**Panel on Infrastructure, Products, and Services**
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# Effective industry engagement in the Management of Shared Waters

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> The person who does not worry about the future will shortly have worries about the present. (Confucian Analects?)

During this well organized conference we ve heard that the world will be bearing more people, which in turn will create a greater demand for fresh water. That demand will be met by a higher number of turns or an increased number of use cycles for that water. There will be shortages resulting from not being able to get useable water to certain people in quantities sufficient to meet their needs.

## Industry s Role in Managing Shared Waters

Let me take a moment to establish some credibility for why business or industry should be at the table in this discussion of water management. Business has four basic reasons for being involved in the water management issues.

1. Industry is keenly interested in achieving sustainable development.
2. Industry contributes to the infrastructure that moves water.
3. Industry provides the processes that make water usable.

4. Industry uses water in its own processes, whether it is in agriculture, energy production, or manufacturing or as an essential ingredient in products.

Please note importantly: In the above four reasons for industry s interest in water management issues, ownership is not one of them. Industry wants to make its contribution and its return from making water more accessible/usable where its needed — and it has a need to use it —not own it — itself.

Business, as we all know, is the application of capitol, technology, raw material (physical and/or intellectual), and people in some combination that creates a good or a service. That good or service is in anticipation and fulfillment of a demand. A capitalist system requires demand to be manifest by money — public or private - to pay for it. In order to make sure world-wide water needs are being responded to, money has to be available to underwrite the response. Fulfilling water demand, particularly among those poor populations in need of additional water resources, therefore becomes a critical goal of sustainable development policy.

Obviously, industry doesn t actually make water. Helping to make the natural resource available and useful is a legitimate role for industry. Industry can convert saline and polluted water into fresh, usable water. And, industry makes and installs the infrastructure to move the water to its point of use.

In each category of industry s interest in water, industry has very specific offerings, some of which we ve heard about already.

a) Water treatment - As we just heard, there have been significant technological developments in treatment ,through chemistry and physics, that have contributed greatly to the reduction of costs of desalinization and water purification processes. These developments are making more water available to a larger portion of the world s population. These technologies range from disinfection treatments to fuel cell powered desalination plants.

There are seven (7) basic water disinfectants available. They are, in order of popularity of use (percentages of large systems in the U.S) in the U.S. today,:

Chlorine gas (84%)

Sodium Hypo chlorite (20%)

Chloramines (29%)

Calcium Hypo chlorite (1% of large systems but 5% of small)

Ozone (6%)

Chlorine dioxide (8%)

UV

.The factors that treatment systems managers use to choose a disinfectant are:

- efficacy against pathogens;
- compliance with government regulations;

- reliability of disinfecting system;
- safety and ease of shipping, stowage, and handling of disinfectants;
- potential hazards to people and the environment from chemicals and equipment;
- potential to form disinfect ion by-products;
- affordability (both capital investment and O & M costs); and,
- more recently, security.

Decisions of which disinfecting method to use are highly localized because of variable raw water conditions and the community s priorities.

Chlorine remains the overwhelming choice for drinking water (and waste water) disinfect ion. Its effectiveness against a wide spectrum of disease causing organisms, relatively low cost, high reliability, and ease of operation contribute to its popularity.

b) Water transport - Industry has a major role in water transport. We move water from its natural site to where it will be used by: packaging, bottling, and selling it as well as pipe line movements.

As an example of a seemingly mundane but significant industry contribution to the technology of water movement, industry s research developed PVC piping material who s characteristics:

- light and easier to install with minimal maintenance

- immunity to corrosion as well as greater resistance (than metal or concrete pipes) to bio-film formation; and,
- durability with flexibility to endure earth movement

lower costs and increase the quality of water received for populations throughout the world. (I could not resist giving a plug to the PVC pipe industry for two reasons. One, they are too often unfairly maligned and two, they are members of CGLI.)

c) Water use - Another important role that business and industry plays is to ensure that when industry uses the water, it practices conservation and does not pollute. There are multiple examples throughout the world of industries efforts to reduce pollution of the waterways and conserve water use in manufacturing processes. And it s a good thing because industry is a major user of water.

In the Great Lakes basin, industry accounts for 24% of water withdrawals, comparable to the 28% withdrawn for public water supplies, 29% is for irrigation, and 6% each is for nuclear, fossil fuel and thermoelectric users. (Remaining withdrawals are for stock watering, 3%; and, self-supplied, domestic uses, 4%.)

In brief, water use is important to industry because it:

- can be an essential ingredient in products;

- provides a medium in which physical and chemical processes take place and propagates industrial processes;
- can provide power for processes and equipment; and,
- provides a medium in which waste treatment processes are carried out, cleaning and protecting public health as well as the environment.

Water use by industry can often result in cleaner water being returned to the source after use than the water which was taken originally.

All this goes to show that the private business sector needs to be a partner in the design of any infrastructure in which it is or will be expected to assist governments by providing water supply products and services.

Factors to be Considered in the Management of Shared Waters

Let me share with you a little of our experience in the Great Lakes basin. The basin has a three-decade history of environmental activism as it represents the largest concentration of surface freshwater in the world. We are indeed quite aware of:

- Growing human needs for safe drinking water, proper sanitation, etc.
- And, we are aware of growing agricultural needs for expanded food production for our expanding populations.
- And indeed, we are aware of the growing industrial needs or fresh water to produce more goods and services for that same expanding population.

- More recently we ve been learning about environmental needs — the need to protect ecosystems, to preserve endangered species; to protect biodiversity and guard against the introduction of exotic species.
- And, the need to protect watersheds and other aesthetic values that contribute to our quality of life.

