The Environmental Benchmarker & *Strategist*™

The State of the Water Industry 2008

Rules of Thumb and Strategic Insights . . . . For the Water Executive

Winter 2008

"A Flood of Challenges - A Sea of Opportunities"

A Concise Review of Challenges and Opportunities in the World Water Market

by Steve Maxwell

Introduction: Last year, we opened our review of the water industry by comparing global water problems to a huge asteroid hurtling towards the earth - an imminent and life-threatening crisis that could only be solved if all the people of the earth quickly put their differences aside and began working together to find a solution to the crisis. As each year passes, the world's water problems grow in terms of geographic extent, scientific complexity and human impact - and our collective ability to understand and correct these problems is stretched thinner and thinner. The twin challenges of water quantity and water quality represent an inexorable planetary crisis - and one that will ultimately overshadow shorter-term geopolitical, financial, and even energy crises that typically attract far more attention. Now more than ever, we need to start to develop this kind of urgent focus and cooperative international approach to really begin resolving our water problems.

There is no substance more critical to life than water - we cannot live without it for more than a few days. Modern water treatment techniques and extensive distribution infrastructure have allowed the development of our advanced industrial economies, and have enabled dramatically increasing standards of living for many of the world's people. Modern irrigation techniques have made it possible to feed a rapidly growing world population, and to turn deserts into productive farmland and sprawling metropolises. Yet we continue to deplete and pollute our limited water resources at an alarming rate - and we steadfastly look the other way while our water treatment and distribution infrastructure begins to crumble. We are rapidly reaching the point at which we will no longer have sufficient clean water to support our current lifestyles. Half of the world's population is expected to suffer from severe water shortages by the year 2050.

Yet, much of our population still seems to simplistically believe that water falls out of the sky and that it should be basically free, forgetting that it costs money - billions and billions of dollars a year - to collect, clean, store and distribute water. Many of our treatment plants, reservoirs, and distribution pipelines were built fifty to a hundred years ago and are rapidly decaying, with leakage rates as high as 50% in some older cities. More ominously, many of our underground aquifers and surface water sources are irreversibly contaminated, or are drying up from decades of overuse. Nonetheless, political leaders are typically rewarded for minimizing public spending rather than insuring that their communities will have access to vital water resources in the future. City councils are loath to raise water rates, even though big percentage increases would only amount to a few dollars a month for most Americans.

At a fundamental level, the main reason for this nonchalance and lack of attention is that water remains truly - actually *absurdly* - cheap relative to its real value. Americans today pay an average of a quarter of a penny per gallon for the clean drinking water that seems to magically flow out of our taps - about $25 a month for the typical family. One simply cannot find another product whose real value so far exceeds its price - or for that matter, one whose price is often so unrelated to its true cost of delivery. Eventually, we will all bear the costs of correcting the water pollution problems that we have created, and rebuilding the infrastructure that we have allowed to fall into decay - huge costs that current water prices do not properly reflect. Serious water problems are indeed hurtling towards us in the near future, and we need to take far more substantial and dramatic steps now to begin addressing these problems.

What has changed since we took our last in-depth look at the industry a year ago?

• first, just during the past twelve months there has been a remarkable increase in general awareness and the level of international attention paid to the imminent threat of global climate change - particularly after the release of the IPCC's Fourth Assessment report early in 2007, and the broad media publicity surrounding Al Gore's receipt of the Nobel Peace Prize. As the evidence piles up to suggest that man-made climate change is indeed real, it is simultaneously becoming clear that this trend will affect the hydrologic cycle, rainfall patterns and general water resource availability in numerous and complex ways that we don't yet understand - but which will certainly complicate and exacerbate an already dire water situation. Vast new storage and transmission infrastructure to accommodate shifting weather and precipitation pat-

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terns may come first - but shifting population trends and mass human migrations may well be the ultimate result.

• the intertwining aspects of global food production and large-scale irrigation, and the efficient use of declining water resources are also beginning to receive more attention and analysis. A special report late in the year by *The Economist* drew wide attention to the issue of rapidly rising food prices around the world, and underlined our gross inefficiency as a planet in terms of water usage and growing the right kinds of crops in the most logical regions. As the U.S. increasingly turns to converting grain into automobile fuel as a means of improving domestic energy security, it is generating an international food security problem that could reach historic proportions. At the same time, the rapidly developing BRIC and other countries are exhibiting dramatic changes in nutritional preferences as a result of newfound prosperity. The Chinese now consume 110 pounds of meat per capita per year, more than double the 44 pounds they consumed in 1985 - and it takes a lot of water to produce a pound of beef. These competing demands will lead to real price increases in both food and water. And as prices for commodity crops like wheat and corn reach all-time highs, the impact on the price of all downstream food products is beginning to rise accordingly. According to the Earth Policy Institute, at the end of 2007 in the U.S., the price of bread was 12% higher than a year before, eggs were up 36% and milk was up 29%. This will quickly translate into greater food scarcities in those poorest and more under-nourished populations around the world. More and more observers are questioning whether the U.S. government's massive plan to develop ethanol as a means of improving energy security is a mistake - both in terms of water consumption, and in terms of impact on food prices. The cure may turn out to be worse than the disease.

• there are likewise intriguing questions and serious challenges emerging at the intersection of water and energy issues - questions like how much water it will take to produce a barrel of oil from the Canadian tar sands, and what to then do with that contaminated process water? Or conversely, on the other side of the world, how much oil will it take in Saudi Arabia to produce a barrel of desalinized water. Oil to make water, water to make oil. The rapid modernization of Saudi Arabia and the arid Gulf States rests upon the consumption of a large portion of their natural oil reserves to produce water for their people. In water rich Canada, huge amounts of water are needed to produce home-made energy. Interesting facts and figures abound - it is estimated that almost 20% of California's total energy consumption goes to moving water around the state. Again, from a long-term perspective, it seems inevitable that the huge capital and energy costs of moving water to expanding desert oases like Phoenix and Las Vegas will eventually have to be replaced by the large-scale movement of the people themselves to areas of abundant water.

The twin challenges of water quantity and water quality represent an inexorable planetary crisis - and one that will ultimately overshadow shorter-term geopolitical, financial, and even energy crises that typically attract far more attention.

• during the past several years, we have drawn attention to the likely future growth in the transmission, distribution and storage aspects of the water industry - the less glamorous infrastructure sector of the water industry where most of the future dollars are likely to be spent. As mentioned, fears about the impact of impending climate change will only underline and intensify this trend - as well as the amount of money that we as a society may have to spend on moving water around and storing it. As this unfolds, and as the magnitude of these expenditures becomes clearer, we will also see more creative solutions to these challenges - water storage in contained underground aquifers rather than expensive surface impoundments and reservoirs that not only cost millions, but also disrupt the environment and allow significant amounts of the water to evaporate anyway. Innovative technologies to rehabilitate existing underground transmission and distribution piping and infrastructure will also grow - studies suggest that it can cost up to five times more to build a new underground water main as to rehabilitate it in place.

• at the same time as many parts of the world face crippling water shortages, the craze and marketing phenomenon around bottled water continues unabated in the wealthier parts of the world. Hollywood starlets pitch all manner of natural spring waters, vitamin waters, energy waters, smart waters, holy waters and various other so-called specialty beverages right up to "Bling H2O" - which proudly calls itself the most expensive bottled water - all now available at a cost of only a hundred to a thousand times the price of the tap water from which they are virtually indistinguishable. Also this year came breaking news that Madonna spends $10,000 a month on specially blessed water, with cartons of it shipped to wherever she is staying at the moment. There seems to be no end to the appetite of the American public to pay ridiculously high prices for essentially the same thing that comes out of their taps, while simultaneously a $10 or $15 increase per month in tap water fees can generate a political firestorm. But the fad may be moderating - some upscale restaurants are now promoting the virtues of tap water, and no less a water authority than the National Association of Evangelicals has said, "Spending $15 billion a year on bottled water is a testimony to our conspicuous consumption, our culture of indulgence…. drinking bottled water may not be a sin, but it sure is a choice." As we will repeat numerous times throughout this report - massive public education programs are needed, both on this issue and many others, to help people better understand what is truly at stake in water.

• more significantly, as water problems and inefficiencies become more and more serious in certain regions, we are beginning to see the development of new policy and management approaches, and more creative market mechanisms to help manage water resources. For obvious reasons, this is tending to happen fastest in those regions that are suffering the most - like the southeastern corner of Australia, where a severe drought is now in its seventh year, and where large and significant sectors of the economy are truly threatened by water shortages. New systems for owning and trading water rights are beginning to be developed; other regions are experimenting with tradable pollution rights - similar to what we have seen in certain air-shed regions in the past - to try to insure that pollution will be minimized or occur in regions where it has the least impact. This development is at a very early stage, but as more sophisticated management, allocation and trading systems evolve, they will hopefully provide stronger incentives and means for all of us to use water more wisely.

• finally, although it is too early to make predictions, the recent turmoil in world financial markets, will undoubtedly have its impact on the water industry - in fact, it already is. The credit crisis now facing the U.S. economy has already had a significant impact on stock valuations across the board, including the water industry (it has been several years since the black bars on the right-hand side of page 8 have been so short). The situation is also causing a distinct slowdown in the pace of private equity investment across the economy. As it becomes more difficult to borrow capital, private equity buyers (who like to leverage their investments) have backed off from the torrid pace of acquisitions seen from 2005 through the latter part of 2007. As we discuss in more detail below, dozens if not hundreds of private equity funds have vigorously sought investment opportunities in the water industry, but relatively few deals have actually occurred to date. The fact of the matter is that there simply are not that many significantly sized private companies in the industry that are attractive to the typical private equity investor. In fact, some observers have noted that much of the domestic water industry finds itself inconveniently located somewhere between the "sweet spots" of both the private equity and the traditional venture capital investor - i.e., there aren't many private companies large enough and profitable enough to attract the private equity community, nor are there many start-up or early state companies with the cutting edge technology or the high potential returns to excite the venture capital community.

At any rate, all of these factors will probably combine to bring water stock values and deal valuations back down from the stratospheric heights they have experienced over the last few years, to more realistic and sustainable levels. In terms of merger and acquisition activity, strategic buyers are likely to get back into the game more heavily, after a few years of often being sidelined by aggressive private equity buyers. Although such an adjustment may be needed, the value of most water stocks will continue to grow over time - many market sages believe that water stocks will begin to represent the kind of fundamental value-based proposition that few other industries will be able to match. Over the longer-term, water-related stocks will increasingly be viewed as a store of real value - like a commodity that is becoming increasingly dear - and hence will tend to rise somewhat above the pack. This will represent a strong underlying and long-term growth driver behind most water related stocks and investments.

