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## Challenges in the Water Industry: Public-Private-Partnerships as a Solution

That the U.S. faces massive infrastructure challenges is widely acknowledged among opinion leaders, pundits, journalists, and government and utility industries experts. Chief among these issues, but often less discussed, is water. Communities across America face huge obstacles as they struggle to provide reliable water in the face of aging infrastructure, growing demand and increasing complexity of water management. Indeed, the Obama Administration has noted the critical need for increased investments in U.S. infrastructure, of which water is expected to play an essential role.

To meet their obligations, communities are faced with investing vast amounts of money, resources and expertise to renew their water systems. Even with the willingness to spend the money and access to capital, many communities lack the in-depth experience, to design and/or implement such a plan on their own. One solution that is expected to gain significant traction over the next few years is the Public-Private- Partnership model, whereby private-sector water companies assist in the design, rebuilding and operation of publicly owned water systems.

### CHALLENGES

Before discussing the solutions partnerships can offer, it is important to first consider the types of challenges communities face. Here are some of them:

#### *Aging Infrastructure*

The U.S. EPA has estimated that approximately \$277 billion in capital spending across the nation will be needed between 2003 and 2022 to replace aging water infrastructure and comply with stricter water quality standards, and that an additional \$384.2 billion will be needed between 2000 and 2019 to replace aging wastewater infrastructure. But with water related services twice as capital-intensive as electricity and three times as capital intensive as gas,<sup>1</sup> many communities simply cannot afford to upgrade their systems, many of which are decades to a century old.

In 2010, nearly 87% of city finance officers reported declining revenues and that their cities were less able to meet fiscal needs than in previous years. One way for these cities to cover budget deficits is to delay or cancel infrastructure projects.<sup>2</sup> In a recent study on the economic impact of under-investing in our water and wastewater infrastructure, the ASCE recently estimated that if we remain on the current track, between now and the year 2020 American businesses will lose

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<sup>1</sup> Wolff, Gary and Eric Hallstein. Beyond Privatization: Restructuring water systems to improve performance. Retrieved December 19, 2006 from [http://www.pacinst.org/reports/beyond\\_privatization/](http://www.pacinst.org/reports/beyond_privatization/)

<sup>2</sup> National League of Cities 2010 Research Brief on America's Cities

\$734 billion in sales and the cumulative loss to our GDP will be \$416 billion directly due to deteriorating infrastructure.<sup>3</sup>

### *Meeting increasing complexity*

Another challenge relates to the increasing complexity of water management, which some communities are ill-equipped to address. For example, the EPA is continuously updating regulations on water quality and safety. Thus, the knowledge, experience and investment required make compliance increasingly difficult. Likewise, efficient water management is no longer simply about supplying water to the tap -- it encompasses waste water treatment, storm water management, water reuse and desalination systems -- all of which require a high level of skill and expertise to design and implement. These challenges can be facilitated through Public-Private-Partnerships. These alliances also have increasing value in helping plan and deliver water to meet specialized industrial needs, a vital component of any city's economic development efforts. Finally, the rise in demand across a variety of regions that lack proper infrastructure means that extensive planning and expertise are needed to develop cost-effective regional water supply solutions.

### *Growing demand*

Increasing demand for water and the pressure it puts on infrastructure is also an issue and takes a variety of forms. In many large, older cities growing populations drive demand.<sup>4</sup> In western states like Nevada, California, and Arizona entire communities are sprouting in places where basics such as piping and water supply sources do not yet exist.<sup>5</sup> And frequently, smaller communities with an aging system have a critical need for a stable and sophisticated water management system to meet incremental growth.

## **SOLUTIONS**

Currently, 85 percent of water systems are operated by municipalities and other government entities, which have been confronted with declining property tax revenue, which is often used to issue bonds, as a result of the gradual impact of the declining housing market.<sup>6</sup> The remaining 15 percent are owned and operated by the private-sector. But the devil is in the detail. Given the billions needed to upgrade infrastructure, the potential cost burden may be more than local political structures can sustain. Transcending this dilemma and offering a more holistic approach to water management, Public-Private-Partnerships offer an answer to the country's pressing water challenges. And with key water industry experts recommending a revamped role of the national government regarding water infrastructure investments as well as increased partnerships with the private sector, Public-Private Partnerships are expected to rise.<sup>7</sup> Some of the ways in which these partnerships can positively impact communities are outlined below.

### *Leveraging Expertise*

One way in which partnerships can help local municipalities is by leveraging the knowledge and experience of a skilled partner. Small communities may significantly upgrade their water systems

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<sup>3</sup> American Society of Civil Engineers (ASCE): "Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure."

<sup>4</sup> In fact, New York recently launched a PLANYC 2030 initiative to address some of its challenges in relation to its growing population as well as its water management.

<sup>5</sup> For additional information on the challenges of meeting demand in water supply in the West, please refer the American Water White Paper, Challenges in the Water Industry: Meeting Demand in the West.

<sup>6</sup> National League of Cities 2010 Research Brief on America's Cities

<sup>7</sup> American Water Resources Association, Environment and Water Resources Institute of the American Society of Civil Engineers, and the National Wildlife Federation. "Fourth National Water Policy Dialogue," September 2008

only once every fifty years.<sup>8</sup> At such a rate of engagement it makes little economic sense for smaller towns to employ highly sophisticated full time personnel to manage complex updates. Because a primary aspect of private water company business is upgrading infrastructure, they accumulate skills based on operating multiple water systems in a variety of geographic settings. In terms of resources, these water utilities maintain highly specialized staffs of scientific experts and engineers who can be made available to communities as needed. Through partnerships, municipalities gain affordable access to such expertise.

