

Water WORKS

Growing Michigan's
Great Lakes Opportunities

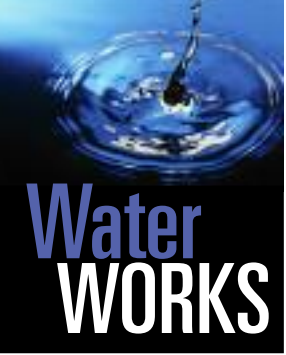
MICHIGAN LAND USE INSTITUTE • SPECIAL REPORT • MAY 2005

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SMART GROWTH WORKS



Sustaining Our INLAND SEAS

What's good for the water is good for Michigan's economy

IN THE RACE TO ATTRACT TALENTED WORKERS AND lure new economic opportunities, one of Michigan's great advantages is a robust water supply. As Ohio Governor Bob Taft put it: "Living in one of the Great Lakes states is a bit like winning the lottery. The jackpot is 20 percent of the world's fresh surface water. That's an incredibly valuable resource right here on our doorstep."

The big question is whether Michigan has the creativity, smarts, and will to base its economic future on a resource that most residents take for granted. How else to explain why the Great Lakes Basin continues to suffer from a host of familiar problems: Alien species invasions, over-pumped aquifers, and the widespread toxic contamination that stems from industrial discharges, fertilizer runoff, stormwater crud, raw sewage, and other pollutants?

This report, *Water Works*, is intended to move us beyond our static present to a point where the old problems are solved and a new arena of opportunity arises, one that is based on using our splendid supply of clean fresh water in new and sustainable ways. For almost a year, the Michigan Land Use Institute has scoured the state for evidence that we are not alone in envisioning and securing a new future by helping to put the Great Lakes to work in more productive ways that reduce business costs, save tax dollars, and transform Michigan's economy.

Boosting Profits, Equity, and Ecology

Water Works reports that, in select places, industries and elected officials are going back to the well and again putting pure, fresh water at the center of strategic thinking about bolstering Michigan's prosperity. Pioneering industrialists like executives at Ford Motor Company, we discovered, are proving that smarter approaches to conserving the quality and quantity of water increase their competitiveness. They are retrofitting factories to reduce water needs; slashing the chemical use, energy demands, and wastewater disposal costs that come with those needs; and saving real dollars.

Urban leaders are rediscovering that water works to make their cities more attractive places to live and labor. They reclaim waterfronts buried in their industrial past and transform them into sites for new homes, businesses, and recreational opportunities.

Entrepreneurs find that in an age that



prizes information, inventing ways to better manage, conserve, and clean water works to generate new economic opportunities. They now pursue venture capital for their fresh, innovative projects.

Taken together, the work of these progressive business and civic leaders form the foundation of a growing movement to establish *sustainability* as the central organizing principle for water management in the Great Lakes Basin. Sustainability is both a philosophy and a practice. It means a form of

development that is able to continue indefinitely, simultaneously boosting profits, building social equity, and enhancing, rather than steadily degrading, the natural environment.

Water Works concludes that viewing water resource development through this three-dimensional lens is essential to achieving a higher quality of life. Such thinking comes none too soon. Michigan alone lost nearly a quarter of a million jobs since 2000; business and municipal costs are rising; revenues are shrinking and budgets are busting.

But another, worldwide challenge provides an opportunity for reversing Michigan's downward trend, asserts

abundance amidst increasing fresh-water scarcity.

Water Works in Michigan

Water, as most Michiganders know, has always worked for Michigan. Wild swamps fattened the beavers that made fortunes for trappers in the territory's early outposts. The roaming rivers and inland seas delivered the lumber, goods, and industrious people — teachers, farmers, craftsmen, and inventors — who anchored the heartland of the new nation. Streams and groundwater sources gave rise to the growing communities, farms, and famous factories that built, defended, and propelled the United States.

shrinks quickly in the face of the projected repair bill for just one major metropolitan sewer system: Fixing Detroit's, for example, will cost at least \$26 billion and is utterly necessary to guarantee the healing that Congress proposes to finance. What's more, the proposed funding does not address human development practices that still steadily degrade the Great Lakes.

The fundamental problem is that Great Lakes governments, Michigan's included, fail to aggressively advance an ethic of water use and development that is able to sustain the region's economy, culture, and environment.

During her 2002 gubernatorial campaign, Democrat Jennifer Granholm called for advancing a pattern of water use that benefits both the economy and ecology. The previous year, Michigan's Great Lakes Conservation Task Force, which was chaired by Republican Senate Majority Leader Ken Sikkema, acknowledged that changing the mindset about the importance of improving Great Lakes stewardship was perhaps the greatest challenge facing state policymakers.

Water Works is a tool for helping the governor and lawmakers achieve both goals. Great Lakes policymaking has stalled in Michigan because an underlying principle of the debate holds that what is *good* for the water resource is *bad* for business. *Water Works* makes the case that, ultimately, what is *good* for water is *good* for business and the economy. The report documents examples of how the traditional approach to water use and protection is changing in ways that simultaneously lower corporate costs, minimize the price of government, safeguard state waters, and strengthen communities.

Michigan can join and significantly advance this important new movement by developing the modern vision, rules, and investment strategy that enable present-day water users to take advantage of the resource while better protecting it. Doing so ensures that the liquid gold that make us truly the world's Water Wonderland remains available in a clean, affordable, and robust condition for future environmental and economic needs. ■



MLU/Bruce Giffin

Plans are afoot to restore and sustainably redevelop Lake Michigan's south shoreline

Water Works. Abundant sources of pure fresh water are increasingly rare. Globalization, climate change, and population increases are pushing up the demand for fresh water and the technologies to keep it fresh. *Water Works* argues that if the people of the Great Lakes can maintain the superior quality and quantity of the basin's water resource — which forms 90 percent of the United States' and one-fifth of the world's freshwater reserves — the region could become an oasis of

Water is destined to continue to play a vital role as the region's economy and culture evolve. Michigan invested more than \$917 million between 1992 and 2001 in programs designed specifically to restore and protect Great Lakes water, according to federal figures. In November 2002, Michigan voters approved a \$1 billion bond to help repair outdated sewers and protect state waterways. Now Congress proposes to invest as much as \$6 billion to restore the Great Lakes.

But that seemingly generous sum

It's a SHORE THING

Cities rediscover, restore their long-ignored waterfronts

THE RACE TO REMODEL THE RUSTBELT IS ON. Detroit is revving up bulldozers to raze cement factories towering over the Detroit River. Gary is gunning to tear down the abandoned steel factories loitering next to Lake Michigan. And Cleveland is awaiting the green light for overhauling the busy Memorial Shoreway speeding along Lake Erie.

These and other projects clearly signal that lakes and rivers are taking on a new role in the region's changing economy. As the Industrial Era gives way to an era where knowledge, not natural resources, is king, urban leaders across the Great Lakes Basin are hustling to clean up riverfronts, restore lakefronts, and reorient their communities around newly healthy and accessible waterways. They are planning, and in some cases already beginning, to invest billions of dollars to demolish rusting factories, redesign roadways, rehabilitate harbors, and even move mountains (of coal) that still dominate long-abandoned waterfronts. And they intend to replace them with the offices, retail shops, housing, and recreation and entertainment venues better suited to a modern economy.

East Chicago Mayor Robert Pastrick succinctly summed up the sea change sweeping across the Great

Lakes Basin: "At one time, we considered Lake Michigan our back door," Mayor Pastrick told *The Northwest Indiana Times* on October 29, 2003. "Today we consider it our front door."