40 Publicly Traded Companies With Interests in the Water Industry

Company	Symbol	Revenues $(mil's)	Income $(mil's)	Market Cap. $(mil's)
American States	awr	293	27	585
Ameron	amn	593	56	767
Aqua America	wtr	590	96	2515
Artesian Resources	artna	51	6.3	135
Badger Meter	bmi	230	17	560
Basin Water	bwtr	17	-21	155
Calgon Carbon	ccc	336	3.9	623
California Water	cwt	362	29	716
Clarcor	clc	921	91	1799
Clorox	clx	4930	495	8283
Danaher	dhr	11030	1210	23840
Dionex	dnex	337	47	1288
FlowServe	fls	3540	193	4696
Fluor	flr	15610	355	10644
Franklin Electric	fele	596	37.5	839
Gorman-Rupp	grc	294	19.5	456
Insituform Tech.	insu	570	2.8	347
Itron	itri	1140	-13	2461
ITT Industries	itt	8530	627	10494
Layne Christenson	layn	838	34	673
Lindsay Mfg.	lnn	306	18	728
Metpro	mpr	100	11.2	155
Middlesex Water	msex	84	11	246
Millipore	mil	1510	110	3662
Mueller Water	mwa	1850	48	897
Nalco Holding	nlc	3830	136	2844
Northwest Pipe	nwpx	382	21.2	378
Pall	pll	2200	210	4306
Pentair	pnr	3310	201	2952
Robbins & Myers	rbn	715	54	1042
SJW Corporation	sjw	204	35	534
Southwest Water	swwc	222	8	266
Suez SA	sze	61290	4890	68045
Tetra Tech	ttek	1010	46	1045
Thermo Fisher	tmo	8790	570	21676
URS	urs	4740	132	2236
Valmont Industries	vmi	1440	88	2198
Veolia Environne.	ve	44230	1270	37183
Vermont Pure Hldgs.	vps	65	-21	33
Watts Water Tech.	wts	1370	74	1061

We are also likely to see a steady stream of new public water offerings coming to the market, several are on the books for 2008. The Far East stock exchanges have seen numerous new companies in the last few years. In the U.S., the

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international water services firm Cascal came to the public markets in late January, despite the turmoil and uncertain market conditions. American Water is now again scheduled to proceed with its offering sometime in the spring, and there are several other IPOs on the books. As regional water markets mature, and as better market trading mechanisms begin to emerge, we may also begin to see formal vehicles for investing in the future value of the actual commodity itself - "wet" water.

In summary, challenges and threats to global water availability and water security continue to grow around the world. But this will inevitably translate into more and more opportunities for commercial water product and service companies to provide new and innovative solutions. These opportunities, and the broad forces that are shaping the future of the commercial water industry, are the focus of this report. From a broader and longer-term perspective - and despite the recent turmoil in world financial markets - the water business is booming, and it will continue to show strong and consistent growth in the future.

The Table below summarizes key drivers and trends in today's commercial market. In the following pages, our comprehensive 2007 overview of trends and developments in the world water industry is reprinted with updated facts and figures, and new information where appropriate. We attempt to delineate and make sense out of all of the rapid and sometimes paradoxical developments in the water business - to distill the key trends and drivers which characterize this $400 billion world market, and to succinctly highlight the critical issues which will shape the future of the water business. (All the financial data presented on pages 6 through 8 is current as of late January 2008.)

The World Water Challenge: Over the course of human development, and particularly during the last several hundred years, man has severely altered and damaged the earth's natural hydrologic cycle and processes. The water dilemma in which we find ourselves today has resulted from centuries and centuries of unfettered industrial expansion, exploding population *growth*, population *shifts*, often to more arid regions - and perhaps worst - a nonchalant and unfortunately continuing belief that our standard of living can continue to increase endlessly, while mother earth will somehow take care of all the environmental insults that we create. The impact on water resources comes from all corners of our modern society - our industrial economy has caused vast chemical pollution of most of the world's natural waterways; tens of thousands of dams have changed the course of natural waterways for flood control and irrigation purposes; extensive irrigation programs have turned arid regions into arable farmland; and double-cropping practices to maximize agricultural yield have drawn down natural aquifers at accelerated rates. Perhaps most significantly, the increasing combustion of fossil fuels is leading to a gradual warming of the planet - and we are only beginning to understand the potential long-run effects of climate change on the hydrologic cycle and other natural systems.

As the evidence piles up to suggest that man-made climate change is indeed real, it is simultaneously becoming clear that this trend will affect the hydrologic cycle, rainfall patterns and general water resource availability in numerous and complex ways that we don't yet understand - but which will certainly complicate and exacerbate an already dire water situation.

Widespread recognition and understanding of our impact on the natural hydrologic system has been slow to develop. However, the past decade has seen a plethora of reports and "doomsday" forecasts for future water availability - *TEBS* has cited many of these reports as they have poured forth from the Federal government, trade associations, and international think tanks. And the prognosis continues to get worse. For example, a recent World Bank report suggested that In-

Key Drivers Behind the Market
- water quality and water scarcity problems are reaching crisis proportions worldwide
- awareness of water problems is gradually increasing – but public education and more attention is critical
- regulation and enforcement levels are increasing, and new policies and approaches are emerging
- huge economic (and human) capital investments are required – much more focus is needed
Resultant Trends and Developments
- out-sourcing or "privatization" continues – but remains controversial, particularly in the U.S.
- "musical chairs" in the industry – ownership rearrangement and widespread consolidation continues
- a strong surge of public and private equity investment interest in the industry
- greater efficiency – more focus on "reducing demand to increase supply"
- increased focus on water recycling and re-use – technologies and attitudes
- incremental but continuing technological advance will help address some of the problems
- consumers and residential users increasingly vote with their pocketbooks
Inescapable Conclusions
- water prices often bear no relationship to cost of delivery – and certainly not to true value
- interest in water may be high – but we still lack policy mechanisms to connect dollars with needs
- delivered water prices must – and eventually will – rise to higher and higher levels
- the great challenge will be to manage water as an economic commodity, while providing it for all

Source: Tech*KNOWLEDGE*y Strategic Group dia will essentially run out of sufficient water within two decades. In 2005, the EPA produced perhaps the most widely cited study in terms of the U.S. situation - the Drinking Water Infrastructure Needs Survey and Assessment - which called for the investment of $277 billion over the next twenty years, simply to maintain our drinking water infrastructure at acceptable levels. Stories about water quality and quantity problems appear increasingly on the front pages of the mainstream media as well.

To briefly illustrate the depth and magnitude of the world's water problems, consider a few simple facts:

• many of the world's cities still dump their untreated sewage directly into the natural waterways or the ocean. A visit to coastal mega-cities like Lagos, Sao Paolo or Shanghai can only make one marvel at the natural treatment capacity of our oceans - given the amount of raw sewage that is discharged directly into the oceans, it is remarkable that they are still relatively clean in many areas.
• the United Nations estimates that more than 10 million people a year die from drinking unsanitary water. This is obviously a difficult statistic to accurately measure, since so many diseases can be transmitted, one way or the other through unsanitary water conditions. However, there can be no doubt that millions and millions continue to die as a direct result of dirty water.
• two and a half billion people have no access to basic sanitation - almost 40% of the world's population
• 45,000 large dams around the world are estimated to have displaced some 80 million people. The vast recent dam constructions in China are only the most visible such projects. The ecological or social impacts of these large dams are long-lasting, while their economically useful lives may be relatively short.
• there are some 79,000 dams in the U.S. which are categorized as "large" - many of which are no longer functional or safe. It is increasingly realized that it will be a lot cheaper to remove these rather than to try to fix them. However, dam decommissioning and removal is an infant field - only some 500, mostly much smaller, dams have actually been removed.
• natural wetlands - ecologically designed to regulate and clean our surface waterways - are being lost at a record rate.
• underground aquifers around the world are being depleted at a much higher rate than natural processes can replenish them - and the long-term impact for agriculture and world food supplies is potentially catastrophic. We "eat" a lot more water than we drink - the contained water content of different types of food may suggest radically different agricultural and international trade patterns in the future. (Indeed, this concept of comparative advantage in agriculture - growing more water-intensive crops in wetter regions and more water-efficient crops in drier regions - is a macroeconomic concept of growing interest, but it would obviously require massive shifts in internal trade, and is well beyond the scope of our discussion here.)
• there are also numerous secondary effects of growing water shortages. For example, as aquifers run dry, not only do inhabitants above run out of water, but the ground they live on may also begin to collapse - this is becoming a significant problem in certain cities around the world; and,
• finally, as a grim summary of the various points listed above, it is now widely predicted that about half of the world's population will live with chronic water shortages by the year 2050.

In short, we are rapidly creating a situation of severe "water stress" in many parts of the world. And it goes without saying that water stress will inevitably lead to political stress.

As opposed to other broad environmental problems like air pollution and global warming, water problems - and solutions - tend to be regional in nature, and in many cases are specific to individual watershed basins. If China burns less coal, air pollution problems in the western U.S. may improve; however, better water conservation practices in the western U.S. are not going to do much to alleviate water shortages in China. There are 260 major river basins in the world that cross 145 national boundaries. Some sixty percent of the world's population lives within those 260 basins. This simple fact makes it pretty clear that we are facing serious political problems in the water arena in the future. Pondering how to deal with the world's water problems brings to mind the old political adage - "think globally, act locally."

And its not as if political conflicts over water are some sort of phenomena perhaps waiting to happen in the future; they have been going on for thousands of years already, and there are a number of "hot spots" around the world that could explode today. For example, India has strained relations with both its eastern and western neighbors - Bangladesh and Pakistan - over the two key watersheds that flow into those countries, the Ganges and the Indus. The Jordan River arises on the Syrian-Lebanese border and is used by Jordan, Israel, and the Palestinian territories - not much more needs to be said in that regard. Nine often contentious countries depend upon the Nile river for most of their water.

The water dilemma in which we find ourselves today has resulted from centuries and centuries of unfettered industrial expansion, exploding population growth, population shifts, often to more arid regions - and perhaps worst - a nonchalant and unfortunately continuing belief that our standard of living can continue to increase endlessly, while mother earth will somehow take care of all the environmental insults that we create.

In this context, it is worth underlining the fact that the more pervasive problem of global warming is likely to have significant effects on water availability, and the natural hydrologic system around the world. We have all heard the old saying - "everyone is always complaining about the weather, but no one ever does anything about it." Well, it's beginning to appear that indeed we *have* done something about the weather - we're making it warmer. Today, we don't even begin to understand the breadth and severity of the potential impacts of significant global warming on the hydrologic cycle, and the extent of possible long-term impacts on the world's water supply. But if global warming continues, as seems virtually unavoidable over at least the next several decades, we face a whole range of poorly understood - and possibly, currently unforeseen - new challenges.

So, are we finally facing the real "revenge of Malthus?" The infamous Club of Rome report *The Limits to Growth* in the early 1970s focused the world's attention on the issues of depleting natural resources, and caused a huge international

