

# Investing in the Global Water Sector



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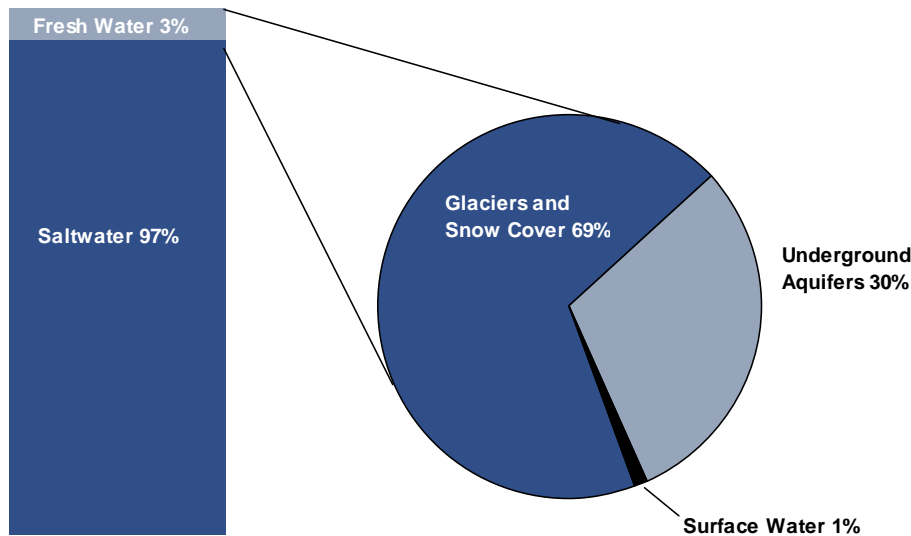
# Navigating Investment Opportunities in the Global Water Sector

- **Water scarcity/quality is an enduring megatrend**
  - Demand-supply imbalances for the life sustaining resource with no substitute
- **Water sector positioned for long term, mostly defensive 4%-6% growth**
  - \$450 billion global water market, \$100 billion in the US, across 13 subsectors
  - Developed countries are focused on infrastructure rebuild: 1x-2x GDP growth
  - Developing countries are still building out new treatment systems: 8%-10% growth
  - Two-thirds of the top-50 companies in water are outside the US
- **Investors should focus on higher-end water treatment equipment and systems**
  - Desalination, filtration/ultrafiltration, water reuse, water test, smart meters
    - These command higher growth, higher margins, and premium valuations
- **Our Investment Framework: Identify best positioned Multi-Industry companies, best-in-breed, take-out candidates, and baskets/ETFs**
  - Our top picks among Multi-Industry companies in water: Buy-rated Danaher & Pentair
  - We expect ITT Water to command a premium valuation on scarcity value

