

GLOBAL MIDWEST POLICY BRIEF

Ideas to ensure the Midwest's success in a global era

The Midwest's Liquid Gold

by Sammis B. White

(Editor's Note: The Midwest's greatest natural resource, ranking with the fecundity of its soil, is the vast freshwater richness of the five Great Lakes. So far, most attention has been paid to preserving the Lakes – both legally, through the Great Lakes Compact that governs diversion of water from the Lakes, and environmentally. But now, Midwestern cities and states are beginning to explore how the Lakes can be used as an economic resource, both by companies making freshwater-related goods and by companies that need a reliable source of fresh water for their business. Milwaukee, and especially the University of Wisconsin at Milwaukee (UWM), is pioneering this freshwater thinking. Sammis B. White, a professor of urban planning at UWM, has been a leader in creating both the Milwaukee-7 Water Council and the trail-blazing UWM School of Freshwater Sciences. The Global Midwest Initiative asked Professor White to describe what's happening in Milwaukee – and, especially, how the rest of the Midwest can climb aboard.)

Many parts of the world are realizing and waking up to the growing demand for fresh water. According to Global Water Intelligence 2010, the water industry already is a \$483 billion worldwide industry and will grow 10 percent to 14.9 percent per year between 2010 and 2016 in the U.S. and several other countries. (To put this into perspective,

biotechnology is currently a \$270-billion-a-year industry.)

The Great Lakes, which hold no less than 20 percent of the world's accessible fresh water, are a vital resource both in the Midwest and globally. Already, the Great Lakes are an enormous economic boon to the Midwest – as a source of water, moderator of climate, transportation alternative, recreational center, property value enhancer, and source of fish. This alone demands that the water quality and quantity of the Lakes be enhanced and protected.

The region took a giant step when it created the Great Lakes – St. Lawrence River Basin Water Resources Compact and ratified it in December 2008. The Compact includes eight U.S. states (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin) and two Canadian provinces (Ontario and Québec.) This communal effort, which gave the Great Lakes states and provinces legal control over use and diversion of the Lakes water succeeded because the U.S. and Canadian state, provincial, and national governments recognized the importance of collective action to protect this key resource.

But this is only the first step toward enhancing the value of the Great Lakes. The Lakes and many of the rivers and smaller lakes adjoining them have suffered from generations of abuse. Our grandparents and

parents made mistakes that are still felt today in contaminated sediments, inadequate wastewater collection systems, and limited fisheries. Those mistakes are still being made today. We continue to allow the introduction of invasive species, enlarge urban runoff, permit growing amounts of phosphorous, and even dump pharmaceuticals (Prozac, estrogen, naproxen, antibiotics, etc.) and personal-care products into the region's waters, generating ever-growing concentrations. The so-called "dead zone" in the Gulf of Mexico, where runoffs down the Mississippi River have created an 8,500-square-mile area affecting aquatic life, is the best-known example.

It is obvious that the Great Lakes region needs now to meet these challenges to make the Midwest a more durable place to live and do business. But beyond that, the Midwest has the chance here to do well by doing good. The opportunity exists to develop the solutions to these problems and then sell them to other, equally challenged regions around the globe. The global potential market for water technology and advice clearly is there, if the Great Lakes region can find the economic resources to meet it. This could mean a double gain: cleaner waters and more jobs and higher incomes because of the sale of water technology and policy solutions.

Milwaukee's Initiative

Four years ago a small group in Milwaukee – mostly business leaders but also academics, water experts, and economic developers – began to assess one of the city's great historical legacies: a number of local firms that had built their businesses around water solutions. This group realized that several area businesses, such as brewers, tanners, and food processors, first located in the Milwaukee area because of access to good, fresh water. As these firms grew and urban water problems grew, the water-using businesses needed more sophisticated equipment to utilize the available water. From this need grew companies such as Badger Meter, Fleck, Flygt, Milwaukee Valve, and many others that designed and built pumps, valves, meters, filters,

membranes, controls, heaters, coolers, tanks, dehumidifiers, leak detectors, software, and the like. Firms that cleaned water and waste water for both municipal and industrial markets, such as Procorp, Sanitaire – now part of ITT, and U.S. Filter/Envirex – now part of Siemens, also developed and grew.