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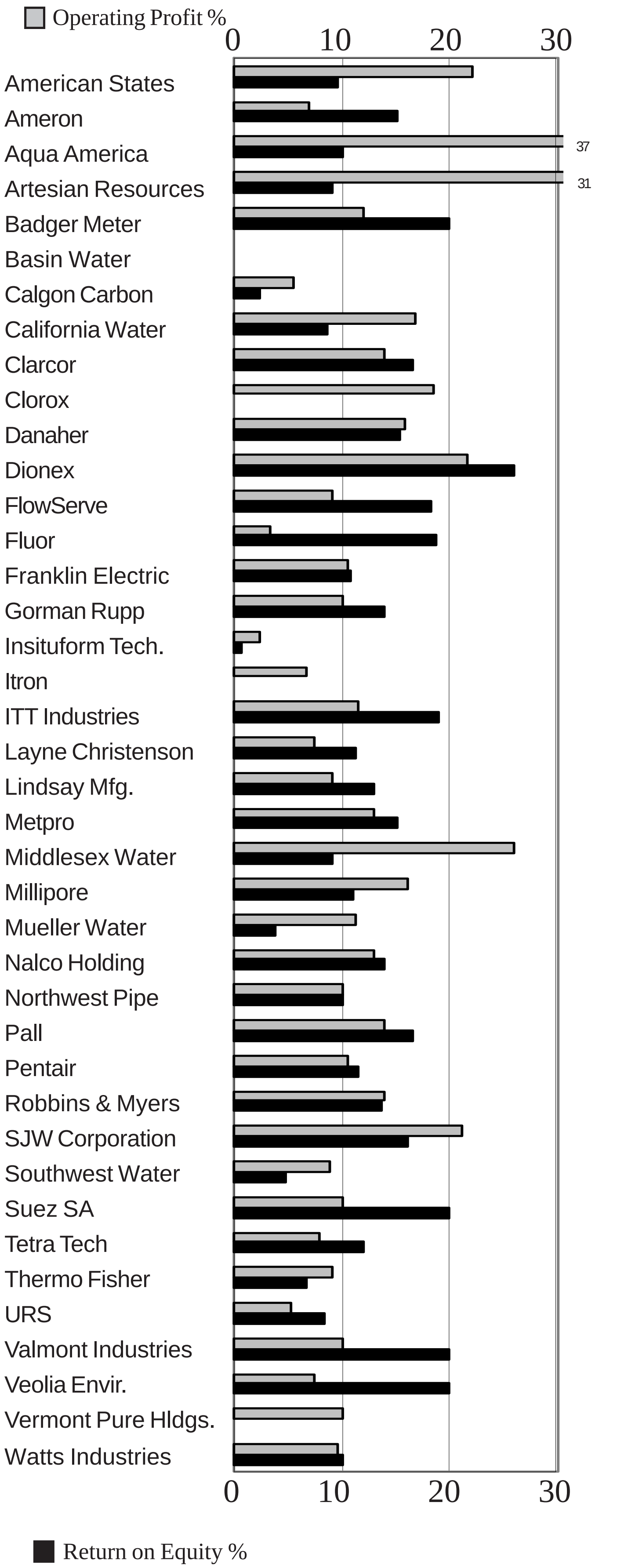
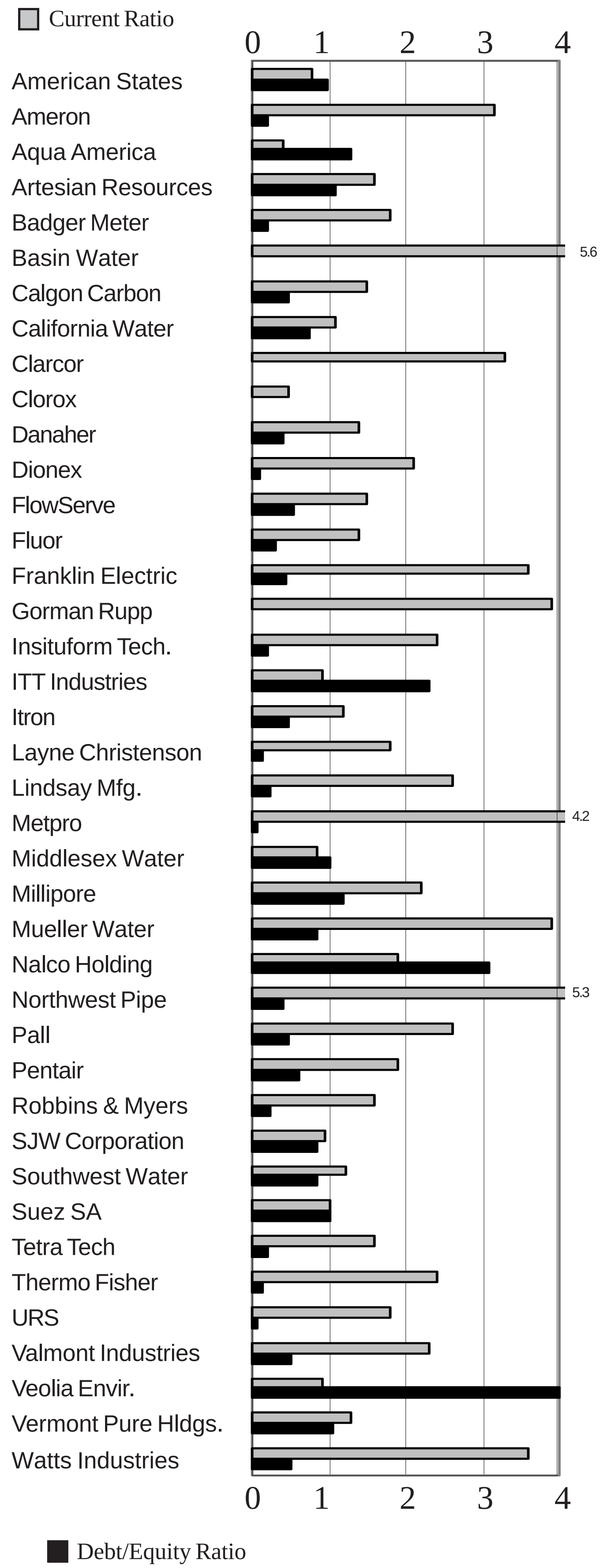
Profitability & Performance	Balance Sheet Information



Note: Where there is no bar, the number is zero or has a negative value.



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furor - yet it hardly even talked about water. The quantity of water on the earth can't really be increased or decreased, although we can have an impact on the amount of "usable" water - we can contaminate some water so much that it is no longer usable, and we can clean some sources of water, like seawater, such that they become more usable. However, in many parts of the world, we're hitting ourselves with a "double whammy" - by decreasing the quality, we are effectively decreasing the quantity. And in this brief discussion, we don't even really try to touch on the potentially vast political and social impacts of growing water shortages - and the fact that the poor are often forced to pay the most for their water, while the rich often pay next to nothing. According to the Earth Policy Institute the 120,000 gallons per year typically used by an American family costs about $350, whereas buying the same amount of water from a vendor in the slums of Guatemala City would cost about $1700. Disparities in water availability around the world could quickly become a recipe for social and political turmoil in the near future.

As a wise person once said - "it is difficult to make predictions, especially about the future." Many observers today still seem to worry about "crying wolf" in terms of the world's water situation. However, it is clear that as the world's population continues to grow, and as we continue to pollute and disrupt the earth's natural water systems, we are headed towards a true global water crisis. Many of the issues mentioned above are inevitably going to boil over in the future - perhaps in the quite near future - and they have to become top policy priorities for governments around the world.

<u>The Water Industry</u>: Although we casually talk about the "water industry," there is of course, strictly speaking, no such thing as *the* water industry. What there is instead is a teeming bazaar of many fundamentally quite different businesses that all have something to do with delivery of clean water - but which can't quite be accurately classified under any single heading. As we loosely use it, the "water industry" includes a very broad array of sectors - new technology developers, concrete pipe manufacturers, specialty chemical producers, measurement and monitoring firms, tank manufacturers, treatment equipment manufacturers, manufacturer's representatives who sell all of these things to different end users, engineers and consultants of all stripes, testing laboratories, contract operators of water plants, and many others - companies whose only real similarity is that they are somehow involved in the process of providing clean water.

A diffuse and fragmented industry like the water and wastewater treatment business is very difficult to classify. Obviously, when it is difficult to even define an industry accurately, it is going to be even more difficult - if not impossible - to accurately estimate its size, growth characteristics and other market attributes. Nonetheless, there *are* some conventional wisdoms and some rough market statistics for the overall water-related business. The size of the domestic U.S. water and wastewater industry is generally estimated at around $115 billion per year, as summarized from one source in the Table below.

An analysis of these summary figures, and the more detailed data behind them, reveals many interesting insights. First, note that the fees that individuals and businesses pay to utilties

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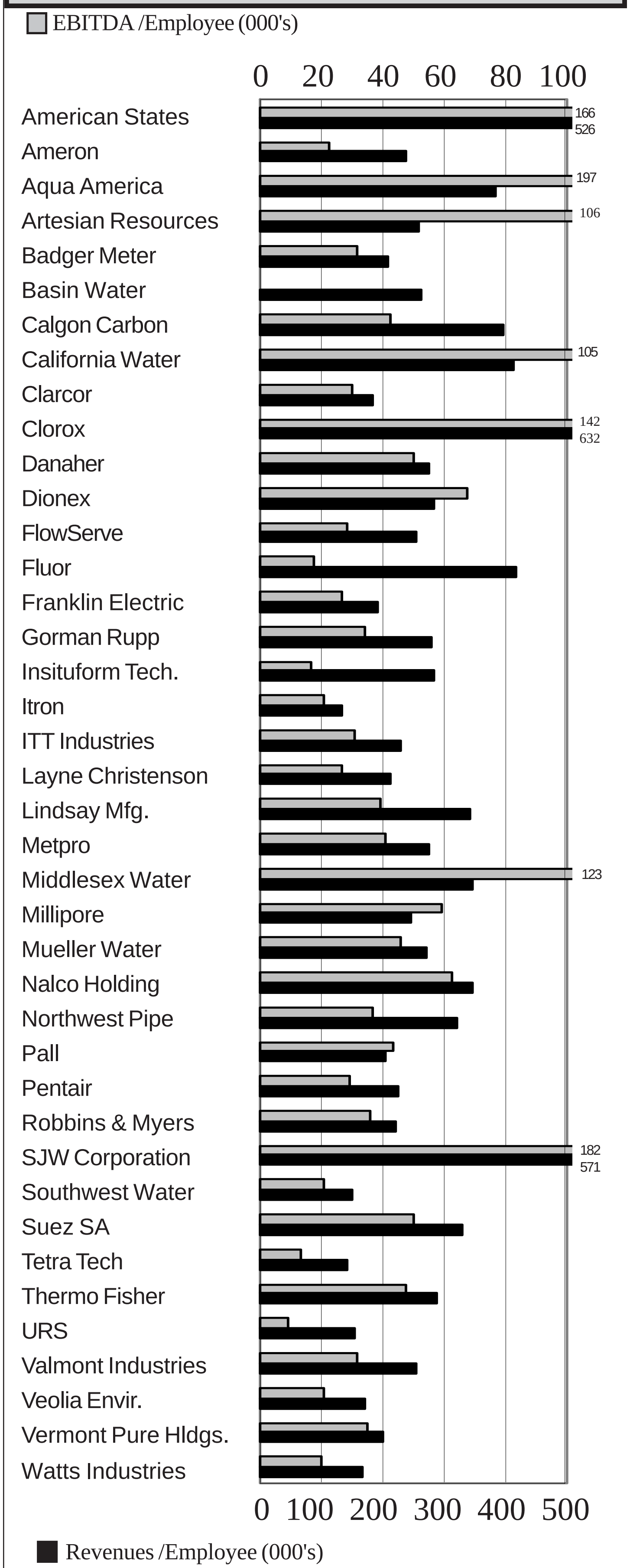
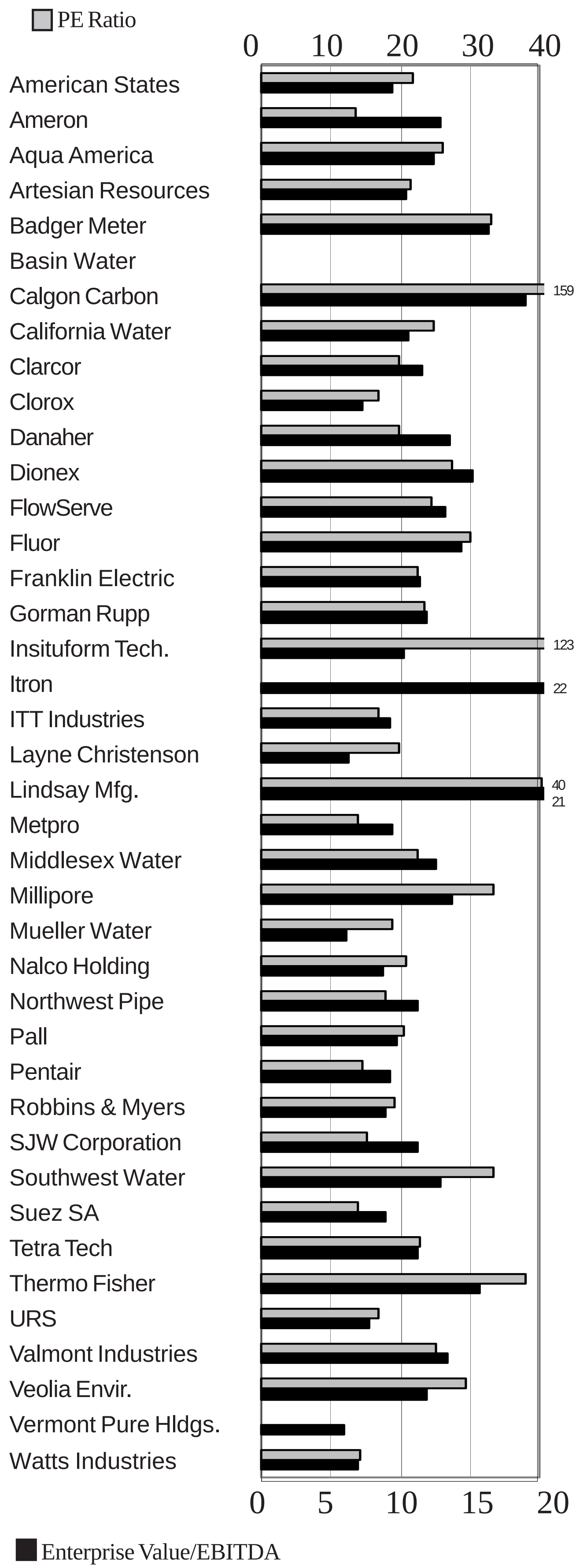
Productivity Measures