### *Total Water Management*

Water utilities can also address complicated issues through the implementation of solutions such as Total Water Management (TWM).<sup>9</sup> In harnessing the synergies between potable water and waste water management, for example, water poured down drains can be treated and reused for golf courses, heating-cooling and flush systems,<sup>10</sup> thereby conserving a city's precious ground water resource for drinking. Public-Private-Partnerships have created powerful models of such programs in Battery Park City in New York, Gillette Stadium in Massachusetts, the Homestead active adult community in New Jersey, to name a few. In other instances, a water utility can help communities gain access to an affordable and efficient water system.

Finally, partnerships can help communities better manage the risks associated with water management, such as the increasingly stringent regulatory requirements and penalties associated with water and waste-water facilities. A case in point: Fillmore, CA recently engaged in a partnership for a Design, Build, and Operate (DBO) contract for a new wastewater recycling facility. In doing so, Fillmore transferred the specific risks associated with a DBO facility to a private company, which is better positioned and equipped to manage such ventures.<sup>11</sup>

### *Funding*

In bridging the infrastructure gap, another way partnerships can assist communities is by bridging the capital gap. A town that has limited financial and staffing resources, for example, can contract its system out to a water utility. In return, the water utility can offer a greater economy of scale in its services by providing better management, modern metering techniques, leak detection technologies, access to capital, emergency response and ultimately a more cost-effective water system. In Seattle, the Tolt Water Treatment plant under American Water's management has saved 40 percent of previous costs.<sup>12</sup>

This model is one partnership program with particular advantages, since it grants communities access to funds that a private utility anticipates it can save. To illustrate, a water company can estimate relatively accurately how much money it will save a community. Numerous surveys indicate that governments traditionally realize cost savings of 20 to 50 percent when the private-sector is involved with providing services.<sup>13</sup> So a water system that costs a town \$1 million to operate may only cost a water utility \$800,000. Based on these averages, the water utility can then offer a town a lump sum of money upfront, which the town can use for other purposes such as financing roads, schools or pension liabilities.

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<sup>8</sup> This is based on the fact that pipes last for only 50-100 years. Fritz, Anthony, Gabelli & Company. "The Water Market." [www.pump-zone.com](http://www.pump-zone.com), 01/08/2007.

<sup>9</sup> Developed by American Water, Total Water Management delivers innovative technologies and solutions such as water reuse, Design-Build-Operate, waste-water management, etc.

<sup>10</sup> Examples of American Water reclaimed water solutions include the Solaire and Tribeca Green buildings in Battery Park City, Manhattan, the Gillette Stadium and Wrentham Mall in Massachusetts, and for fountains and park irrigation in Arizona.

<sup>11</sup> The Fillmore PPP was contracted to American Water.

<sup>12</sup> Partnerships & Alliances [www1.fidic.org/conference/2004/talks/workshops/FIDIC\\_WS\\_6\\_William\\_Howard.pdf](http://www1.fidic.org/conference/2004/talks/workshops/FIDIC_WS_6_William_Howard.pdf)

<sup>13</sup> The National Council for Public-Private Partnerships <http://www.ncppp.org/presskit/topten.shtml>

### *Responsibility*

Finally, partnerships can offer greater accountability in water management. A partnership puts the focal point of responsibility on the water utility, which becomes the prime contractor responsible for the operation. Under a publicly managed approach, there is not always a clear line of authority. Shifting this level of responsibility to a private company means that issues can be clearly addressed and resolved, rather than be redirected through a sometimes contentious municipal process.

From a business standpoint, public-private partnerships are a promising area for stable growth in the water utility sector: over 90 percent of partnership contracts are renewed annually. A source at the National Association of Water Companies is quoted in *Water Policy Report*: "There are clear signs that municipal leaders are enormously satisfied with the results of these contracts."<sup>14</sup> Consider again Fillmore, Calif. Building upon its current successful partnership with the private sector to operate and maintain the city's existing wastewater treatment facility, the city recently decided to partner again and on a much broader scale with the private sector to design, build and operate the city's new wastewater recycling facility. It is also worth noting that for Fillmore this new facility will be the largest one-time investment in its history.<sup>15</sup>

Finally, the ability of private companies to earn a return on investment provides further incentive for capital investment that does not exist for their public counterparts.<sup>16</sup> Indeed, some contend that the country's infrastructure needs are so great that all forms of investment must be considered, including Public-Private-Partnerships.<sup>17</sup>

## CONCLUSION

Water is one of our most essential commodities, and the infrastructure supporting the delivery of this essential product is in serious need of repair. If the infrastructure challenges are to be resolved, creative solutions must be generated and new partnerships need to be forged. Public-Private-Partnerships offer one of the most viable ways in which cities, towns, and communities can access the industry expertise and capital of the private-sector. With increased focus on such issues expected from the Obama Administration, these partnerships will play an increasingly critical role in helping the U.S. overcome its water infrastructure challenges.

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<sup>14</sup> "Cities' Skepticism Over Privatizing Drinking Water May Be Growing." *Water Policy Report*. Vol. 15, No. 12. June 12, 2006.

<sup>15</sup> Contracted to American Water.

<sup>16</sup> *Water and Sewer Needs and Capital Finance. Strategies in Appalachia*. Retrieved December 19, 2006 from <http://www.efc.unc.edu/projects/ARCprojecthome2.htm>

<sup>17</sup> "Cities' Skepticism Over Privatizing Drinking Water May Be Growing." *Water Policy Report*. Vol. 15, No. 12. June 12, 2006.