Driving the basin-wide push are economists' predictions that those places with the best quality of life will prosper in the global, 21st-century marketplace. No place in the world can offer a water experience like the Great Lakes, so a growing number of local leaders are convinced that an appealing waterfront will lure visitors, workers, families, and new businesses to their towns.

"We are going through a major transformation," said David Ullrich, director of the Great Lakes Cities Initiative. "You can go from Rochester to Buffalo to Erie and Cleveland and Toledo and Detroit, Chicago, Gary, Milwaukee, Duluth and there are really billions of dollars worth of waterfront assets that are ready for redevelopment."

Goin' Mobile

The back-to-the-waterfront movement is history repeating itself. It was, after all, lakeshores and riverbanks that spawned the Great Lakes' storied American cities in the first place: The Frontier Days, the Lumber Era, the Industrial Revolution. Each marked an evolution of the Great Lakes society and depended heavily on safe harbors, broad rivers, and plenty of water.

The Digital Age will be no different. Information is today's chief raw material, just as beaver pelts, timber, and copper drove past economic eras. But there is a critical difference: Information is completely mobile. So the new era measures a region's competitive advantage by its ability to attract talented workers, generate innovative ideas and creative services, and export them worldwide.

"Jobs are not so much tied to ports and minerals and transportation systems, but rather to intellectual work, which can take place anywhere," said Bill Testa, vice president of the Federal Reserve Bank of Chicago. "More than ever, people want to live and work near the water. Work location has increasingly become more footloose and fancy-free. Jobs follow people. And people go where life is good."

That is why citizens, civic leaders,



Detroiters are working on a \$110 million river walk that will ramble from the Ambassador Bridge to the Belle Isle Bridge, pictured here.

philanthropists, and industry leaders throughout the basin are racing to make their waterways more accessible and inviting.

Cleveland and Gary: Making Waves

“We look at Lake Erie as an opportunity,” Cleveland Mayor Jane Campbell said at a May 5, 2004 Great Lakes conference. “If you want a glimpse of Cleveland’s historic relationship to the lake, go to the Holiday Inn Lakeside. You will see that the parked cars have a lovely view of the lake. The parking garage faces the lake! This gives you a clue of where we were about 35 years ago. But now we have turned our eyes to the lakefront.”

Today, Cleveland is finishing a historic 50-year strategic plan to transform eight miles and 3,000 acres of isolated, gritty lakefront into a hub of recreational, residential, and commercial activity. Highlights include a proposed \$50 million transformation of the Shoreway expressway into a slower, pedestrian-friendly boulevard; construction of 10,000 units of new residential housing; and \$360 million in port improvements.

“The lakefront is not just a place to go and look,” Mayor Campbell said. “It’s also a place to work. Maritime activity supports about 10,000 jobs in Cleveland.”

A similarly ambitious plan is tak-

ing shape at the south end of Lake Michigan. Five communities, including Gary, Ind., are developing the Marquette Greenway Plan. The greenway would consolidate a shrinking steel industrial base; develop condos, restaurants, and lakeside shops; and convert 75 percent of the 45-mile shoreline to public use.

“Gary is in dire need of attracting people, new businesses, and growing the economy,” said Dorreen Carey, environmental coordinator for Gary’s Department of Environmental Affairs. “We used to be a big, muscle-bound steel town. But things have changed. And things that once were overlooked, like Lake Michigan, are now gaining new importance.”

“If we do the lakeshore right, people will be begging us to develop next to it,” added U.S. Representative Peter Visclosky (D-Ind.), a strong supporter of the Marquette Greenway Plan.

Motor City: Rollin’ on the River

A similar downtown turnaround is unfolding in Detroit, where public and private investments along the Detroit River reached \$250 million as of March 2005. Projects include a \$25 million riverside plaza and promenade addition to General Motors World Headquarters, and the \$5.8 million Tricentennial State

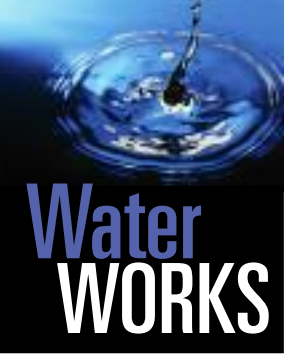
Park, Michigan’s first urban state park. The non-profit Detroit Riverfront Conservancy was established in 2003 to construct and maintain a five-mile-long, \$110 million public river walk that will ramble from the Ambassador Bridge to the Belle Isle Bridge.

The conservancy’s president, Faye Alexander Nelson, said the project would establish a sense of place for residents and visitors and help spur the rejuvenation of the metropolitan area.

“We believe that the redevelopment of the waterfront will stimulate the investment of hundreds of millions, if not billions, of dollars into this community,” the Detroit native said. “To be able to market a beautiful waterfront really adds value to your area.”

Indeed, marketers are already making new waves. A new “Michigan’s Beachtowns” campaign hopes to lure visitors to Lake Michigan shoreline destinations such as Ludington, Silver Lake, and St. Joseph. A “Michigan’s West Coast” promotional campaign hopes to brand the Muskegon-Holland-Grand Rapids triangle as a unique place to live, work, and play. And some Wisconsinites want to replace their “The Dairy State” motto with the more urbane “America’s Third Coast.”

Cities across the basin are getting ready to roll. Their race begins at water’s edge. ■



Waste Not, Want Not, BOND NOT

Even when water's plentiful, conserving it saves plenty of tax dollars

TWO GOLDEN MILES OF LAKE MICHIGAN BEACHFRONT. Many miles of wooded hiking and cross-country ski trails. Stunning sand dunes that are among the largest gracing any fresh-water lake in the world: Saugatuck Dunes State Park is one place that makes Michigan a magical Water Wonderland.

But a proposal by the City of Holland and Laketown Township to build a water pumping station in the pristine public park is threatening Saugatuck's calm beauty. Unfortunately, the plan also typifies the outdated, tradition-bound approach most officials across the entire Great Lakes Basin are using to govern water use.

Citizens were stunned when they heard about the Saugatuck proposal in 2002, even though local officials used very straightforward arguments: Their town's existing Lake Michigan pipeline is nearing full capacity, area population is rising, and local aquifers are either too small or too polluted to do the job. So, they concluded, the best way to meet future water needs is to punch a new pipeline through the delicate Saugatuck Dunes into the mighty Great Lake.

"At some point in time this community will need additional water," Holland Mayor Al McGeehan said at a



Smart water use could nix the need for building a water pipeline and pumping station in Michigan's Saugatuck Dunes State Park.

December 15, 2003 community forum on the issue. "It could be five, 10, 20, or 100 years from now. But the reality is that at some point we'll have to access additional Lake Michigan water."

Ironically, Michigan residents have long feared that it would be the parched people of distant lands like Arizona,

California, and Asia that would build gigantic pipelines and siphon off the Great Lakes. But, plainly, the most immediate challenge facing the region's waters is much closer to home. Instead of scrutinizing and managing current demand, basin communities continually rely solely on finding new

Michigan's freewheeling approach lowers water tables, sparks small water wars, runs up municipal water costs, and tells thirsty regions that Great Lakes water is free for the taking.

sources of water, adding more pumps, constructing ever-larger pipes and



Costs for building and operating water utilities are escalating.

purification stations, and withdrawing ever more water.

But, across the country, tight budgets and, as the Saugatuck Dunes case illustrates, growing environmental concerns are driving citizens and public officials to think differently about water supply planning. As the costs of maintaining public water and sewer service escalate, astute leaders have begun to shift the focus away from an exclusive reliance on building more pumping plants and water mains and toward making existing systems more water-efficient.