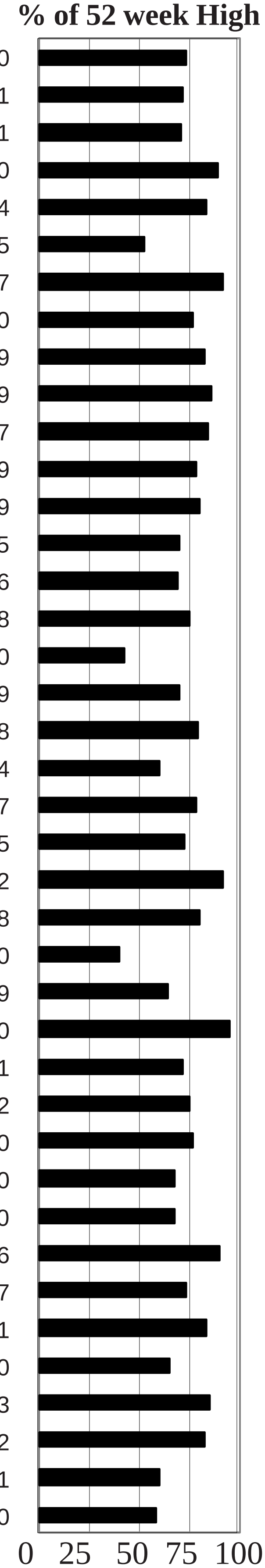
Note: Where there is no bar, the number is zero or has a negative value.

Equity Valuations	Stock Price Performance



Note: Where there is no bar, the number is zero or has a negative value.

Company	Price
American States	$34.00
Ameron	$83.91
Aqua America	$18.91
Artesian Resources	$18.50
Badger Meter	$38.64
Basin Water	$7.05
Calgon Carbon	$15.57
California Water	$34.60
Clarcor	$36.19
Clorox	$59.59
Danaher	$74.97
Dionex	$68.89
FlowServe	$82.39
Fluor	$120.95
Franklin Electric	$36.46
Gorman Rupp	$27.28
Insituform Tech.	$12.60
Itron	$79.39
ITT Industries	$57.98
Layne Christenson	$35.44
Lindsay Mfg.	$60.67
Metpro	$10.35
Middlesex Water	$18.62
Millipore	$66.58
Mueller Water	$7.80
Nalco Holding	$19.89
Northwest Pipe	$42.00
Pall	$35.01
Pentair	$29.82
Robbins & Myers	$61.30
SJW Corporation	$29.00
Southwest Water	$11.10
Suez SA	$53.16
Tetra Tech	$17.87
Thermo Fisher	$51.61
URS	$41.80
Valmont Industries	$84.53
Veolia Envir.	$79.62
Vermont Pure Hldgs.	$1.51
Watts Industries	$27.20



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for primary water and sewage services comprise almost two-thirds of total annual spending on water in this country. The vast majority of these revenues pass through municipal and public agencies - some 55,000 water utilities and about 16,000 wastewater utilities - not private companies. Notice also that the right-hand column of this table serves to underline the disparity just discussed - projected longer-term growth *rates* for different sectors of the overall water-related industries range all the way from two to ten percent per year. And certain specific "sub-niche" areas that are not broken out here - such as the membrane filtration or ultraviolet radiation treatment technologies - may be growing at much higher rates, possibly in excess of 15% per year. Finally, the growth rates of individual sectors are themselves experiencing slow but perceptible change. For example, even though water treatment chemicals comprise a very large market, the average growth rate of this sector is widely assumed to be slowly declining. Likewise, it appears likely that the explosive recent growth of the contract operations business will slow somewhat as that sector matures, particularly if public opposition to privatization increases.

The U.S. Water Industry
(Revenues in Millions)

Business Segment	2006 Revenue	'07 - '09 Growth
Water Treatment Equipment	$9,790	6% - 8%
Delivery Equipment	$12,170	3% - 5%
Chemicals	$4,150	2% - 3%
Contract Operations	$2,490	6% - 8%
Consulting/Engineering	$7,810	5% - 8%
Maintenance Services	$1,850	4% - 6%
Instruments and Testing	$1,470	4% - 5%
Wastewater Utilities	$37,490	4% - 5%
Drinking Water Utilities	$36,610	3% - 5%
Total U.S. Water Industry	**$113,830**	**5% - 7%**

Adapted from the *Environmental Business Journal*, 2007

On the other hand, growth *rates* in traditionally less glamorous infrastructure sectors like pipe rehabilitation are likely to increase in the future, as more and more capital is inevitably poured into maintaining and upgrading the nation's infrastructure. As mentioned above, a high percentage of future spending will be going into things like steel and concrete pipe, pumps and valves and storage tanks. This may not be the "sexy" side of the business, and the companies in this sector are not yet attracting as much attention from the Wall Street analysts - but this is where many of the dollars will be spent. A recent study suggested that trenchless pipe renovation will likely grow to $5 billion annually within the next several years - a growth of 500% from current levels.

In summary, the growth of the overall "business" will probably continue to hover in the neighborhood of 5% to 7% a year - a little in excess of GNP or population growth rates. For strategic planning and analytical purposes, it is more meaningful to talk about the growth and profitability characteristics of individual market sectors.

If market data for the U.S. market is sparse, then information for most of the rest of the world is truly speculative. However, while the U.S. is clearly the world's largest individual market, it is increasingly very clear that opportunities abound for water companies in the rest of the world. Most knowledgeable observers believe that the world market is about three to four times the size of the U.S. market - this seems to be emerging as the conventional wisdom. Several reputable parties have pegged the level of world business at around this level. The English publication *Global Water Intelligence* recently presented a set of assumptions that estimated a global market size of $420 billion per year.

Many business consultants and analysts have casually predicted exploding growth for the water industry in the near-term future; however, at least in most sectors of the business, the real situation to date has been more one of lower but very consistent growth. There can be no doubt that fundamental supply and demand considerations, whether expressed in quantitative or qualitative terms, clearly suggest continuing - and probably accelerating - growth into the long-term future. Indeed, it is very difficult to construct any kind of reasonable future scenario in which this industry will be characterized by anything *other than* very steady and sustained growth, and very attractive long-term business opportunities. However, on the other hand, would-be investors in this business need to understand that very few sectors are growing at the 15% to 20% rates that are often bandied about.

We have all heard the old saying - "everyone is always complaining about the weather, but no one ever does anything about it." Well, it's beginning to appear that indeed we have done something about the weather - we're making it warmer.

So, how big *is* the water market? The frank truth is that, even when we define individual sectors rather precisely and carefully total up the figures, we don't have a very good idea of just how big this business really is. Certain conventional wisdoms have taken hold within the industry, but it is typically difficult to document these estimates with much in the way of solid market data. In the final analysis, debating this figure is probably not very productive. Under any assumptions, the world water market is huge, and - perhaps most critically - many of the key geographic markets, such as China, are at an earlier and much more rapid stage of growth than is the United States. With a total market that is agreed to be somewhere in the range of hundreds of billions of dollars per year, and given the truly critical underlying needs and factors which are driving this market, individual firms don't really need to worry whether the world market is $300 billion or $400 billion a year. For most firms, rough estimates of specific end markets in certain geographical areas are much more meaningful - and more critical for good business planning.

<u>**The Water Business - Key Drivers and Trends**</u>**:** Several key factors - economic forces, social demands, and political realities - are driving the overall expansion and evolution of the broader water industry. These drivers, in turn, give rise to various trends and effects that will likely be key attributes of the global water business for years to come. As we see them, these fundamental drivers include the following:

• **Water Quality and Scarcity Problems Are Reaching Crisis Proportions, Worldwide:** Given all of the discussion above, this should be clear. However, we should start at the beginning - water quality and scarcity problems are the

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main concern and driver behind the challenges, all of the regulations, all of the commercial business opportunities and ultimately, the projected growth for the water business over the coming decades.

Clearly, the world has both significant water quantity and water quality problems, but the quantity aspect of this equation - the absolute scarcity of water - is beginning to take on an even greater urgency in many regions. As mentioned above, dozens of reports and studies have pinpointed the fundamental lack of clean water as one of the most serious long-term threats facing mankind. One can scarcely pick up a news magazine or the daily newspaper without seeing an article about water problems. The United Nations Millennium Development Goals identified access to clean drinking water as one of the primary international objectives of this century, asserting that the world should "halve by 2015 the proportion of people without sustainable access to safe drinking water" - a goal that few expect to be achieved. Although it has become commonplace, and even somewhat trite, to describe water - in terms of economic and political significance - as "the oil of the 21st century," it could well turn out to be true.

• **More Significantly, Public Awareness And Understanding of Water Problems is Increasing:** As water scarcity and quality problems have become more serious and more apparent, the public has gradually become better informed - and increasingly concerned about the water problems that may be passed on to future generations. Again, one needs only to look at the front pages of the popular media to see how broad and widespread this recognition is becoming. And as the general populace becomes more aware and concerned about water, public demands and perceptions will become more important drivers. A clear, if somewhat misinformed, reflection of this growing concern is the explosive growth of the bottled water industry over the past few years - discussed in more detail below. Although we believe that additional and massive public education programs are still required around the world to inform the public of the real nature of our water quality and quantity problems, general water issues are gradually getting more attention.

• **Regulation and Enforcement are Increasing, and New Policies and Approaches are Emerging:** As public awareness and concerns about water grow, they inexorably translate into greater government review, legislation, regulatory control, and enforcement. As opposed to the arena of more general environmental legislation - where public interest, regulation and enforcement have waxed and waned during the past three decades - when it comes to drinking water, the American public seems insistent upon ever-stronger and broader regulatory protection.

A huge volume of new regulation has been promulgated by Federal and state agencies over the past couple of decades. Public agencies and private companies struggle to understand and comply with this rapidly expanding and ever more complex regulatory machinery - and it has become a major cost to the public water and wastewater utilities. The *Journal of the AWWA* recently described water regulations as an "immense regulatory maze and administrative superstructure that …. may be at risk of collapsing under its own weight." Regulatory controls are becoming stronger in almost every other region of the globe as well.

