. Get creative about resolving parking issues, and reduce the number of spaces you need or want on your property. Zoning

officials are more receptive to a good argument for reduced parking capacity for many reasons.

These are design changes you can do that require no changes of custom or practice. Now if you want to change some basic habits, try these: Set a timer for five minutes for a shower. Turn on the shower to get wet, turn it off to lather up, turn it back on to rinse off. Don't run the faucet while brushing your teeth or shaving. Live with a brown yard in August. Only run full loads in your washer and dishwasher.

The future looks grim for water resources on a global scale, and Michigan stands on the shores of a potential conflict within a generation. If we value the Great Lakes, we must articulate the means to resolve water resource issues in the face of this abundance. That the volume of this national treasure could be depleted in the span of a century by diversion to agricultural use would be unimaginable, and irresponsible. We must chart a course that establishes a sustainable use for these precious waters for generations to come.

The U.S. Green Building Council is a coalition of leaders from across the building industry working to promote environmentally responsible, profitable and healthy places to live and work. The West Michigan Chapter provides and develops leadership through affiliations and education at all levels. Please send comments and column proposals to chuck.otto1@gmail.com

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