# Supply of Fresh Water is Limited and Stressed

Global Water Supply

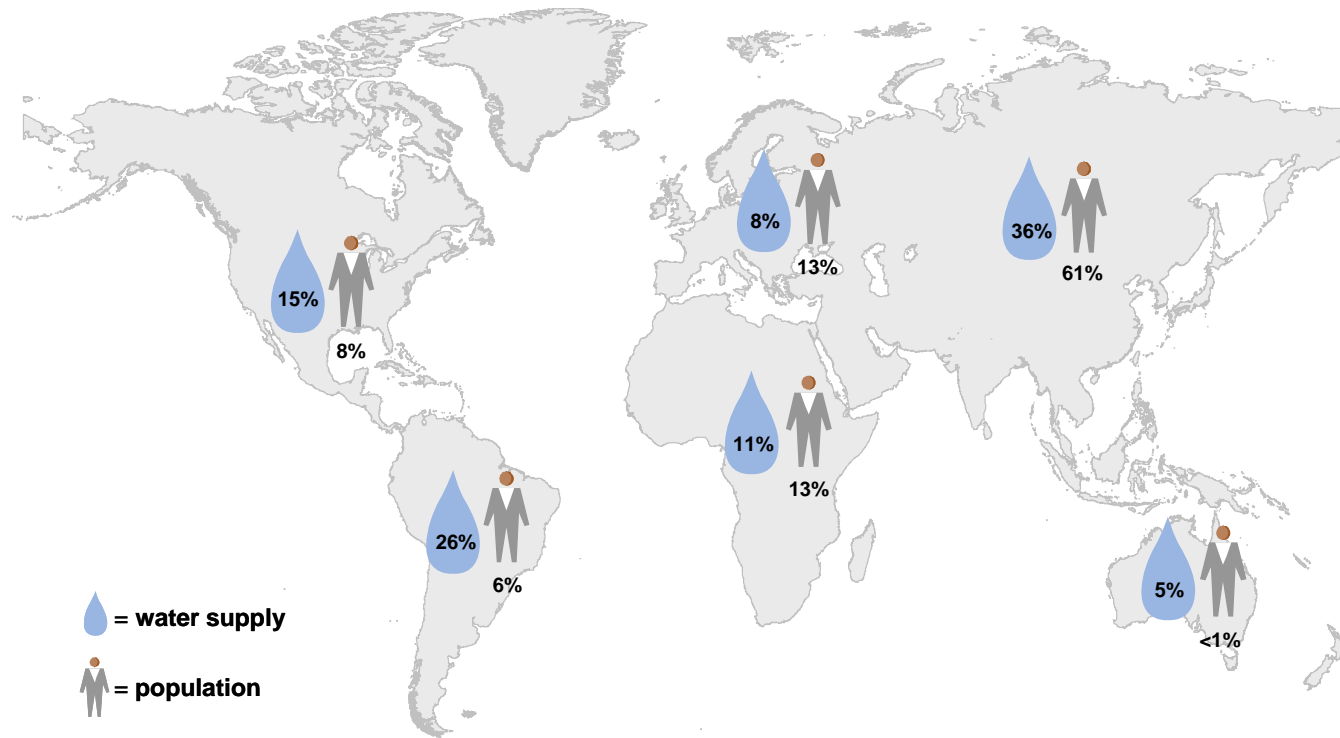
Global Fresh Water Supply



Source: United Nations

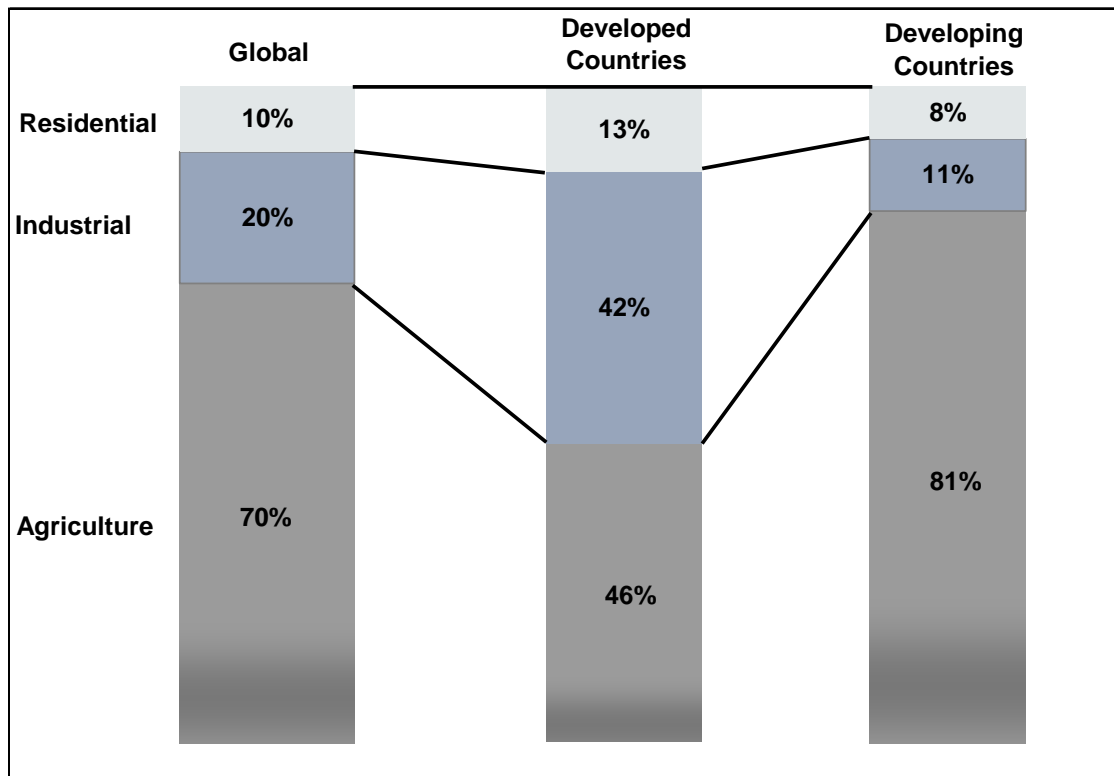
- Water supplies are threatened by pollution, population growth, urbanization, industrialization of developing markets, and climate change
- World supply of fresh water is essentially fixed, though supplies can be extended via desalination, reuse, and conservation.
- Water consumption is doubling every 20 years, more than 2x population growth.
- Water demand has tripled in the past 30 years while population growth has been just 50%.
- Growing awareness about water quality, safety, and security.
- Backlog of US infrastructure upgrades estimated \$300 bil to \$1 trillion.