Nonetheless, even in the economically most advanced, and most highly regulated countries like the United States, water pollution problems continue to grow and new water contamination issues continue to be uncovered. One recent study - the Environmental Working Group's *National Assessment of Tap Water Quality* - found that "tap water in 42 states is contaminated with more than 140 unregulated chemicals that lack safety standards," and suggested that EPA should be doing a far more thorough job of regulating drinking water - above and beyond the vast regulatory and control infrastructure that we already have in place. The whole new arena of "xenobiotic" contaminants - man-made health, beauty and medical compounds that are now being widely found in natural waterways - have only recently been detectable at all, and raise many new questions about ultimate impact on human health. As our understanding of the chemistry of water contamination expands, and as analytical technologies improve, we are likely to discover more and more compounds of concern to human health and well-being.

Most public works managers are between a rock and a hard place - technical requirements, regulatory complexities and overall costs continue to increase, while the general public remains resistant to increasing taxes and users fees.

Furthermore, compounding all of these traditionally regulated areas is a growing concern about potentially "introduced" compounds in water distribution systems - terrorist activities, and other security concerns regarding contamination of primary drinking water supplies which have arisen, particularly in the years since 9/11. This has raised another key concern in the water utility industry, and an area of new opportunity for monitoring and testing companies. Despite all of the advances in clean water that have been accomplished over the last fifty years, there is still essentially no monitoring of drinking water in the distribution system - monitoring the quality of water once it leaves the treatment plant and runs out into more than a million miles of underground distribution system piping. This is an area that will probably be the subject of considerable new regulation, and a commercial opportunity that will likely boom during the next several years.

• **Huge Economic (and Human) Capital Investments are Required - and Much More Focus is Needed:** In order for municipalities and industry to comply with all these expanding regulations, and in order for the country to maintain and expand the necessary drinking water and wastewater treatment infrastructure, huge capital expenditures will be required into the long-term future. Numerous and extensive studies have predicted how large this collective expenditure must be, and it is certainly in the range of hundreds of billions of dollars over the next two decades. The so-called "spending gap" - the difference between the current amount of U.S. infrastructure spending, and the levels that may be required to really maintain that infrastructure into the longer-term future - continues to increase. Where all the money to address these issues will actually come from is an increasing conundrum.

The impending question of *how* - not if - we should fund these required capital expenditures is likely to turn into a huge and contentious political debate in coming years. For example, the large metropolitan centers that often have the oldest and most run-down infrastructure with the greatest capital needs, are often the very same areas with shrinking center-city populations and a declining tax base. It seems likely that the Federal government will eventually have to step in to the middle of this issue, although it may require major public health crises before that begins to happen. These required billions and billions of investment dollars will represent a huge and unresolved future crisis for the United States - but they also constitute a huge opportunity for firms serving the water and wastewater treatment industry.

Resulting Trends and Developments: These four interlocking industry drivers in turn give rise to various trends and developments in the commercial water business - with respect to supply, demand, market and competitive conditions, and in terms of how we manage and utilize our increasingly precious water resources. Some of these key trends are highlighted below:

• **Out-sourcing or " Privatization" Continues - But Remains Controversial, Particularly in the United States:** "Privatization" has been replaced by "public-private partnership" not only in the lingo, but also in terms of the operating philosophy that must be practiced in order for such ventures to be successful. Regardless of what they are called, the out-sourcing of water and wastewater operations constitutes one of the more controversial aspects of the water industry today.

In many parts of the world, private operation of drinking water assets is taken for granted, and is the operational norm. The French - and more recently the British - are the world's major players in terms of private water management and operation. Privatization and contract water operations are significant and growing in many other parts of the world. *Global Water Intelligence* reports that about 10% percent of the world's population is currently served by private operators - a figure that is expected to grow to 16% by 2015. More than 45% of the population in Western Europe is now served by private operators, with rapid growth occurring in the Mediterranean and North African regions.

In the United States, roughly ten percent of the population is provided water by private companies of one sort or another. However, the highly publicized misfortunes of several large privatization projects, combined with an active and growing opposition movement, have begun to force a reassessment of water and wastewater privatization in the U.S. Unfortunately, we tend to get more of the negative news in the popular press. However, there are also a considerable number of success stories, even in South America, where much of the negative publicity about privatization has originated. Nevertheless, privatization of significant drinking water and wastewater utilities, at least large ones, seems to be facing an uphill battle in the United States at the moment - and the U.S. is really quite different in that regard. One European report accuses the United States of maintaining a "bunker mentality" in terms of what seems to be clearly needed increasing levels of privatization in order to maintain drinking water infrastructure.

The arguments *against* privatization of water assets revolve around concerns about the motives of private, for-profit firms, and the sense that access to clean water, as a basic human right, should be equitably allocated and priced. Within such broad confines, there is clearly plenty of room for reasonable people to debate and disagree. Many people simply believe that water resources are a part of our natural heritage which should not be entrusted to private companies to own, manage and disburse. Given the isolationist attitudes that have built since 9/11, the fact that many of the contract operators are foreign-owned companies has led to further concern and suspicion amongst the U.S. public.

On the other hand, the basic economic drivers *supporting* privatization remain strong. Few municipalities enjoy overflowing coffers, and few public officials who wish to be reelected want big tax increases on their watch. Most public works managers are between a rock and a hard place - technical requirements, regulatory complexities and overall costs continue to increase, while the general public remains resistant to increasing taxes and user fees. The perception that water is a free good persists, and it may take some severe water shortages or public health disasters before the public realizes that this just isn't true. As the contract operations firms point out, the best solution to this intensifying dilemma may be to turn to private companies to finance, build and operate their water or wastewater systems.

In summary, despite the cries and concerns of labor organizations and various public interest groups, the urgency of infrastructural needs and the political difficulties of increasing taxes make it likely that privatization, under various names, will continue to grow - in this country and around the world. Although the growth rate of out-sourcing of municipal operations has slowed a bit over the last few years, the fundamental drivers behind privatization *and consolidation* - huge capital needs, technological and operational synergies, limited public funds and a widespread aversion to higher taxation - remain strong. At the same time, it is clear that private operators are going to be judged by a very demanding and critical public.

….. as a result of thirty years of steady progress under the Clean Water Act, the discharged waters from wastewater treatment plants are sometimes cleaner than the supposedly "natural" rivers and streams into which they flow.

Elsewhere in this report, we discuss the trend towards greater consolidation in the private and industrial side of the commercial water industry. There is growing recognition and discussion of the fact that, in many areas, consolidation on the municipal side of the industry would make economic sense too - with many tiny utilities struggling individually to keep up in an increasingly complex technological and regulatory environment. However, this is an area fraught with political sensitivities, and little is happening so far.

Finally, it is worth noting that after a decade or more living under the "threat" of privatization, many public agencies and utilities have made substantial progress in terms of undertaking needed productivity improvements and cost reductions - a sort of "de facto" privatization. One way or another, water and wastewater agencies are gradually becoming more competitive and efficient.

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Selected Major Transactions in the U.S. Water Industry

(in the "modern era" - since the 1999 sale of U.S. Filter)

Seller	Revenue (mils.)	Buyer	Date	Valuation (mils.)	Multiple of Revenue	Multiple of EBITDA
Norit	$550	Private Equity	6/07	$900	1.6	-
ChemTreat	$200	Danaher	5/07	$435	2.2	-
Porous Media	-	Pentair	2/07	$225		9.7
Thames (RWE)	$2,500	Macquarie	10/06	$15,700	6.3	~17
Zhejiang Omex	-	Dow Chemical	6/06	-	-	-
Kinetico	$80	Axel Johnson	4/06	-	-	-
Zenon	$204	GE Water	3/06	$656	3.2	-
Kelda/Aquarion	$150(e)	Macquarie Bank	3/06	$860	5.7	-
Water Pik Techs.	$323	Investment Group	1/06	$380	1.2	11.2
Nuon – Utilities, Inc.	$80	Investment Group	5/05	-	-	-
Reynolds	$185	Layne Christensen	9/05	$112	0.61	6.2
National Waterworks	$1,500	Home Depot	7/05	$1,350	0.9	-
USA Bluebook	$80	Home Depot	6/05	-	-	-
CUNO	$397	3M Corporation	5/05	$1,300	3.3	~20 (e)
Ionics	$445	GE Water	11/04	$1,228	2.8	24.7
Trojan Technologies	$100	Danaher	9/04	$185	1.9	>30 (e)
Culligan Water	$682	Investment Group	7/04	$610	0.9	7.0 (e)
Veolia – U.S. Filter	$1,200	Siemens	5/04	$993	0.83	10.0 (e)
Isco	$65.6	Teledyne Techs.	4/04	$80	1.2	12.1
WICOR	$750	Pentair	2/04	$874	1.2	10.0
Waterlink	$67	Calgon Carbon	2/04	$38	0.57	7.0
WEDECO Water	$144	ITT Industries	1/04	$268	1.9	-
Ecolochem	$109	Ionics	11/03	$338	3.1	8.5
Everpure - US Filter	$60	Pentair	11/03	$215	3.6	12.0 (e)
Nalco - Suez SA	$2,600	Investment Group	9/03	$4,350	1.6	8.1
Waterworks – USF	$1,100	Investment Group	11/02	$620	0.6	-
Osmonics	$207	GE Water	11/02	$253	1.2	11.5
AquaSource	$70	Philadelphia Sub.	8/03	$195	2.8	-
FSG – U.S. Filter	$250	Pall Corporation	2/02	$360	1.4	16
Betz – Hercules	$1,200	GE Water	2/02	$1,800	1.5	8.0 (e)
Viridor – Pennon	$75	Danaher	2/02	$135	1.8	15
American Water	$1,400	Thames Water	9/01	$7,600	5.4	11.9
Utilities, Inc.	$64	Nuon NV	3/01	$400	6.3	-
Norit	$250	Nuon NV	3/01	$150	0.6	5.4
Thames Water	~$3,000	RWE AG	11/00	$6,000	2.0	-
Sybron Chemicals	$147	Bayer AG	9/00	$325	2.2	21
United Water	$356	Suez SA	7/00	$1,800	5.1	-
E'Town Water	$160	Thames	11/99	$948	5.9	14
Recovery Engng.	$85	Procter & Gamble	8/99	$265	3.1	-
Hach	$128	Danaher	7/99	$325	2.5	
Nalco Chemical	$1,940	Suez SA	6/99	$4,100	2.1	-
Aquarion	$115	Kelda	5/99	$596	6	-
U.S. Filter	~$4,200	Vivendi	3/99	$8,100	1.9	-

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• **"Musical Chairs" in the Industry - Ownership Rearrangement and Consolidation Continues:** One major impact of the exploding investment interest in the water industry has been a trend towards consolidation on the vendor side of the business, and an on-going rearrangement of ownership of key industry assets. This has almost resembled a game of "musical chairs" during the last several years. Many major international companies have sought to strategically position themselves to exploit the opportunities offered by this growing business - and have jumped into the industry via acquisition.

First came the widely discussed "foreign invasion" of the U.S. water industry in the 1990s - with British, French and German companies buying up many of the large players in the U.S. business. However, this phenomenon began to reverse direction in the early part of this decade; these early and largely foreign-based consolidators were replaced by major U.S. industrial corporations, who began to make dramatic moves to acquire assets in the water treatment and purification business in 2001 and 2002. Veolia, Suez, RWE, and most of the other major European water companies have now exited all but their out-sourcing businesses in the U.S., while industrial firms such as General Electric, Siemens, Danaher, ITT, Pentair and 3M are emerging as the new diversified water service and equipment companies.

There have been fewer "block-buster" deals during the past few years - but this is probably more reflective of a dearth of pure-play acquisition opportunities in the United States than a lull in strategic interest levels. Unfortunately, one fall-out of the high prices that GE, Danaher, and other large consolidators have recently paid for water companies is that they have driven prices up, and left in their wake an unrealistic set of value expectations for thousands of smaller technology developers, inventors, and tinkerers, who all think their "better mouse-traps" should also be worth twelve to fifteen times EBITDA.