The strategy helps smart municipalities reduce costs, support innovation, delay or even avoid capital projects, and maintain the vigor of natural water supplies. That new approach adds a new dimension — and opportunity for leadership — to the contentious debate about the proposed pipeline through Saugatuck Dunes.

“Ultimately, this is a water management issue,” said David Swan, a cofounder of Concerned Citizens for Saugatuck Dunes, a non-profit group formed to preserve and expand the park. “Seattle *rolled back* their water consumption to 1960 levels through water conservation, even as they added 400,000 people. It can be done.”

Conservation Always Wins

The experience of many cities consistently demonstrates that the thrifty use of water, scarce or not, will strengthen economies for homeowners, businesses, and governments alike. Some examples:

- Beginning in the late 1980s, the Delaware River Basin Commission in New Jersey pursued an aggressive, comprehensive water conservation program. Based on water metering, leak detection and repair, and more efficient plumbing

fixtures, the program lowered per capita water use by as much as 15 percent. The commission estimates that the water savings from low-flow toilets alone avoided \$300-\$500 million for new water supply and wastewater treatment facilities.

- Santa Monica’s Baysaver Plumbing Fixture Rebate Program, started in 1989, reduced water use by 15 percent and cut sewage flows by 16 percent. The program saved the city \$6 million in about ten years; local officials estimate a \$2 return for every dollar invested in the program.

- Leak repairs and water-saving fixtures installed at a 60-unit low-income housing development in Houston slashed water consumption by 72 percent. The \$22,000 project cut the complex’s monthly water and wastewater bills by about 80 percent, paid for itself in little more than three months, and will permanently save the development \$6,800 a month in water and sewage bills.

From 1980 to the mid 1990s, the number of Seattle Water Department customers grew by 20 percent. But metro area water needs essentially remained unchanged. With a modern plumbing code, rates designed to encourage conservation, and other pro-

grams, Seattle saved approximately 14 million gallons of water per day through the 1990s, and will save 21 million gallons more per day this year.

There are similarly significant opportunities throughout the Great Lakes. For example, the Detroit Water and Sewerage Department hemorrhages \$23 million and 35 billion gallons of treated drinking water each year due to aging and leaking infrastructure, according to a July 22, 2002 report in *The Detroit News*.

Proportionally similar prospects for savings abound in communities like Holland. The challenge lies in motivating conventional water supply planners to think more creatively. But, because so much water surrounds Michigan, traditional leaders continue to view water conservation as unnecessary, ineffective, and costly.

When these leaders change their approach from waste to conservation, a growing number of business executives, citizen groups, and policy experts will surely support them. They know that conservation is essential to both growing the state economy and protecting the region’s biggest drawing card: its prized waterways.

Many legal experts will embrace those changes, too, because they say it is the best way to defend the basin’s waters against exports to arid regions. Great Lakes governments, they assert, can best protect local supplies and retain authority over future water use by promoting efficient water use and establishing clear standards for all water withdrawals. These policies basically do not exist in most Great Lakes states. Adopting them will establish more durable supplies and assure, for good, an intense competitive advantage over other, very thirsty areas of the country and the planet.

Our Own Worst Enemy

Yet the reflex among officials of communities within or just outside the basin

Chicago's Water Works

WHEN CHICAGO MAYOR RICHARD DALEY MADE WATER stewardship a citywide priority, critics said business would suffer, taxes would rise, and jobs would run. As it turns out, the critics were exactly wrong.

"The situation is much clearer today," Mayor Daley told a conference of Great Lakes mayors in 2004. "We have learned that protecting the environment makes sense both economically and politically. We've learned over the past 15 years that you can actually save money on taxes, business, and household expense by basically paying attention to the environment."

The city's campaign to promote sustainable water use is a prime example. Chicago issued its Water Agenda 2003 to guide public decisions about water resource management. The plan's top priorities include educating citizens about the importance of the Great Lakes, improving urban stormwater management, and safeguarding water quality for drinking, recreation, and commerce.

The plan also emphasizes conservation. The city launched a five-year, \$620 million capital campaign to replace 50 miles of old, leaking water mains each year. When finished, the effort is expected to save 120 million gallons of water daily. That is 12 percent of the approximately one billion gallons the city purifies for its residents every day.

The city also began auditing industrial water users and providing interest-free loans to implement recommendations made to them. So far, inspections at 12 Chicago-area businesses have revealed they could save a total of 130 million gallons of water annually. That equals a financial savings of \$158,600 in purchase costs, based on the city's 2003 water rates, and an additional \$131,000 in related disposal fees.

The conservation strategy also pays off for taxpayers and helps government function more efficiently by reducing the city water department's operating expenses. "For every 20 percent reduction in city water consumption we see a \$1.2 to \$1.4 million savings due to decreased energy and treatment costs," said Joe Deal, a special assistant to Mayor Daley.



Chicago is becoming the Great Lakes' most sustainable city.

boundaries is to continue pumping more and more water from the Great Lakes ecosystem, mostly because they see it as the quickest, easiest way to satisfy their growing water needs. From tiny South Bass Island in Lake Erie to the booming suburbs of Milwaukee on the west coast of Lake Michigan, cities, townships, and villages are sticking more straws into the big lakes and digging deeper into aquifers to keep up with increasing demand. (See map next page.)

"We have seen the enemy and he is us," said Ron Kuehn, an influential Madison-based lobbyist who represented Wisconsin farmers in the negotiation of a new state groundwater use law.

Some communities surrounding Saugatuck Dunes, along Lake Michigan's eastern shore, offer prime examples:

- Several White Lake-area governments banded together in 2003 and spent \$10,000 to study whether pumping water from wells or from Lake Michigan would best supply future needs.
- In Muskegon, city officials expect to complete approximately \$20 million worth of repairs and upgrades to their municipal treatment facility this summer. The project expands plant capacity from 28 to 40 million gallons per day and extends the Lake Michigan-based water service into neighboring townships to stimulate new residential and industrial growth.
- South Haven recently ran another intake pipe into Lake Michigan. One end is connected to a new, natural gas-fired power plant that will use the water as coolant; the other end is in Van Buren State Park.
- The City of Wyoming, which uses Lake Michigan to serve some 200,000 customers, is executing a 15-year, \$100 million plan that adds treatment capacity, more powerful pumps, and another intake pipe in the big lake. The city did not consider either conservation or demand management as part of the project.

These and other projects explain why planning expert Michael Gallis declared in 2001 that west Michigan was on track to become one big "L.A. on the Lake." Public officials seem dead set on plumbing the entire region for a new megalopolis, while marketers hype the region as "Michigan's West Coast."

Such a freewheeling approach is lowering water tables, sparking small water wars, and running up municipal water costs in Michigan and parts of Ohio, Illinois, and Wisconsin. It also sends a dangerous signal that Great Lakes water is free for the taking. Until the prevailing attitude changes and communities adopt sustainable water practices, the state's economy will not reach its full potential. Meanwhile, special places like Saugatuck Dunes State Park — and the health and security of the Great Lakes ecosystem — remain at risk. ■

Arizona Is Not the Problem

A look at who is actually sticking straws into the Great Lakes

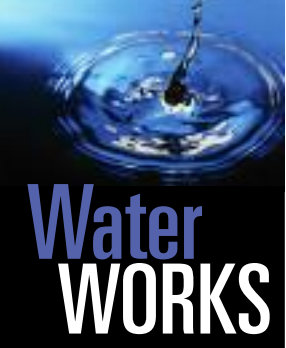


SOME AIM FOR NEW ECONOMIC GROWTH. Others mean to replace polluted sources with clean ones. And still others simply want to add new customers in order to rake in revenues and bolster budgets. Whatever the intention, though, demand for Great Lakes Basin water by municipalities within that vast watershed is growing without even the most basic standards in place to make sure all of that pumping is sustainable. This map shows a sampling of the communities that recently built or proposed new water plant capacity drawing from Lake Michigan. The basin itself is marked in dark green.