The Milwaukee group first thought the area had about 50 water-related companies. But as it dug deeper, it found the number to be over 120 firms, including five of the world's 11 largest water firms involved in water solutions. Such a number of firms added up to a true industrial cluster, an asset that could and should be built upon.

The group organized the first Water Summit in 2006 and asked anyone who was interested to come discuss the notion of a water industry cluster. About 65 people attended. The cluster clearly was there, and so was the interest. This led to a more concerted effort to learn about the region's water assets.

As the search for water firms continued, so did a search for other assets. The Milwaukee group assessed the region's academic strengths in water research and learned that the region's universities housed more than 110 freshwater researchers. These researchers come from a wide variety of disciplines -- biology, biochemistry, chemistry, civil engineering, ecology, geology, and a variety of combinations. Added to these were others in disciplines such as architecture, engineering, law, and urban planning.

In addition, more than a dozen large and professional engineering firms in the area focused on solutions for water problems. These firms worked not only on municipal water challenges but on the water needs and problems inherent in dairy, paper-making, metal plating, food processing, non-woven fiber, and a long list of other industries. We learned that resources in the region went well beyond just manufacturing.

The Milwaukee group saw the potential and became more organized. Milwaukee and its seven-county economic development organization, M7, formalized the Water Council as a 501(c)3 corporation. It began

an assessment of what else would be needed to grow this cluster.

The Water Council

First, more talent was needed. The region already had a number of engineering programs that contribute to the talent. What is more, two of them are expanding. One, the University of Wisconsin-Milwaukee (UWM) engineering program is expanding by two-thirds, adding 40 new faculty members. Apart from this are many undergraduate and graduate programs in biology, chemistry, ecology, geology, among others -- all involved in some way in increasing understanding of water and developing solutions.

A major, if little known, asset is the Great Lakes' largest water research organization, UWM's Great Lakes WATER Institute (GLWI). This institute has existed for more than 40 years, and has a staff of more than 100 researchers, professional staff members, graduate and undergraduate students, and technicians. (This summer's employment is 137.) It receives support from federal and state agencies as well as foundations and the Sewer District to explore freshwater problems and ecologies in the Great Lakes and in freshwater bodies across the world. Despite its record, few of the water firms in the region knew of its existence, much less its capacities to contribute to problems private firms were facing.

UWM is expanding and building on this asset by creating a new School of Freshwater Sciences around the GLWI. One of the Water Council's first efforts was to help build political support for the creation of this school. The efforts succeeded and the School, unique in the U.S., has been created. Its first two graduate degrees have been approved by the Wisconsin Regents, and the School is accepting its first graduate students for fall 2010.

The Water Council has undertaken many other initiatives and has helped turn Milwaukee into a world water hub. Here are some of them:

- Hired an industry-university liaison to promote joint interaction, and a full-time Water Council director;
- Applied to be and was accepted as a UN Global Compact Cities Program city with the responsibility of showing the world how to solve water problems;
- Sent delegates to Singapore, Stockholm, Brussels, and Amsterdam to spread the word on the Milwaukee water hub and its expertise in international water problems;
- Hosted water-related delegations from more than a dozen countries and opened discussions with international water organizations;
- Created five committees on industry-university collaboration, education, the UN's Global Compact Cities Program, global marketing, and economic development;
- Undertook the Water CEO Call Program to learn what water firms are doing and started identifying water resources (companies and researchers) in other Great Lakes states;
- Organized industry-university "mixers" which have led to the creation of an Industry University Collaborative Research Center sponsored by the National Science Foundation and other joint research ventures;
- Worked with the Milwaukee Regional Economic Development group to try to attract water firms, sought WAVE (Water Attracting Valued Employers) district incentive pricing for heavy users of water, and capitalized on the region's WIRED grant to build infrastructure for further talent development and engagement;
- Received a federal grant to develop a strategic plan for the Water Council and the region's water firms and developed efforts to speed new water firm development with initiative to develop finance funds; and
- Is on path to become the North American home of the Alliance for Water Stewardship (AWS), the world water standard setter.