Although large deals have declined somewhat over the past couple of years, smaller deals have continued apace. Pentair, Watts, Danaher and many others continue to make smaller acquisitions. Siemens continues its strategy of adding pieces to fill out and complete its already broadly diversified equipment and service offerings. And new buyers continue to emerge all of the time - such as Home Depot (which entered the business a few years ago, and then abruptly exited) Ashland, and Axel Johnson. Numerous other industrial companies are rumored to be interested in expanding their platform and holdings in the broad water business. (See the Chart on the next page for a detailed listing of key water transactions over the past several years.)

We tend to focus on activity in the United States, but consolidation activity was perhaps more intense outside of the US this year. Several firms have made significant acquisitions to try to further their strategic footprint in the expanding international water markets. Kelda of Great Britain sold its Connecticut-based Aquarion business to Australia's Macquairie Bank, Limited - another emerging buyer, particularly on the infrastructure side of things. Numerous infrastructure players in the United Kingdom and western Europe have bought and sold very significant assets during the past twelve months, with perhaps the biggest deal being the merger between Suez and Gaz de France.

What will happen in the new financial era? As credit markets tighten, those more highly-leveraged players, and certainly most of the PE buyers (see below), will have a harder time securing financing, and M&A activity will likely subside somewhat - with the result being a return to more reasonable valuations. In the process, those strategic and industrial buyers that have largely been sitting quietly on the sidelines the last few years, and who still have the cash to do deals, will probably return to the market as more aggressive buyers.

With so many major industry assets changing hands so quickly - or even multiple times - the competitive situation in the water treatment equipment industry is very "fluid." The picture is gradually becoming clearer, but the key question remains - which of these companies will ultimately be the major players in the next generation of this industry? Most observers are betting on the various diversified companies mentioned above - ITT Industries, GE Water, Pentair, Siemens and perhaps several others who have not yet made their first move. But several big questions remain - how can companies like RWE that were such committed buyers a few short years ago turn into such eager sellers? What was wrong with their strategies? Will the new owners of these assets have sounder strategies? And most importantly, what will be the ultimate impact of this large-scale ownership rearrangement on employees, shareholders, and customers?

When we talk of industry consolidation, it is usually within the context of private companies merging with or buying each other - the "commercial" sector of the business. However, as the efficiencies and economies of scale of larger operations continue to grow, it seems increasingly possible - indeed it seems necessary - that we will begin to see consolidation within the municipal utility sector as well. As observers are increasingly pointing out, it just makes too much sense for it *not* to happen.

With greater economic incentives, individuals and households will begin to use and re-use water more carefully, and industrial companies will re-think their approaches and re-tool their manufacturing systems, to utilize less water and to better recycle their wastewater streams.

Water and wastewater treatment are both very capital-intensive businesses, and there is no doubt that scale conveys distinct operating, technical and financial advantages. Yet, the municipal side of the business is primarily made up of very small local players - almost 85% of all municipal systems are categorized as "small." As the business becomes more and more complex and expensive to run, it seems that this must gradually change. We do see increasing consolidation amongst publicly-traded or private investor-owned utilities - but such privately-controlled utility companies also represent only a small fragment of the overall infrastructure. It is politically and financially far more difficult to try to merge together municipally or governmentally-owned systems - even though such mergers may make good economic sense. Nonetheless, many observers believe that we must figure out some politically acceptable means of consolidating small

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and local water municipal utilities, or else we will eventually face massive regulatory non-compliance and small utility failures.

And there are other questions in terms of the coalescence of smaller and local utilities into larger and larger "super-regional" utilities. How would a consolidation of the public water utility business affect the delivery of water and provision of sewerage services? Would such combinations also include other municipal services, such as solid waste and highways management, or would they be restricted to water and wastewater? Could such super-regional utilities privatize themselves, and or even look at floating public stock? Is it likely that we will see more water and hydropower based utilities merging, to more effectively utilize their common resource and interest - water? Despite all of these unknowns, it seems likely that we will see more consideration of public utility consolidation in coming years.

• **A Strong Surge of Public and Private Equity Investment Interest in the Industry:** As the widespread recognition of water problems has increased, and as the corporate and strategic consolidation described above has blossomed, hundreds of other strategic and financial buyers have also swarmed into the industry in an attempt to establish a foothold. As is increasingly the case in most other sectors of the economy, the private equity (PE) community has also made its presence and power felt in the water business. For example, it was recently reported that one out of every five workers in the British economy was employed by a private equity-controlled business - and the impact is headed in the same direction in the United States. Despite a slow-down in activity following the initial impact of turmoil in credit markets in late 2007, it seems likely that we will see continued PE interest in the water industry.

Private equity firms have been raising hundreds of billions of dollars in new funds each of the last several years, and now represent some 25% to 30% of all merger and acquisition transactions around the world. The size of private equity deals continues to spiral upwards - during the last couple of years, there have been several transactions in the $30 to $40 billion plus range in terms of purchase price. With this kind of explosive activity, it is little wonder that private equity firms are also carefully combing through the water industry for attractive acquisitions.

Just a few short years ago, the bulk of private capital was chasing after internet and high-tech opportunities, and there seemed to be little interest in water or other environmental businesses. That, however, has distinctly changed. Today there are literally hundreds of PE firms looking to establish a position in the water equipment industry. As other investment opportunities faded, and as the amount of dollars in private equity funds has exploded - there has been a head-long rush into water-related businesses over the past two to three years. The total amount of capital sitting in private equity funds remains at an all-time peak, and the availability to "stretch" that capital through additional borrowing had rarely been as attractive as it was until about the middle of 2007. As a result, typical PE managers find themselves today with huge amounts of capital which they have to (relatively quickly) invest somewhere - and the water business is one attractive area in which to explore for good investment opportunities.

Skeptics continue to point out that fundamental opportunities in the water industry really haven't changed that much over the past few years; they suggest that the current interest in the industry is more a result of PE firms desperately looking for new places to put their huge sums of capital to work than it is a true interest in the water sector. However, this argument is rapidly fading, with more and more major investments in the water arena. This is particularly true for the infrastructure sector of the market - water utilities and broader treatment and distribution infrastructure - and particularly in foreign markets, where PE firms have taken huge stakes in several major players. Private ownership of several of the major British water utilities is perhaps the prime example of this trend.

The water industry is attractive to private equity firms for several reasons. First, it is perceived to represent strong and very consistent growth over the long-term future - and certain sectors offer the allure of high profitability at the same time. The long-term stability and good predictability of water utility businesses are key factors behind the currently high level of interest in infrastructure-related water businesses. The water business offers another characteristic which PE firms typically seek - it is a relatively fragmented industry ripe for consolidation. This offers PE firms the opportunity to consolidate businesses together to build larger, stronger - and more valuable - companies. The only significant drawback from the PE firm's perspective is the huge premiums that have been paid for companies in this sector - something which financial buyers often cannot afford.

There is a huge interest in water investment, and we clearly have huge needs - we must figure out better ways to connect this supply of "water dollars" with the obvious demand for water dollars.

From the seller's perspective, the purported expertise of the PE community is its ability to recognize, acquire and enhance undervalued assets, and to run them in a strictly economic manner - attributes which many "sleepy" water companies could definitely benefit from. Private equity firms can bring more than just money to the challenges facing small and privately-owned water companies - including extensive business operations experience, distribution and marketing contacts, and experience with the financial management and control systems which can help companies become more profitable. The PE investor can also bring to many firms a more stable operating environment, in which the potential conflicts with a larger and unrelated corporate owner, or the pressures of public ownership, are effectively removed. Finally, from the perspective of selling management, careers are much more secure than they might be in a sale to a strategic buyer - in fact, the PE firm will typically only do the deal if it is confident in the capabilities and the commitment of existing management.

Irrespective of the pros and cons of greater PE investment in the industry, various buyers have already been involved in several large transactions. Over the past couple of years, notable PE purchases have included Water Pik, Utilities, Inc., Nalco, Culligan Water and - more recently - several of the British water utilities. During the past few years, the biggest and most talked about example has been MacQuarie's purchase of Thames Water for approximately $15 billion, following the break-up of RWE's ill-fated water business. But there have been many others - some of these are shown in the Table below.

Major Private Equity Deals in the Water Industry

Seller	Buyer
Norit	Doughty Hanson (U.K.)
RWE/Thames Water	MacQuarie
Severn Trent Laboratories	HIG Capital
Anglian Water	Consortium of Investors
Water Pik Technologies	Carlyle Group, Zodiac
Nuon/Utilities, Inc.	AIG Highstar Capital
Suez/Nalco Chemical	Blackstone, Apollo, Goldman Sachs, et. al.
US Filter/Culligan	Clayton, Dubilier & Rice
Bridgepoint/Alcontrol**	Candover Partners
East Surrey Water	Terra Firma Partners
Suez/Northumbrian	Aquavit Partners
RWE/F.B. Leopold	PNC Equity
RWE/Ashbrook Simon Hartley	Blue Sage Capital
US Filter/Waterworks*	Thomas Lee, J.P. Morgan, et.al.

* equity groups later sold business to Home Depot in 2005
** example of one equity group selling to another

Increasing private equity interest has clearly helped to push average valuations higher, but only time will tell just how many of these private equity groups will be able to exit their investments with a reasonable return. However, in at least a couple of circumstances, the PE holder has already exited at a handsome profit - for example, PNC Equity exited its Leopold investment at a price rumored to be twice what it paid, implying a huge return on investment after holding the property for less than two years.

Investment interest in water companies is not just a private equity phenomenon. There is also a greater interest in water investments by the broader public as well. Existing publicly-traded water stocks - though few in number in the United States - continue to be highly sought after by individual investors, as evidenced by continuing high valuations. Water related hedge funds, index funds and other vehicles have proliferated during the past few years, though most are similarly hampered by a paucity of public traded U.S. water investment vehicles. As mentioned in the Introduction, we are also beginning to see a more active market for initial public offerings of stock in the broader water and related industries - several are known to be on the books for this year. The imminent return of American Water Works to the public market, after its brief ownership by Thames/RWE - although delayed by market conditions in late 2007 - is being eagerly anticipated by stock analysts and investors. It would once again be the largest publicly-traded water utility in the United States. Further public offerings in the water industry seem likely, and new vehicles for more specialized or more creative water investing will continue to emerge.

• **Greater Efficiency - More Focus on "Reducing Demand to Increase Supply:**" Smarter, more efficient and more sustainable use of our existing water resources should be thought of as a new "source" of water - this is perhaps the greatest opportunity we have to extend our overall availability of water. But despite improvement and increasing attention during the last several years, there is still considerable "low-hanging fruit" to be harvested in terms of more efficient conservation, use, and re-use of our water resources.

For example, even today, many water distribution systems incur leakage of as much as 20% to 40% of the treated drinking water. Loss rates in the main distribution systems - referred to as "non-revenue water" - are as high as 50% in many parts of England and France where water mains may be over a hundred years old. This is one of the first areas that should be addressed - it is clearly easier, cheaper, and more environmentally sound to fix existing water mains than to go about building new dams, reservoirs, or seeking other new sources of supply, half of which will also go to waste. And this consideration again underlines the expansive growth which the infrastructure equipment sector of the marketplace - pipes, valves, meters, pumps and tanks - is likely to enjoy in the coming years.

From a broader perspective, the last several years of significant droughts across much of the western United States have dramatically illustrated how much water we waste - and conversely, how much water we can in fact save, once we are really forced to confront the issue. Most of us could be far more efficient and miserly in our use of clean water, without really having to make major sacrifices. Greater public awareness of conservation issues and opportunities, and successful local conservation programs have begun to show results in many areas of the country. As discussed later in this report, an interesting but frustrating paradox is beginning to emerge in this regard - as consumers try harder and work smarter to use less water, the total revenues paid to the municipality or water agency in some regions have fallen sharply, leading to an entirely new and generally unanticipated problem - declining revenue.