THE GREAT LAKES BASIN



Map copyright: MLUI/Doug Rose



Water
WORKS

Less Water Means MORE MONEY

By saving water, Michigan companies discover new profits

WHEN AN ENGINEERING INTERN FROM WESTERN Michigan University figured out a way to save E/M Coating Services thousands of dollars each year simply by recycling the company's wastewater, Joy Neumann, the company's environmental, health, and safety coordinator, said the proposed modification "was pretty much a no-brainer."

For the strikingly low cost of \$85 in pipe and a few hours of labor, the Shelby Township-based auto parts supplier could significantly reduce its water consumption, decrease the amount of wastewater it discharges to the Detroit municipal system, and save \$6,200 annually. The minor change, which involved rerouting the company's plumbing to reuse treated wastewater, also would enable E/M to cut chemical use by more than 20 percent, saving an additional \$5,300 per year on compounds like caustic soda and calcium chloride.

"They had maintenance doing it the next day," Ms. Neumann recalled.

E/M's experience demonstrates that, even in Michigan, a state surrounded by the largest system of fresh surface water on the planet, investments in more proficient water use can make

fiscal sense. In fact, across the Great Lakes State, a growing number of companies large and small are discovering that aggressive action to conserve water quality and quantity reduces their costs of doing business, enhances their corporate images, and increases their financial bottom lines.

Linking Wealth and Water

This promising movement comes as Michigan struggles to address two pressing issues that, taken together, seem polarizing: Ensuring the state's bread-and-butter manufacturing industry remains viable in the global economy, yet sustaining the health of the Great Lakes, which will power them for future generations.

Policymakers historically perceive efforts to secure a clean, robust water supply as a potential drag on economic

competitiveness. But mounting evidence from the factory floor suggests that improving water use efficiency pays off in the long run for companies, the overall economy, and the environment. Advancing water stewardship today not only keeps the resource strong and affordable for future business and community needs; it also can help industry operate more effectively and reduce costs, protect jobs, and enhance economic prosperity.

Most large water users in the state can improve their traditional water use practices and the overall effectiveness of their operation. But fully reaping the economic and ecological benefits requires innovation, investment and, as the intern



Sometimes installing one inexpensive new valve can save thousands of dollars.



Ford Motor Company is transforming its Rouge Center complex into the world's largest sustainable manufacturing facility.

discovered, thoughtful inspection.

“We’re in the middle of the land of plenty, so water, as crucial as it is, just is not always on the radar screen,” said Bill Stough, CEO of Sustainable Research Group, an independent consulting firm based in Grand Rapids. “It is not typically viewed as a big expense. And it’s rare to find a company that tracks water use or that has any sort of metrics to measure use or conservation. Consequently, they don’t

“If you’re producing waste,” said Susan Kelsey, a GM manager of environmental services, “you’re losing money.”

know how much they are using or what it’s costing them. Even though they get charged twice for every gallon — once on the way in and once on the way out.”

Success Stories

A handful of visionary business leaders are bucking that trend. Executives and employees at major companies like Ford Motor Company, Steelcase Inc., Herman Miller Inc., and General Motors Corporation have voluntarily begun to account more carefully for water that passes through their operation. They are discovering that more ecologically sustainable practices are compatible with bottom-line business goals. Consider the following:

- In 2003, Dow Chemical Company’s resource conservation plan reduced

water needs across its global operation by more than five billion gallons — including a two-billion-gallon reduction in annual consumption at its Midland, Mich., site — and saved the company approximately \$15 million.

- An audit of water use at one Michigan light manufacturing plant revealed the potential to reduce cooling water consumption from 19 gallons per minute to one gallon per minute and save the company \$6,500 a year.
- A Michigan packaging company slashed water use by more than 1.2 million gallons a year and saved \$5,300 annually.
- March Coatings Inc. invested in modern spray guns that allowed the company to reduce hazardous wastes by 7 percent, electrical use by 25 percent, and water and gas consumption by 15 percent.

Sustainable Water Use: 11 Steps

SUSTAINABLE DEVELOPMENT IS CATCHING ON IN Michigan. Across the state, more than 225 companies big and small are practicing the concept because it establishes a way to simultaneously achieve economic prosperity, build social equity, and add value to, rather than degrade, the natural environment, on which humans depend.

Two leaders of the global movement are the architect William McDonough and chemist Michael Braungart. In the tenth anniversary edition of their book, *The Hannover Principles: Design for Sustainability*, the authors write: "Designs should recognize the communal, cultural, historical, spiritual, and poetic possibilities of the use of water and its central role as a precondition for life."

More concretely, these visionaries say that architects, engineers, and developers should:

- 1. Carefully account for water throughout their entire design process.**
- 2. Protect water sources from contamination and carefully consider efficiency techniques at every step.**
- 3. Use potable water only for life-sustaining functions.**
- 4. Consider groundwater, rainwater, surface-runoff water, graywater, and any water used for sewage transport or processing systems within a cyclical concept.**
- 5. Return wastewater to the earth in a beneficial manner, using organic treatment systems whenever possible.**
- 6. Avoid groundwater contamination in any use of water related to the construction or operation of a project or facility.**
- 7. Consider rainwater and surface-runoff water as possible resources for inhabitants and building systems.**
- 8. Minimize impermeable ground cover.**
- 9. Treat and apply graywater to practical or natural purposes that fit its characteristics.**
- 10. Put water used in any process back into circulation, and minimize the use of toxic chemicals or heavy metals. All discharges of process-related water should meet drinking water standards.**
- 11. Restore water used for sewage treatment or transportation to drinking water standards prior to distribution or reuse.**

- General Motors' Warren Transmission plant recently installed a new water treatment system that tripled the efficiency of its water use and reduced annual water needs by 1.2 million gallons. The company also cut costs by \$2,200 a year.

General Motors actually cut overall water use at its Michigan facilities by more than 15 percent from 2000 to 2003. The Pontiac Assembly plant, for example,

Sustainable practices include using vegetation to naturally clean and store water.



slashed the amount of water purchased and sent back to the wastewater treatment plant by 52,000 gallons per year. The Orion Assembly plant dialed its water demand back 12 percent. And the Saginaw Metal Casting Operation began reusing more than 20 million gallons of treated wastewater every day, a change that also limited discharges to the Saginaw River.

"If you're producing waste," said Susan Kelsey, GM's manager of environmental services in southeast Michigan, "you're losing money."

No Magic Fairy Dust

The drive to eliminate wasteful water use and, by extension, cut costs is leading more companies to closely scrutinize their traditional water use practices, often for the first time. Companies in water-rich Michigan typically pay little attention to how water flows through their operation. But closer inspection often reveals some remarkably simple ways to use water more responsibly and save money.

General Motors, for instance, conserved more than nine million gallons of water at the Romulus Engine plant, in part, by throwing a switch from manual to automatic on a critical cooling process. The company also built the water pipes at the Lansing Grand River plant above ground to ensure leaks are repaired immediately. E/M Coating saw the return on its \$85 investment in new

Industry's ability to compete and succeed today is measured not necessarily by how much water a company can pump, but how smartly it uses water and other resources.

plumbing in less than five days.

"We just addressed a bunch of mundane kind of things," said Carl Ozar, an environmental engineer at Ford, about how his company cut water use at its Livonia transmission plant by 27 percent between 2002 and 2003. "There was no magic fairy dust. We did some leak detection, made some repairs, and began tracking the system on an ongoing basis. But we've discovered significant [financial] savings. What we're finding is that the initial purchase cost of water is not much. But the discharge fees can be substantial."