In other words, a lot is going on, and the word on Milwaukee as a water hub is getting out. Proof of this reputation is the growing list of countries (e.g., Australia, Canada – Manitoba and Toronto, China, Jordan, Netherlands, Saudi Arabia, Singapore, and Vietnam), firms (e.g., Badger Meter, IBM, ITT, Kinrot, Microlam, Pentair, Siemens, and Veolia), and international water organizations (e.g., American Water Works Association, International Water Association, UNESCO, and the Water Environment Federation) which are engaging the Water Council and its members.

The Water Council effort involves hundreds of volunteers. Increasingly, other Midwesterners are asking what Milwaukee is doing and whether others can join in to solve their own current or future problems. One answer – and an urgent one – is to expand the geographic scale of Milwaukee’s efforts, to make the Midwest itself a water hub.

The Case for Great Lakes Cooperation

Great Lakes states share much – not only this vast freshwater resource and numerous freshwater problems – but the manufacturing capacity to address many of these problems and, equally important, strong research universities. Because of this, these states share the need to collectively develop solutions to both water and economic problems, as both are incredibly intertwined.

Milwaukee is showing that being a global water hub can work. It is becoming a place where others go to seek water solutions. As we’ve seen, Milwaukee is acting to build its assets and reputation.

But solutions for a half-a-trillion-dollar-a-year water industry cannot be supplied by one community alone. The 120-plus firms in southeastern Wisconsin are an asset, but they are not large enough to provide all of the answers. Furthermore, many of these firms already work with other water firms in Great Lakes states.

What makes sense, then, is for the Great Lakes states and their firms to organize to collectively provide

solutions for the global markets, while solving water problems on their own turf. All states can clean and protect their shared waters. In doing so, they also can develop solutions that can be marketed to others around the globe.

The Great Lakes is one resource and the Great Lakes states are one economy. The key to their future is to act as one. As Ben Franklin put it, “We must all hang together or assuredly we shall all hang separately.”

The same cooperation should be developed for water researchers across states. Expanding opportunities for joint research also expands the topics that can be examined and takes greater advantage of individual research strengths. There are seven other Great Lakes states – Illinois, Indiana, Michigan, Minnesota, Ohio, Pennsylvania, and New York. A quick survey of freshwater researchers at universities in these states revealed the presence of at least 200 experts, all working on water issues. Even more certainly exist and can be located once the case for cooperation has been made.

We made a similar survey, admittedly cursory, of water firms in the same states and found at least as many as in southeastern Wisconsin. The difference is that these firms are unconnected, working in isolation. They do not share research. They do not benefit from educational efforts aimed at developing talent. They never hear of opportunities for sales nor of opportunities for joint ventures.

These states – indeed, the Midwest itself – can do what Milwaukee has done. Local or regional organizations like the Water Council can help direct business inquiries, talent, and research proposals to the companies, enlarging their opportunities. It would also be a global beacon, bringing in firms and governments from around the world to seek their own water solutions in the Midwest.

Cooperative efforts could also push the U.S. Environmental Protection Agency to tackle specific problems that would not only improve water quality, but could develop more business opportunities. They could join with the Water Council to help develop the

best set of international water standards: the Alliance for Water Stewardship (AWS) is the global organization for setting these standards, and the Water Council is working to make Milwaukee the North American home for the AWS. They could work with multiple nongovernmental organizations to pressure federal and state governments to address priority water issues. The list goes on.

Milwaukee has a head start on all of such efforts but it doesn't want or need a monopoly on the future. It makes great sense for the Great Lakes region to join in these efforts to work both for environmental standards and business opportunities. The Water Council is leading the charge and, in so doing, is giving the larger region guidance toward success both in cleaning the region's water ways and creating global opportunities for the sale of a wide variety of water solutions.

State governments should facilitate this collaboration, which helps to enhance their water assets without unnecessary duplicate investment. Collaboration will result in more efficient allocation

of resources and more effective responses to the mix of needs for water solutions. With more firms cooperating supporting research, solutions will be developed and applied more swiftly in the region. Attention to common problems will help convince Congress that the nation itself will receive benefits from both a cleaner environment and more jobs and income.

If this can be done, other parts of the U.S., many of them growing drier by the day, will have more reason to look to the Great Lakes region as a resource for water solutions, not just a potential source of water. Collaboration – not the Midwest's historic and inefficient competition – is the key to the region's future.

Milwaukee can help in water-solutions because it is organized, well connected, experienced, and committed. We should listen, again, to Ben Franklin.

About the Author

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