The one clear and inescapable conclusion of all of this discussion is the inevitability of continuously rising water prices over the longer-term future - indeed, the urgent need for rapidly rising water prices in many parts of the globe.

Perhaps crying out the loudest for efficiency improvement is the area of agricultural irrigation. Almost 70% of our total water usage as a planet goes to agricultural irrigation, and 40% of our food supply now comes from artificially irrigated lands. As the researcher Sandra Postel says, in her review of irrigation practices *Pillar of Sand*, "irrigation unleashed a profound transformation in human development, and created a new foundation from which civilizations sprung and blossomed." However, irrigation can also be a hugely wasteful process as it is typically practiced. Furthermore, it can lead to salt build-up and gradually less fertile soils if not managed properly. Some sources estimate that 30% of irrigated land has already been rendered infertile, or basically useless, because of careless irrigation practices. New and more efficient technologies for the use of water in irrigation, through such practices as drip irrigation - "more crop per drop" - offer great promise. This is not the place for a full discussion of irrigation; however, more efficient water usage, better drainage systems, and increasing use of certain types of wastewater for agricultural irrigation, should all be important policy objectives, and can collectively constitute an important new "source" of freshwater.

In a broader sense, more efficient water usage is perhaps
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best reflected by the growing interest in water re-use and recycling - a sector that many pundits believe to be one of the most exciting growth opportunities in the entire water business. As the boundary between "water" and "wastewater" continues to fade - as wastewater increasingly comes to be viewed as just another source of primary water - there are strong economic reasons to recycle and re-use wastewater. This arena of possibilities is described in more detail below.

• **Increased Focus on Water Recycling and Re-Use - Technologies and Attitudes:** Water "reuse" - in all of its varied forms - remains one of the most robust sectors of the overall water business. And water "recycling" initiatives, from the individual residence to the large municipality or major industrial installation, are rapidly gathering steam. However, these terms are often used rather vaguely or even interchangeably, and some definitions and clarifications are in order.

Most wastewaters can be recycled and cleaned to levels where they can be re-used for primary drinking water - and this can occur in both a direct and an indirect manner. *Indirect* re-use of treated wastewater for drinking - i.e., after the wastewater has been treated, discharged into and then withdrawn from a river, or pumped into and then out of an underground aquifer, and put through another primary treatment process - is obviously a widespread practice everywhere. For example, it is estimated that on some of the major river systems in the United States, water is used and re-used in this fashion up to 20 times as it travels to the sea - the discharge waters from one wastewater treatment plant essentially comprising the raw water intake at a primary drinking water plant a few miles downstream. In fact, as a result of thirty years of steady progress under the Clean Water Act, the discharged waters from wastewater treatment plants are sometimes cleaner than the supposedly "natural" rivers and streams into which they flow.

The facts are simple - water is an essential prerequisite of life, to sustain and improve our standard of living and our modern industrial economy - and we are not going to find a substitute for water.

What is usually meant by the term "water reuse" however, is a more *direct* type of reuse - without the long-term intervention of nature and the hydrologic cycle - i.e., more immediate treatment and recycling of wastewater for primary use purposes. Although direct re-use of wastewater for drinking or other household uses has been technologically feasible for years, any widespread direct re-use for drinking purposes still seems to be quite a ways in the future. Today, such direct reuse for drinking water purposes is only commercially practiced in a very few and very arid locations around the world. Putting a "black box" treatment system on the outside of a home to treat sewage and recycle it directly back into the tap - often referred to as "toilet to tap" in the popular media - is clearly "suspicious" or unacceptable to most people. Scare stories in the press tend to reinforce this reticence, even though from a technological perspective, it is fairly straightforward to recycle wastewater to drinking water standards.

Public resistance to broader direct use of recycled wastewater is, at the base level, simply due to a poor understanding of recycling processes - and ignores the fact that most of the primary drinking water in this country is indeed already recycled, in the broader sense. Wider public acceptance of direct wastewater reuse is a major public education challenge, but eventually more and more direct re-use seems certain to happen - especially in the more arid regions of the world.

There is one very critical statistic to consider when evaluating the potential impact of re-use as a means of extending our water resources - a factor which should eventually make direct reuse much more feasible on a wide scale. Only a tiny percentage of our primary water supply is actually used for drinking. Out of the roughly 130 gallons of water per capita per day that we currently treat to drinking water standards, most individuals drink less than a gallon a day. Even if we also consider the proportion of our water that we use to cook and clean with - which we might also wish to be treated to high-level drinking water regulatory standards - this is still a small percentage of total water consumption. Most of the rest of that water is used for watering lawns, washing cars, fighting fires and the like - applications where the water clearly does not have to be treated to highly exacting drinking water standards. In other words, the vast majority of the 130 gallons per person per day could be recovered and treated for a variety of other uses *without anyone ever having to drink directly "recycled" wastewater.* Hence, even if only small incremental gains could be made in terms of *non-potable* water re-use, overall water availability concerns could be substantially impacted. (This issue is discussed in more detail below under the consumer section.)

Despite these types of social concerns, more and more cities around the world are beginning to seriously look at recycling wastewaters to re-use for drinking. This is especially true for cities in arid regions or remote internal areas away from the oceans, where seawater desalination is also a possible supplementary source of drinking water. The inland town of Toowoomba, Australia in Queensland, recently announced plans to evaluate just this kind of direct reuse system to supplement its scarce water resources. Arid but coastal cities, like many of the major metropolitan centers springing up in the Middle Eastern states, are amongst the world leaders in large-scale desalination as a source of drinking water. However, it seems clear that carefully planned and efficient reuse systems are incrementally a far cheaper source of additional water sources than are huge desalination plants, or totally new water sources.

At any rate, one thing is certain - as water prices continue to rise, there will be ever-increasing incentives for more careful recycling and reuse. With greater economic incentives, individuals and households will begin to use and re-use water more carefully, and industrial companies will re-think their approaches and re-tool their manufacturing systems, to utilize less water and to better recycle their wastewater streams.

• **Incremental but Continuing Technological Advance Will Help Address Some of Our Water Challenges:** Few observers believe that there are any truly revolutionary technological breakthroughs lurking out there which will radically transform the treatment and utilization of water overnight. However, incremental technological advances are ubiquitous - and thousands and thousands of technology developers are actively working on developing and commercializing better "mousetraps" across the industry. Perhaps the most significant and well-known example of this incremental but steady technological advance is the improvement in efficiency which has been achieved over the past couple of decades in reverse osmosis - one of the primary technologies behind seawater desalination, as well as water treatment and wastewater recycling. Rapidly declining cost and improving efficiency of reverse osmosis membranes, despite high energy costs, has made membrane treatment of raw water and desalination of seawater economically feasible in many parts of the world today.

Elsewhere across the plethora of different water treatment technologies, incremental enhancements to existing technology and continual cost reduction are on-going. A look at the agenda for any technology conference in this industry quickly suggests the breadth of technological approaches which are being applied to water treatment. Beyond the more widely known techniques such as membrane filtration, UV radiation, chlorination, ion exchange, chemical treatment, flocculation and settling, and so on, there is a bewildering array of newer and developing technologies - such things as electrocoagulation, sonication, cavitation, demineralization, ozonation, electro-deionization, biocidal disinfection, electrodialysis reversal, multi-stage bubble aeration, and various alternative chemical treatments. In addition, there is an emerging focus on systems that promote and enhance natural water treatment methods, such as natural attenuation and constructed wetlands development.

The proper application of these existing and improving technologies - either separately, or in the right combination with each other - can clearly help to solve many of the world's water problems and challenges. But the problem in many areas - particularly around the less economically developed parts of the world - is money, not technology. Indeed, many observers of the global water crisis believe that the simpler and "lower tech" approaches - sand filtration and enhanced natural wetland treatment, rather than reverse osmosis and the like - will be easier to implement and cheaper, and may ultimately play a more significant role in solving the vast majority of the world's water shortages. In summary, despite the lack of any obvious "silver bullets," existing technologies appropriately funded and applied can go a huge way towards solving many of the world's water problems.

• **Consumers and Residential Users Increasingly Vote With Their Pocketbooks:** As the general public has become more aware and concerned about water, individual consumer preferences and demands are becoming a more important driver in the business. A critical consideration here is the growing concern amongst consumers, particularly the more affluent, that tap water may not be safe to drink. Amazingly, the Metropolitan Water District of Southern California reported several years ago that almost *two-thirds* of their customers no longer thought it advisable to drink the water coming out of their taps. Primarily because utilities have not effectively marketed the true value of their product - although partly because *real* problems do occasionally occur - many consumers now believe they need to either buy bottled water or further treat the tap water coming into their homes. Right or wrong, this is a key driver behind several important sectors of the water business.

This area is becoming an issue of great controversy between the water utility industry - the some 55,000 agencies providing drinking water, most of which are municipally or government-owned and operated - and the residential treatment and POE/POU (point-of-entry/point-of-use) equipment manufacturers and bottled water distributors. The former group suggests that public tap water is truly one of the great economic bargains of all time, while the latter cautions that the only way you can really be sure your water is safe is to treat it again within the confines of your own home or drink it out of a pre-packaged bottle. Although the ultimate outcome of this debate is still in question, the effect has clearly been to strengthen the markets both for bottled water and for POE/POU home treatment products. New markets are also beginning to emerge in areas such as residential water monitoring and testing services.

The explosive growth of the bottled water industry over the past few years is a spectacular example of how customer perceptions - rightly or wrongly - can create and drive new markets. The extent of this phenomenon is staggering - it is now the second-largest beverage category in the United States, and it is estimated that Americans consumed over 7 billion gallons in 2005, an 11% increase over 2004 - or 26 gallons per person - more than $10 billion worth in total. According to the breathless narrative published each year by the Beverage Marketing Corporation, the reasons are clear - bottled water is "a healthy, safe, ready-to-drink commercial beverage, which is becoming increasingly affordable - a great beverage alternative. Bulk and single-serve packaging options facilitate a variety of uses." Providers continue to market bottled water by promoting it as something completely different than tap water - a concept which apparently sells to a large swath of the American public.

Statistics abound for this consumer-oriented market - as opposed to the rest of the water industry - and one can easily obtain data for sparkling water vs. non-sparkling water consumption by age group, bulk retail volumes vs. PET multipacks sales, and so on. In the meantime, the business has quickly been consolidated into the hands of the major international food and beverage companies - Nestle, Coca-Cola, Pepsi and a few others.

Although (a) there is generally scant evidence that most bottled water is any different from, or safer than tap water; (b) the bottled water industry is only lightly regulated today; and (c) the "transportability" of water is easily accomplished by keeping a couple of empty bottles around, the bottled water business continues to boom, as we mentioned at the outset.

A more substantive and serious question which arises out of the whole tap water safety issue, and which is increasingly debated within the industry, has to do with the social efficiency of centralized water treatment versus "decentralized" or "distributed" treatment of water. This issue ties back to the fact mentioned above - *very little of our extensively treated drinking water is actually used for drinking.* If we are only actually drinking 1% of all the water that is treated to our very stringent regulatory standards, does it make any sense from a broader social and political perspective to treat all of our water to these exacting standards? Would it make more sense to treat water to lower standards at considerably

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less expensive central plants, and gradually develop an infrastructure where individuals treated this water for their own drinking purposes at the point of use? In other words, would it make sense to save a lot of money in the construction of such sophisticated central facilities, and have each home and business treat that very small amount of water that they drink or bathe in via POE/POU types of devices at the point where it is actually consumed?