Since 2000, Ford lowered its global water consumption by 17 percent — more than 4.3 billion gallons — due to an aggressive conservation plan. The company claims the program also saved millions of dollars during that time.

That is because the costs associated with how much water an industry uses includes the energy to pump the resource, the various chemical packages to treat it, and the need to dispose of wastewater, according to Mr. Ozar.

Changing Times

Historically, heavy water use is not an issue in Michigan, which is flush with groundwater and surrounded by four of the five Great Lakes. Ready access to a world-class water supply — matched with the innovative spirit of America's hardworking heartland — provided the one-two punch that gave Great Lakes states a competitive edge over the rest of the industrializing world throughout the 19th and 20th centuries.

The region's economy continues to rely heavily on extracting vast amounts

of water to generate electricity, refine petroleum, and manufacture chemicals, steel, paper, cars, and other goods. But employing sustainable water use practices is increasingly important for the durability of the Great Lakes economy and ecology. Industry's ability to compete and succeed today is measured not necessarily by how much water a company can pump, but rather how smartly it uses water and other resources.

"These [water stewardship efforts] have significant implications for our ability to compete," said Ray Tessier, director of the worldwide facilities group at General Motors. "Competition in the global economy is intensifying. And we have to become more efficient and effective in how we use resources across the company. Innovation. That's the name of the game." ■

New Technology



Flush with Pride

IN 1992, THE UNITED STATES Congress revised national plumbing codes to require that men's room urinals use only one gallon per flush. Before that a typical fixture used about three gallons. Now, Falcon WaterFree Technologies is doing the 12-year-old code one gallon per flush better, and

No water necessary.

business is booming.

The company sells urinals that require no flushing whatsoever because they require absolutely no water. Urine simply flows through an innovative filter located at the bottom of the bowl. The devices are odor-free, cleaner than the typical porcelain potty, and are cheaper to install, operate, and maintain than conventional fixtures.

"Our urinals are a triple play," said Jay Troger, president of the company's U.S. division, which moved to Grand Rapids, Mich., in 2003. "They are proven more hygienic. They are

fantastic for the environment. And they save money."

Mr. Troger said his company's product also could help Great Lakes citizens address a grotesque and unhealthy problem: Swimming beach closures due to increasingly frequent sewage spills into lakes and rivers.

"Lots of cities are running out of waste treatment capacity, a very expensive challenge," Mr. Troger said. "So anything you can do to reduce the amount of water going into sewer lines and the treatment facility is good."

InnovationWORLD, a San Francisco-based research firm that tracks emerging new-economy industries, recently named Falcon one of 21 companies poised for global growth and success. The company's list of clients includes Daimler Chrysler, stadiums like the Rose Bowl, Western cities such as Beverly Hills, and India's Taj Mahal. Much closer to home, in the Great Lakes Basin, Michigan State University has made the water-free urinal the standard in new construction and replacements.

"The new fixtures are easier to clean, so we've experienced lower maintenance costs," said Gaston Gosselin, the manager of maintenance services at MSU. "They are more sanitary than conventional urinals. In new buildings, we can reduce upfront construction costs because you don't have to install the usual plumbing. And we've reduced operating expenses because you don't use as much water, or the energy to pump it."

The Ultimate WATER PARK

A new research and development industry could help world's water supply, state's economic development

A FEW YEARS AGO, TOM NEWHOF THOUGHT HE had an innovative strategy to lure high-tech jobs to Michigan and provide the world with new ways to clean and conserve water. But today the environmental engineer wonders what it will take to fund cutting-edge water research in the Great Lakes and continue modernizing the state economy.

A worldwide market for new knowledge and expertise that improve water resource management clearly exists. The World Commission on Water for the 21st Century, an international association of Nobel laureates, policymakers, and scientists, reports that 1.4 billion people on the planet now live without clean drinking water. The commission also found that seven million people die each year from water-borne diseases.

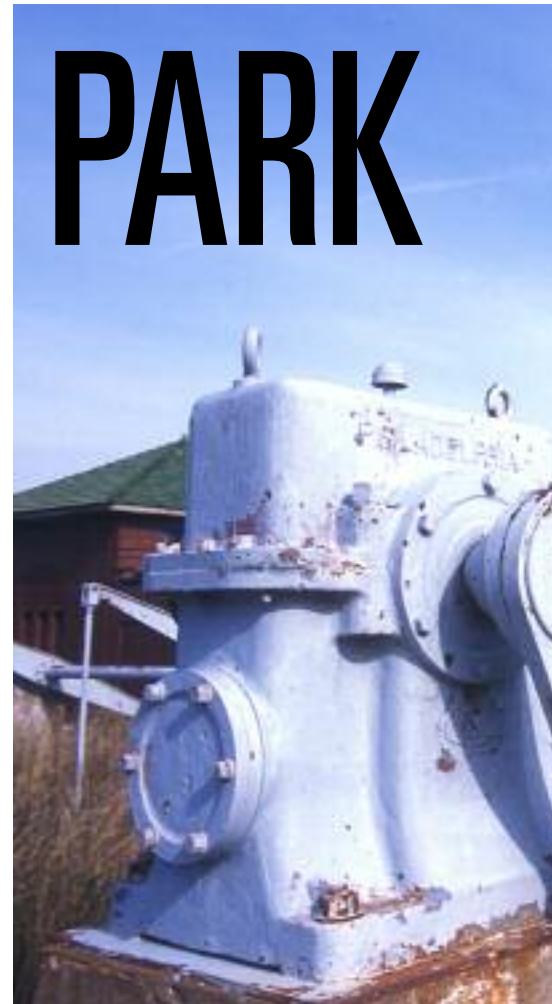
The search for solutions is becoming big business in the United States and abroad. The market for water engineering services alone jumped 25 percent in 1999. And a growing number of entrepreneurs see major market growth for new services and products that increase access to clean fresh water.

With this in mind, Mr. Newhof's plan to open a world-class water labo-

ratory in downtown Grand Rapids, Mich., seems like a promising, even exciting idea. The facility, which he has dubbed the Global Enterprise for Water Technology, would attract and incubate new-economy jobs by focusing on solutions to the incredibly complex problems now threatening the quality and quantity of the world's freshwater supply. But, so far, state economic development experts see little value in the idea. Mr. Newhof, president of the consulting firm Prein and Newhoff, has campaigned for the project since 2000, but has yet to attract any public financing.

The West's Leaders

Meanwhile, leaders in arid Western states are already pushing for advancements in water technology. Speaking at a



November 1, 2004 town hall meeting, Arizona Governor Janet Napolitano, a Democrat, counseled her state to “develop a culture of conservation.” She announced the establishment of a world-class center for water research that would not only ensure a sustainable supply of clean water for the state's growing communities, but would also develop knowledge and expertise that could be sold to other dry regions.

“[The center] will be a clearinghouse for new water management technology to be exported worldwide,” Governor Napolitano said, “thus creating a major new economic driver for Arizona.”

Arizona certainly has much to teach about innovative water stewardship. The state has figured out how to

more effectively recycle used water. Cities utilize innovative strategies to “bank” water underground and stretch limited supplies. And today the citizens of Tucson boast one of the nation’s low-

technology, research, and development. A significant portion of the money would fund efforts at the University of New Mexico and at laboratories in Sandia and Los Alamos, N.M.

due to tainted supplies.