Indeed, environmental needs are codified in our law. We have the Great Lakes Water Quality Agreement, which has been discussed elsewhere in this meeting. Thirty years ago, this agreement started us on the process of paying attention to our growing environmental demands.

Three years ago that consciousness was elevated by a seemingly innocent attempt to export freshwater from Lake Superior which triggered a political nightmare for the Premieres of Canadian Provinces and the Governors of U.S. States in the Great Lakes basin. The water was never transported but the political issue was created. The reaction of the Governors and Premiers is called Annex 2001. The Annex is a supplementary agreement to the Great Lakes Charter of 1985 through which the Governors and Premiers propose a set of standards by which diversions of water will be allowed outside the basin as would permitted uses of water inside the basin.

Fortunately we have a multi-stakeholder infrastructure working within the basin. We have come together, although not always on the most friendly of terms, to figure out how we want our political leadership to protect the resource to meet

future needs. In fact, the Council of Great Lakes Industries is so committed to multi-stakeholder process that we sponsored the development of a set of guidelines for the conduct of these processes called the Boulder Principles now used by many multi-stakeholder efforts in and outside the basin.

To say the debate has been an interesting one is a significant understatement. We ve been dealing with issues of hydrology, water use conservation, individual State laws, Riparian Rights laws, U.S. Constitutional law, permitting processes, economic development, you name it, we seem to be concerned about it. A key issue for water users in the basin is the need to base future water management regimes on established or proven law rather than risking the invention of new law.

Role of Sustainable Development thinking in the Management of Shared Waters

The role of markets has potential value for us wherever we have water management opportunities. You d think that given the advanced state of the Great Lakes basin economy — we probably rank as the 6th largest in the world — we d know a bit about how we might approach our water management problems with a focus on market-based solutions. Indeed, we ve done some thinking along those lines, but nowhere near enough because Great Lakes fresh water has been essentially free for the taking because it is so plentiful.

Industry and many policy makers believe that improved markets are a key ingredient to advancing sustainable development. Properly structured markets with rules of behavior serve a key sustainable development objective as they provide freedom of choice, competition, and innovation. Similarly, markets can provide poor populations with opportunities to build wealth and be better able to supply their own needs.

The World Business Council for Sustainable Development report authored by Chad Holliday, Chm. DuPont and John Pepper, Chm. Procter & Gamble called Sustainable Development Through the Market outlines seven keys to success in achieving sustainability through market forces.

1) Innovation — make sure there are novel and imaginative technical and social resources that represent new ways to improve lives such as the new desalination membranes and processes we heard about in today s key-note presentation by Dr. Benedek.
2) Business must be practiced and supported by policy that views eco-efficiency as paramount. Economic benefit and environmental performance go hand in hand, and you cannot have one without the other.
3) We need to move from talking with one another in what are called stakeholder dialogs to what might be called partnerships that achieve progress . (In this area, we are making progress in our own Great Lakes basin.)

4) An informed consumer — it s been hard for us in the Great Lakes basin to demonstrate to consumers a need for conservation with so much water all around, but it will be done.
5) Stability and no corruption, are critical ingredients of a socio-economic framework that facilitate positive change through market forces. (This one we ve taken for granted in the Great Lakes basin because it s essentially one of improving the framework conditions in which the market functions.)
6) It s necessary to establish some way of assigning worth to the resource being managed. This is most problematic for us in the Great Lakes because with water aplenty, it s been essentially a free resource. Markets are not the same as natural eco-systems because they are created by human behavior. We re a long way, in the basin, from knowing how to value freshwater. Some say it s the same situation we were in when we didn t know how to value clean air several decades ago. But we do know that there is a price to pay for polluting it, and there are costs to bear just to be able to use it. Both represent the beginnings of market functions.
7) Making sure the markets are working for everyone, not just making the rich richer. I m sure many of you are aware of the violence and death in Cochabamba, Bolivia — perhaps the first shots in the 21st Century water wars - when this key element was not respected.

When we talk about market-based solutions we also take for granted some very basic elements. These include: the existence of free competition; the protection

of intellectual and physical property rights; the solidity of contractual obligations; fair and transparent accounting standards (although given the Enron and now WorldCom situations, we re not taking this one quite as for granted as we used to); a government whose actions are always accountable to the public; and, a predictability of government behavior ensuring freedom and democracy. Using market forces, we in industry believe we can attain sustainability.

Water is different from other natural resources for obvious reasons. As I mentioned earlier, one of our biggest challenges in the Great Lakes basin is the problem of valuing the resources because undervalued resources tend to be wasted. With water we even have difficulty defining waste because it is continually being recycled. Waste in a traditional resource consumption definition may not apply, as the used water resource is input to a new recycling opportunity or a recharge to an aquifer.

Capitalism has been severely criticized for its inability to value the commons or the critical elements of the eco-system in which it functions. However, there are major, serious efforts throughout the world today that are addressing these shortcomings. The application of new market based thinking to the management of shared waters — in addition to technology — will provide significant results.

For us in the Great Lakes basin, we re blessed with substantial quantities of water and can sustain very active use of the resource. As we seek to implement

use management or protection regimes , we re very vigilant that we don t impair the advantages plentiful water resources have provided us over less water rich regions with whom we compete. However, we know that water must be properly managed because:

- There is a finite quantity of it;
- Its not always where it is desired;
- It can easily become contaminated beyond acceptable limits for public safety, environmental integrity and process use functionality; and,
- There are established rights for its use that must be respected.

Industry is involved in the movement, improvement and use of water. In addition, the industries that I represent at CGLI are committed to sustainable development. Thank you for this opportunity to reinforce industry s interest and right to be included this or any discussion of water management.

Thank you.