This would obviously require a massive re-thinking and re-building of the entire water infrastructure system in the country - and hence it is not likely to happen any time soon. However, over time, we may indeed see more and more consumers taking matters into their own hands, and treating or re-treating water to their own specifications at the point of use. Some utilities have already experimented with providing POE treatment devices to their users. This issue will probably represent a major social and economic debate in the future.

• **New Paradoxes and New Questions Continue to Emerge and Confuse the Situation:** Particularly in the United States, the water business seems increasingly confused by a series of emerging ironies or paradoxes. For example, although the pressing need for vast water infrastructure expenditures is becoming progressively clear, it is less and less obvious where the funding for these investments will come from - local agencies and municipalities continue to suffer from tighter fiscal constraints, and the Federal government, at least at this point in time, shows no inclination of wanting to get involved. Projections about the limitless future of the water business are beginning to be tempered by the reality of national fiscal constraints - there are huge needs, but how will we ever fund the solutions? As we have indicated above, it may only be a series of public health calamities resulting from the weakened water infrastructure that will eventually force a Federal attention to this problem.

As we mentioned at the outset, from an investment perspective, the water industry has never been hotter - investment interest in all facets of the water industry has been booming. Investors of all stripes have been rushing to investigate the water industry - corporate and strategic investors like the General Electrics and Siemens' of the world, hundreds of private equity groups like CD&R and the Carlyle Group, and literally thousands of private individual investors. The stock prices of water companies have been driven to high levels, M&A transactions are occurring at very high valuations, new companies are rushing to the public markets, and various types of new water-specific investment vehicles are coming out. But it often seems that there is a stampede of investor interest chasing after relatively few real and attractive investment vehicles - investors lament the paucity of pure-play water stocks in the United States, and are increasingly turning to foreign stock markets to invest in attractive water companies. Nonetheless, as global water concerns are better understood and as commercial opportunities are better defined, there is a huge reservoir of investment funds seeking to find a home in the water industry.

However, at the same time as this frenzy of investment interest has intensified, we hear incessantly about the drastic need for new investment, the capital expenditures that will be required to maintain and expand the drinking water and wastewater infrastructure - both here and around the world. Every month seems to bring forth a new study of future water needs, and the hundreds and hundreds of billions of dollars that will be required to continue to provide clean water. The most recent EPA estimate of capital requirements, for just the drinking water side of just the U.S. infrastructure system, is estimated at some $277 billion over the next two decades. The controversial "spending gap" - the difference between what experts estimate that we *should* be spending and what we *are* spending to correct these problems - continues to increase, and seems to portend potential disaster somewhere in the future. Similar estimates of investment needs, with even larger magnitudes, apply for most of the rest of the world as well. The infrastructure is crumbling in many parts of the economically developed world, and doesn't even exist at all in many parts of the less developed world. In short, the needs in this industry are truly vast - and the situation cries out for new dollars to be invested.

This situation represents a major paradox and dilemma for the water industry - on the one hand, we seem to have lots of dollars looking to be invested, and on the other hand, huge infrastructure and capacity needs that are crying out for new dollars. On one side, hungry investors complaining about the lack of good investment opportunities, and on the other, the public clamoring for the rebuilding and expansion of a dilapidated water system. Given the urgency of the world's water problems, this is a situation which cries out for new and revolutionary approaches - for more creative financial mechanisms which will allow private investors to put their money to work for the public good, and concurrently be able to earn a competitive rate of return on those monies in the process. And if this is not going to occur on a widespread scale through out-sourcing or public-private partnerships, then we either need to find alternative means in the short-term, or we will be forced to yield to limited and less attractive options over the long-term. There is a huge interest in water investment, and we clearly have huge needs - we must figure out better ways to connect this supply of "water dollars" with the obvious demand for water dollars.

In another somewhat counter-intuitive trend alluded to above, water conservation measures continue to improve in many arid parts of the country - but the resulting lower water usage has translated into lower revenues for municipalities, and hence fewer funds to invest in badly needed infrastructure. By "doing the right thing" and conserving water, consumers are putting a greater, rather than a lesser, financial burden on the water authority. In short, responsible customers must be told to both use fewer gallons *and* pay more for the gallons they *do* use - not very palatable to either the water supplier or the customer.

Perhaps one of the biggest unanswered - maybe unanswerable - questions is how global warming will affect the world water situation. At first glance, most people worry about the simpler and more straightforward potential impacts of global warming - rising sea levels, and what the impact might be on low-lying areas. But the eventual impacts of global warming, though still poorly understood, will be far more complex. Yes, rising sea levels could present a huge challenge to the world, and to drinking water and wastewater treatment systems along the coastal cities where much of the world's population lives (see *TEBS*, Summer 2007). Low-lying deltaic countries, such as Bangladesh, could lose significant percentages of their land area with only minimal increases in sea level. Although melting glaciers in the Himalayas - which form the headwaters of the major rivers supplying two of the most populous nations on earth, India and China - might give the illusion of bountiful water for a few years, once they are gone, water shortages in those areas could be permanent and extreme. The potential of global warming to shift the *predictability, timing, and extent* of natural rainfall patterns around the world could truly wreak havoc in terms of water availability, agricultural productivity, and food supplies. This impact could, as they say, "change everything." Scientists are only just beginning to understand the potential long-term effects of global warming, and economists and planners have hardly started to think about the potential economic and social effects.

Conclusions: The one clear and inescapable conclusion of all of this discussion is the inevitability of continuously rising water prices over the longer-term future - indeed, the *urgent need* for rapidly rising water prices in many parts of the globe. Water resources are poorly managed in many parts of the world, and water remains truly - and in some cases absurdly - cheap (see "Water is Cheap, Ridiculously Cheap" TEBS, Winter 2006). An authoritative special report a few years ago from the *Economist*, concisely concluded that water is "ill-governed and colossally under-priced" around the world. Discouragingly, it also reported that the United States is the most wasteful nation on earth in terms of water usage.

The true *cost* of delivering clean water - as well as the average *price* of water - continues to creep slowly upwards in most localities, but prices are not rising at the kind of rates that will be necessary if we are going to upgrade and maintain our infrastructure on a truly sustainable basis. It seems clear that we still don't recognize the true value of water - and few of us currently have to pay anywhere near what it is really worth to us. Any review and analysis of the water situation, particularly in the United States, must come to the same conclusion - we simply have to start paying more for water, both to encourage more efficient patterns of use, and to finance a sustainable treatment and distribution infrastructure. Water prices, in many parts of the world, simply need to rise quite substantially before most of us will begin to make consumption choices based upon price variations.

In a recent review of water pricing around the world, *Global Water Intelligence* asserted that "there is no correlation between....water scarcity and water price." The report also observed that there is no other product whose price to the consumer is so totally unrelated to its cost - an observation that seems to often go unnoticed or ignored in most eco-

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HOW TO READ THE ENVIRONMENTAL BENCHMARKER AND STRATEGIST

Please note that with the exception of page 3 and the stock price on page 8, all of the tables herein show two different financial statistics which are measured on different scales; the metric listed at the top of the table is shown as the top bar in the chart, and is measured against the scale shown on the top of the table. Likewise, the metric listed at the bottom is shown as the lower bar and is measured against the scale shown at the bottom of the table. Where this is no bar, the calculated number is zero or has a negative value. Where the bar extends off of the scale, the actual value is shown in type.

The financial data and statistics utilized in *The Environmental Benchmarker and Strategist* are provided by Market Guide, Inc. through various financial web-sites. The data utilized in constructing the charts herein are typically from a date two to three weeks prior to the time the subscriber receives the publication in his or her mailbox. Specific definitions of certain data contained herein follow:

- number of shares includes all shares outstanding, less the shares held in treasury
- price to earnings ratio is calculated using earnings *before* extraordinary items and accounting changes over the past four quarters
- EBITDA equals earnings before interest, taxes, depreciation and amortization
- net earnings used to calculate return on equity is calculated as income after taxes plus minority interest and equity in affiliates plus preferred dividends and U.S. GAAP adjustments.
- return on equity is calculated as net earnings available to common shareholders divided by average common equity over the most recent five quarters
- debt to equity ratio is total debt for the most recent quarter divided by total shareholder equity for the same period
- cash includes actual cash as well as short-term investments on the balance sheet
- enterprise value equals market capitalization plus long-term debt less cash (as defined above)
- Per employee statistics shown on page 7 are based upon headcount reported in the most recent 10-K filing to the Securities and Exchange Commission, which is only published annually. For companies which have grown substantially within the past year via acquisition, financial data may be published and updated prior to the availability of new employee data. Hence, these per employee statistics may be overstated for a few quarters.

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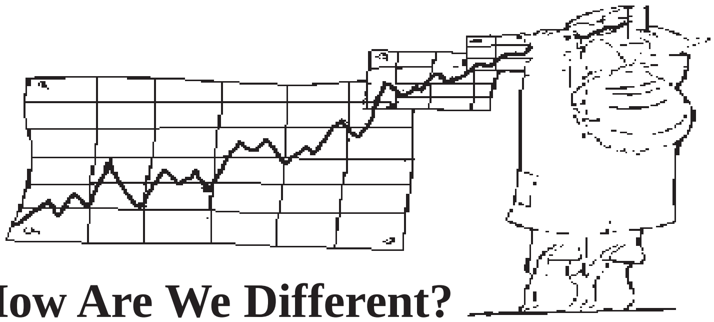

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nomic and political debates. Indeed, to paraphrase Benjamin Franklin's observations of over 200 years ago - it seems likely that we will only recognize the true value of water once our "well runs dry."

As prices continue to increase, decisions about water usage must inevitably begin to take on greater significance in the overall economy. And as prices rise, many of the trends discussed above will only intensify - greater reliance on re-use and recovery, more emphasis on conservation, a continuing trend towards more private-public partnerships, more rapid advancement in technology, and probably, an on-going consolidation in the industry. This is already starting to happen - water prices are rising faster than inflation, but in many areas prices need to increase at a much greater rate.

Over time, water will come to be viewed more and more as a true economic commodity - one that can be bought, sold, moved around like other commodities - and yes, hoarded. Government subsidies, and major Federally-funded dams, water distribution and irrigation programs over the past hundred years have seriously distorted the workings of a free market in the United States, but market forces seem likely to increasingly exert themselves as clean water becomes more scarce. Increasingly, it will make sense to evaluate, understand and manage water resource on a watershed basis - independent of political boundaries that may interfere.

However, at the same time, and from the global perspective, the "commoditization" of water will have to be aggressively balanced by equity and fairness concerns - everyone needs water to live, and there will always be some who can't afford to pay for it. Finding the right balance to this dilemma - *water as an economic commodity versus water as a human right* - will be one of the great social, economic and political challenges of this century. And as mentioned above, we must develop new and more creative financial mechanisms which will allow hungry private investors to put their money to work for the public good - better ways to connect growing investment interest with the huge capital requirements which are staring us in the face.

Yes, water frequently falls from the sky. Yes, three-quarters of our planet is covered with water. And yes, fresh water is abundant in many parts of the globe. But it's not always clean, it's not always where we need it, and it costs the world hundreds of billions of dollars a year to collect, clean, and distribute. The world's population has increased four-fold over the last hundred years, but we still have the same amount of water. And, unlike any other commodity, there is truly no substitute for water.

In closing, we need to remember that the amount of freshwater on this earth is pretty much fixed - and the bottom-line is that we need to become much smarter and much more efficient in our treatment and usage of this increasingly scarce resource. The facts are simple - water is an essential prerequisite of life, to sustain and improve our standard of living and our modern industrial economy - and *we are not going to find a substitute for water.* As the global water crisis intensifies, we face numerous and daunting political and economic challenges, but there will also be almost limitless opportunities for creative, innovative and well-managed firms to help provide solutions.

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