Mr. Newhof is especially concerned about the changing nature of the contaminants in the water supply. He points to federal research identifying traces of contraceptives, human growth hormones, and other pharmaceutical substances circulating in the water downstream from municipal treatment plants — an indication that current treatment facilities are not successfully treating such compounds. His plan is to resurrect the Monroe Avenue Filtration Plant for a 21st-century encore that could help fix the problem.

The Monroe Avenue plant once set the standard for how a modern society provides its citizens with safe drinking water. When it began operation in 1912, the pioneering fortress of pipes and filters became only the second facility in the nation with special features for treating a public water supply. The plant quickly eradicated the typhoid fever epidemic then plaguing Grand Rapids. Its success — fever deaths dropped from 25 a year to less than two after the plant opened — led cities across the United States to adopt the new technology and defeat the dangerous disease.

“National experts say the Monroe plant and others like it made the greatest advance in medical science in the history of the world, including all the research on cancer and heart disease,” said Mr. Newhof. “They saved more lives than any other medical advance by stopping the epidemics of cholera, typhoid, and other water-borne diseases.”

“But the technology,” he added, “has stayed there for 100 years.”

Show Them the Money

Today, the stately red brick building that once stood at the forefront of scientific advancements to protect public health sits idle near the bottom of Health Hill, the world-class medical research hub that is Grand Rapids’ piece of Michigan’s booming, \$3 billion-per-year biotechnology business.

Mr. Newhof’s plan is to transform the long-abandoned Monroe Avenue plant into the Global Enterprise for



MLU/Bradford Ryder

A Grand Rapids entrepreneur wants to transform the city’s long-abandoned filtration plant into a water technology research center.

“As Michigan develops an information economy, it must include freshwater supply technology — for the Great Lakes and the world.”

est per capita rates for residential outdoor water use.

Meanwhile, Pete Domenici, the Republican U.S. Senator from New Mexico, introduced Congressional legislation in 2004 to authorize annual \$200 million investments in water supply

“After decades of neglect, it is time for water research to become a priority,” Senator Domenici said. “We can no longer afford to invest in water in drips and drabs when it is vividly apparent that water-related issues will create some of the most significant domestic and international dilemmas facing us this century.”

A Great Opportunity

Indeed, even communities in the water-rich Great Lakes Basin face beach closings due to sewage spills, user conflicts over plummeting groundwater sources, and public health concerns

Turning Effluent into Electricity

A KEY TENET OF SUSTAINABLE development holds that waste equals food. If that were the prevailing mind-



MLU/Bruce Giffin

Sewer overflows regularly pollute the Great Lakes.

set in the Great Lakes, raw human sewage would generate electricity and organic fertilizer, wastewater treatment plants would double as power stations, and Michigan residents would keep millions more of their energy dollars in the state each year.

Instead, municipalities handle sewage as a nuisance, and overflowing wastewater treatment plants regularly pollute the Great Lakes. In 2001, for example, sanitary sewer overflows pushed more than 281 million gallons of raw sewage into Michigan waterways. In 2002, officials reported sewage spills and broken sewer lines as the source of contamination for a total of 74 beach closings and swimming advisories at Michigan's Great Lakes beaches. With a May-through-September beach season, that works out to one closing or advisory every other day.

"We have sewage all over," said Greg Mulder, a power specialist with Coffman Electrical Equipment Company. "But the debate is about water pollution, not energy production."

Mr. Mulder pointed out that, using a technological tool called a digester, a municipal treatment plant serving approximately 10,000 people could

generate enough electricity to power as many as 75 homes. A digester converts raw sewage into electricity and benign byproducts like compost or livestock bedding.

If Michigan municipalities installed digesters in their wastewater treatment plants, they would generate both electricity and a substantial financial payback. The statewide economic implications are impressive, because Michigan spends approximately \$27 billion annually on energy. Most of that money — \$18 billion — leaves the state, because nearly all of the fuel that utilities burn for energy in Michigan comes from out-state sources.

"For every megawatt of [waste to energy] you make in the state you keep a half-million dollars in the state," said Mr. Mulder, who estimates that converting all of Michigan's sewage into electricity could produce more than 300 megawatts each year — enough to power more than 150,000 households annually.

But the digester — a tool that is more than 20 years old — has yet to catch on in Michigan; according to experts, engineers and power companies do not believe the technology works effectively.

But David Pueschel, a retired dairy farmer from St. Joseph County, Mich., said his digester "was a good-paying operation." He claims that the technology saved his farm \$130 dollars a day for 20 years — almost one million dollars.

"We need to look at manure in a different way," Mr. Pueschel said. "It's a product, no different than milk. And it can be a valuable product."

So can human waste. That is why the City of Grand Rapids, which has invested tens of millions of dollars to prevent sewer overflows into the Grand River, is now planning to install a digester.

Water Technology. Where others see weeds and blown-out windows, he sees a unique facility with huge water storage capacity that provides the ability to conduct industrial-scale research unlike any lab in the world. Teamed at times with the bioneers up on Health Hill, researchers at the facility would develop new ways to treat, distribute, conserve, and reuse water. They could also provide a boost for Michigan's badly slumping economy by establishing a foundation for more high-skill, high-wage jobs.

"The GEWT has the potential to attract researchers, scholars, and entrepreneurs from all over the world," said Mr. Newhof, who is president of the nascent Enterprise. "We've had contacts with several companies expressing interest in coming to the facility. One is U.S. Filter, a giant in the water treatment technology industry. Another is Osmonics, a leading filter manufacturer. The challenge is finding the financial resources to get the project started."

The struggle to find investment capital for the ambitious project reflects Michigan's ongoing struggle to grow new, technology-based economic opportunities. Governor Jennifer M. Granholm, a Democrat, tacitly acknowledged the problem in her 2005 State of the State address when she announced that "making our state a worldwide center of research and innovation" was now her top priority. Governor Granholm proposed a \$2 billion state bond to grow new jobs and make over the state economy for the Digital Age.

"This investment in Michigan's future," the governor said, "will allow us to transform the state that put the nation on wheels into the state that makes those wheels run on pollution-free fuel cells or bio-diesel technology; the state where research into alternative energies is done; the state where the clean technology is developed and where clean cars, products, and businesses are built. And Michigan, the Great Lakes State, could be the state that finally makes these United States independent of foreign oil."

Although some Republican leaders

Working with Nature

WHEN IT COMES TO DEVELOPMENT IN MICHIGAN, a state that began as a swamp, the instinct is to bulldoze a wetland or field, pave it over, and then try to control the stormwater it once naturally absorbed by installing costly pipes, pumps, and concrete retention ponds. But a growing number of residential and commercial developers are discovering the least expensive way to manage water and keep it clean: Let Mother Nature do the work.

"Michigan is a drained state," said Greg Minshall, president of Fitzgerald, Henne and Associates, a Lansing-based engineering firm. "We used to be a wetland. We can't replace those natural systems. But we can mimic them."

By carefully managing construction techniques, developers can utilize wetlands and other green spaces as valuable assets that store or absorb rainwater runoff and, acting like kidneys, purify and return the water to underground aquifers and nearby streams. According to Mr. Minshall, developers that do this can reduce the cost of building and maintaining sewers, sell quality homes at more affordable prices, and make their projects more attractive and easier to market.

"Our understanding has come along since the 1960s, when we used to discharge stormwater and sanitary sewage directly into rivers," Mr. Minshall said. "The challenge is that a lot of the old zoning ordinances don't recognize the value of these [new] strategies."

New ordinances can simultaneously improve water conservation and protection efforts and save tax dollars in all sorts of ways: Encouraging narrower roads and rights of way, allowing porous parking surfaces, and mandating projects with higher home and commercial building densities. Known in the industry as low-impact development, these practices

MLUI/Bruce Giffin



Using nature instead of paving it over pays big dividends.

are gaining popularity due to their common-sense appeal and indisputable economic and ecological benefits.

A July 2003 white paper prepared by the National Association of Home Builders finds, "the larger impervious areas created by wide streets have led to increased storm water runoff, reduced water quality, and riparian habitat and species degradation. They have also translated into increased design, construction, and maintenance costs for both developers and municipalities. Low-impact development practices can help alleviate these concerns."

The project could attract researchers and entrepreneurs from around the world. The challenge is finding the financial resources to get it started.

in the state Legislature attack the bond proposal, the goals outlined by the governor are laudable and realistic. As the skirmish over getting the initiative onto the statewide ballot continues, leaders on both sides of the aisle should also consider another goal that is just as laudable and realistic: Becoming the state that shows the world how to sustain a clean, robust, and durable supply of fresh water.

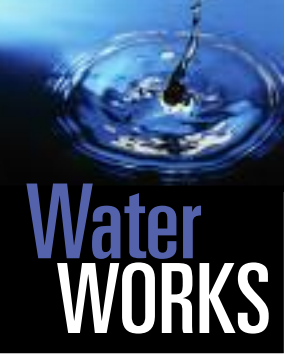
Given Michigan's growing medical research industry and long history of technical innovation, state incentives

and investments that help companies work on new ways to provide safe and affordable water supplies make perfect sense. In a special February 1999 report on biotechnology and water protection, the World Commission on Water for the 21st Century wrote:

"Water is becoming more scarce and more difficult to access. The biotechnological approach is becoming increasingly important in addressing the problems of water security facing agriculture, the environment,

and human health."

Targeting the development of this emerging industry is a groundbreaking opportunity to continue transforming the state's economy. Michigan is clearly shifting from an aging Industrial Era economic development model to one that meets the challenges of the 21st century. A strategy to expand the state's increasingly successful life sciences initiative also can help secure a fresh-water supply for the Great Lakes — and the world. ■



**Water
WORKS**

Making Sure That WATER WORKS

State must see water conservation as a vast opportunity, not a regulatory burden

THE BASIS FOR A PROSPEROUS SOCIETY IN THE Great Lakes will be industrial factories, farms, and thriving communities that use water in ways that celebrate, protect, and restore the natural resource.

But existing laws and regulations governing growth and commerce in Michigan are not designed to promote water resource development and management that simultaneously strengthens the economy and protects the ecology. State environmental agency managers write permits allowing factories to discharge toxic chemicals into rivers, while economic growth officials grant subsidies to private companies that sell pure water from the ground. This is not a winning strategy if the goal is to eliminate pollution and preserve abundant water resources.

As this report indicates, a new way of thinking about water resource development is gradually and organically emerging in the Great Lakes Basin. It reduces costs, safeguards waterways, and strengthens the region's economic competitiveness. The challenge and responsibility for the region's civic leaders is to understand this movement and establish an atmosphere in which it can flourish.

"The region continues to lack a detailed vision for a sustainable future,"

said George Kuper, president of the Ann Arbor-based Council of Great Lakes Industries. "A sustainable development plan for the Great Lakes region would ensure that our economic, social, and natural resources are available for future generations without compromising current needs."

Unlocking Lansing

Elected leaders generally understand and agree on the dimension of the challenges confronting the Great Lakes. Democratic Governor Jennifer Granholm's Clean Water Forever agenda, first introduced on the campaign trail in 2002, looks remarkably like the action agenda prepared in 2001 by the Great Lakes Conservation Task Force, which was chaired by Senate Majority Leader Ken Sikkema, a Republican.

Among other things, both plans call for new standards to manage large water withdrawals; improved sewage management; and reductions in the discharge of toxic chemicals into state waterways. That is all good news, but here is the problem: A report prepared

in 1987 by Governor Jim Blanchard's administration made many similar recommendations. Like the Granholm and Sikkema proposals, it continues to gather dust.

Lawmakers are unwilling to push innovative new policies to address the most pressing issues essentially because traditional business leaders want no part of new laws or rules. Michigan's top business associations repeatedly portray proposals to develop standards for conserving water quality and quantity as expensive intrusions into the private sector that will saddle companies with rising costs and sap the region's economic competitiveness.

Granted, responsible regulations to protect public health and the environment can add to a company's short-term expense. But viewing new water protections in terms of economic and ecological sustainability reveals that today's investments in heightened stewardship pay financial rewards, and sooner rather than later. Such investments reduce future public and private expenses and, because they encourage innovation while guaranteeing the quality of the resource, actually strengthen future competitiveness.

Right: Scott Fountain, in Detroit's Belle Isle Park, celebrates the abundance of the Great Lakes.



Nine Great Priorities

IN AN EFFORT TO ATTRACT INCREASED federal funding and guide the restoration and protection of the Great Lakes ecosystem, the governors of the Great Lakes states — Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, and New York — agreed on October 1, 2003, to nine priorities based on sustainable development principles.

“The Great Lakes are an economic engine that drives the national economy,” Ohio Governor Bob Taft said one month later. “They are the passageway through which American goods reach the global marketplace. The lakes and their tributaries are a hub of business and industry. They also provide recreational resources enjoyed by Americans, Canadians, and people from across the globe.”

The governors’ priorities:

- Ensure sustainable water use and retain state authority over the use and diversion of Great Lakes water.
- Protect human health against the adverse effects of pollution in the Great Lakes ecosystem.
- Protect the water, land, and air from a variety of “non-point” pollution sources such as pavement runoff, fertilizers and pesticides, and soil erosion from poorly managed construction sites.
- Reduce the amount of toxic chemicals entering the Great Lakes ecosystem.
- Stop the introduction and spread of aquatic invasive species.
- Enhance fish and wildlife by restoring and protecting habitat and coastal wetlands.
- Restore the 40-plus Areas of Concern in the basin that suffer from contaminated sediments, inadequately treated sewage, and urban runoff.
- Standardize and improve the collection and sharing of water resource information.
- Adopt water use strategies that protect and enhance the commercial and recreational value of the Great Lakes.

“We hold a great treasure in trust for our children and grandchildren,” Governor Taft said. “To the extent that it has been damaged, we must restore it. Where it retains its original value, we must preserve it. We can enjoy this precious resource today, even while acting in concert to safeguard the ecosystem for future generations.”

No More Business as Usual

Water is the key to life. It is also the key to Michigan’s wealth. But the local and global supply, while constantly renewable, is limited. In these simple facts are both potential danger and great opportunity.

The ready availability of clean, fresh water gives Michigan an incredible advantage in the increasingly fierce interstate and international competition that defines our era. The Great Lakes are an



The abandoned Detroit Boat Club: Eyesore or opportunity?

asset the region must promote to attract talented workers, grow existing industry and new jobs, and build prosperity in the unforgiving global economy. But at the same time, Michigan faces a historic challenge: Using its water legacy while protecting it.

Michigan tends to have a locust-like mentality about its natural resources. When white pine timber became popular, for example, state policy allowed lumberjacks to completely flatten the state’s ubiquitous forests. While momentarily profitable, history reveals the long-term result of that shortsighted approach was worsening economic, social, and environmental conditions. Today, state policy appears ready to continue feeding that boom-and-bust cycle with the basin’s clean, fresh water, which is still thought of as immense and inexhaustible — precisely what lumber companies said about Michigan’s forests a century ago while busily cutting them all down.

With this in mind, consider Michigan’s very different responses to two water-related businesses that sought to locate in the state at the turn of the 21st century. The proposed Global Enterprise for Water Technology, described in the previous section, could become an incubator for a large number of highly profitable, employment-intensive businesses that help diversify Michigan’s economy and protect the basin’s, and the world’s, freshwater supplies. But, in more than four years of trying, the project’s supporters have yet to obtain either public or private financing. Most recently, in 2004, Michigan Economic Development Corporation officials turned down a \$3.5 million grant request from the Enterprise.

Nestle Waters, N.A., on the other hand, received a radically different, much more generous response. The company came to Michigan in 2000 in search of a secure source of spring water for a new plant to bottle and distribute its popular Ice Mountain brand. Nestle was awarded free access to a source in Mecosta County and,

despite a judicial finding that the operation negatively affects nearby streams and wetlands, now pumps hundreds of thousands of gallons of water per year from the Muskegon River watershed. What's more, the company received \$10 million in local property and state education tax abatements, job training

"We hold a great treasure in trust for our children and grandchildren," said Ohio Governor Bob Taft, "To the extent that it has been damaged, we must restore it."

resources, while at the same time essentially ignoring more innovative business proposals and practices that aim to improve water stewardship.

The state's outdated water policy also allows ongoing pollution, waste, and other activities that steadily degrade rivers, lakes, and wetlands that will only become more important in the future. This approach stifles innovation, increases taxpayer costs, degrades natural resources and scenic features, and ultimately diminishes the region's primary competitive edge.

Meanwhile, several ongoing national and international efforts provide policymakers with an immediate opportunity to move forward with a new governing strategy to secure the Great Lakes. The most noteworthy among them:

- The United States and Canada, led by the two countries' top environmental

water use, and improve the health of the ecosystem's water resources.

- Congress is considering a major funding initiative of up to \$6 billion that would, among other things, clean up pollution, safeguard drinking water, and restore coastal habitats for fish, wildlife, and people in the basin.

These complex policy initiatives and significant taxpayer investments will fail to achieve much of their full potential, however, until state and local governments begin looking at their development practices through the three-dimensional lens of economic, social, and ecological sustainability.

The challenge for Michigan is to first establish a compelling vision for what a healthy Great Lakes ecosystem means for long-term prosperity.

The next step is to shape an integrated economic and environmental policy that inspires change in many traditional behaviors. The state must actively encourage citizens, businesses, and governments to embrace practices that increase Michigan's prosperity by protecting, restoring, and permanently sustaining the Great Lakes ecosystem. That will begin to reframe the water policy debate and shift the emphasis away from what Michigan stands to *lose* with new regulations toward what it will *gain* — now and in the future.

Or, as Chicago Mayor Richard Daley put it: "When we let stormwater run into the ground rather than the sewers, we save money on sewer repairs and cut down flooding. When we adopt road-building techniques that keep salt, soil, and gasoline from flowing into our rivers and lakes, we keep our beaches cleaner and save money on water treatment. When we help businesses improve their manufacturing process to reduce water use, they save money, which keeps them competitive and strengthens the overall economy."

"At the same time," Mayor Daley added, "we enhance our quality of life, which builds pride in our communities and helps us attract new employers, residents, and tourists, all ingredients of a strong local economy." ■

support, and infrastructure grants.

With the appropriate oversight, the Great Lakes State certainly can support a successful water bottling industry. But as fresh water grows increasingly valuable, the state's current way of using water to boost new development makes neither economic nor environmental sense.

It's Time for Sustainable Development

The overarching problem is that state policy tends to favor traditional economic development projects with little regard for their effect on water

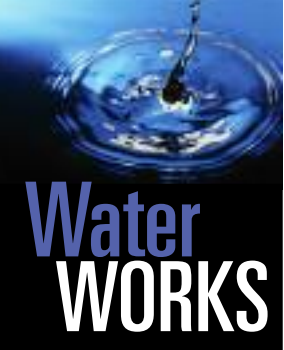
agencies, are jointly reviewing the 1972 Great Lakes Water Quality Agreement, which the two nations signed to improve pollution controls and water quality. Officials are assessing the effectiveness of the agreement and proposing changes. A 1978 revision, for example, called for the virtual elimination of toxic substance discharges into the Great Lakes.

- The Great Lakes states and provinces, led by the Council of Great Lakes Governors, are finishing a basin-wide agreement that aims to set clear standards for water withdrawals, promote efficient

MLUI/Bruce Giffin



Using the Great Lakes sustainably will protect them for generations to come.



10 RECOMMENDATIONS

For Sustaining the Water Wonderland's Economy and Ecology

The Michigan Land Use Institute urges the governor, the Legislature, and the state's Department of Environmental Quality and Department of Labor and Economic Growth to quickly develop an aggressive state water policy fit for the 21st century. We do this because water is Michigan's defining strength in the global economy and smart water use is essential to industrial and economic achievement, social progress, and ecological stewardship.

The basis for a prosperous society in the Great Lakes Basin will be factories, farms, and communities that use water in ways that celebrate, protect, and improve the natural resource. Toward that end, Michigan must embrace sustainability as the guiding principle for water use decisions, invest in businesses and local governments that practice sustainable water use, and establish significant financial disincentives to discourage water pollution and waste. The state must also acknowledge the growing worldwide challenge of preserving clean, fresh water and then appropriately value the basin's unique supply.

The strategy will inspire cutting-edge innovation, accelerate job growth, strengthen the economy, and enhance the magnificence of the globally unique Great Lakes ecosystem. To advance the strategy, the Institute urges the state Legislature, the governor, and various state agencies to quickly begin collaborating on these 10 steps:

1. Immediately and fully implement the citizen-based recommendations of Michigan's 2002 Great Lakes Conservation Task Force report in order to confront the current threats to water quality, quantity, and natural habitats in the Great Lakes ecosystem.

2. Establish a water resources trust fund similar to the existing Natural Resources Trust Fund to finance and enhance research, stewardship, quality, conservation, and restoration efforts for Michigan's waters. Michigan could generate more than \$3 billion annually if the state charged one penny for every gallon of water withdrawn but not returned to the basin by municipalities, manufacturers, and power producers.

3. Develop a strategic vision and plan for Great Lakes water use that are based on economic and ecological sustainability.

4. Establish state water goals and spending priorities that promote effective water use and speed the restoration of diminished water resources.

5. Shift taxation away from economic benefits such as profits and toward activities such as wasteful water extraction and pollution that degrade the water supply and ultimately cost Michigan taxpayers real money.

6. Establish other economic incentives that strongly encourage manufac-

turers, farmers, cities, and other large-scale water users to proactively install sustainable water use measures consistent with the state vision. Incentives might include temporary tax credits, low-interest loans, matching grants, accelerated permitting, and similar policies that reward improved water use, waterfront rehabilitation, and other activities that have far-reaching fiscal, environmental, and cultural benefits.

7. Link land use planning with water use planning to encourage new growth in appropriate locations and advance development that respects a clean, robust water supply.

8. Enact comprehensive water withdrawal standards that promote conservation, shield interconnected resources such as wetlands and rivers from ill-advised projects, and actively restore the Great Lakes and their tributaries.

9. Expand the state's Technology Tri-Corridor initiative to attract and grow companies that develop, commercialize, and implement water-friendly technologies in wastewater treatment, biotechnology, and related fields.

10. Analyze water pricing policies that promote conservation by residential and industrial users; design a uniform, effective, statewide price structure for Michigan; and direct municipal water providers to adopt it. ■

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Water Works describes a new way of thinking about water resource development that is gradually and organically emerging in the Great Lakes Basin. It reduces costs, safeguards waterways, and strengthens the region's economic competitiveness. The challenge and responsibility for civic and business leaders is to understand this movement and establish an atmosphere in which it can flourish.

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