# Global Water Supply vs Population



- The number of people living in water-scarce conditions globally is expected to double in 20 years and those water stressed geographies should increase by six times.
- Over one billion people are exposed to unsafe drinking water and 3-4 million die annually from waterborne diseases.
- North America has an attractive ratio with 15% of the global water supply, but only 8% of the population. In contrast, China has only just 7% of the water supply, but 21% of the population.

# Global Profiles of Water Demand



- Globally, 70% of the fresh water goes to agriculture, but as much as 55% is wasted using traditional irrigation methods.
- In developed countries, industrial processes represent the greatest percentage of water demand. Thermoelectric power uses half of US supply.
- As developing markets become more industrialized, there will be higher stresses on their fragile water infrastructures.

Source: United Nations

# Our Top-10 Trends to Watch in Water



Top-10 Trends	Top Companies Levered to Trends
<b>Desalination Systems</b>	IDE Technologies, Hyflux, Suez, Veolia, ACS, Ferrovial, Acciona, Doosan Heavy, Energy Recovery, Flowserve
<b>Water Reuse</b>	Pall, Nalco, GE, Siemens, Pentair, Hyflux
<b>Produced Water</b>	Heckmann, Key Energy Services, Basic Energy Services, Complete Product Services, Guangdong Investment
<b>Membranes Displacing Chemicals</b>	Dow FilmTec, Pall, GE, Pentair, 3M, Koch, Siemens
<b>Ultraviolet Light (UV) Disinfection</b>	Danaher, ITT, Calgon Carbon
<b>Forward Osmosis Used in Desalination</b>	Modern Water, Hydration Technology Innovations, QuantumSphere, Oasys Company
<b>Chinese Competitors in Water</b>	Shanghai Industrial, Beijing Capital, Beijing Enterprises Water, China Everbright, China Water Affairs, Chongqing Water, Guangdong, Sound Global, Tianjin Capital, Hyflux*
<b>Water Efficiency Products</b>	Badger Meter, Itron, Roper, Insituform, Geberit, Falcon Waterfree Technologies, SPX
<b>Point of Use (POU) Treatment</b>	Pentair, Culligan, 3M, Siemens, Eco-Water Systems, Kinetico, BWT
<b>Ballast Water Treatment</b>	Danaher, Calgon Carbon



Note: \*Hyflux is based in Singapore, but 85% of its revenue is from China

## Market Composition of the \$450 Bil Water Sector by Key Subsectors

Water Subsector	Mkt Value (\$Bil)	Growth	Subsector Profiles
<b>Pumps</b>	\$34	+LSD	The pump market is mature, but fragmented, and together with Valves plays an integral role in flow control.
<b>Valves</b>	\$45	+LSD	Used to control direction, pressure, and rate of flow. Valve size, shape, and performance are dependent on use.
<b>Water Test</b>	\$7	4%-6%	Includes analytical systems, instrumentation, and reagents that are used for water quality and safety analysis.
<b>Water &amp; Wastewater Treatment</b>	\$165	+MSD	This market involves the treatment of water throughout its cycle.
<b>Industrial Water Treatment</b>	\$65	5%-6%	Treating industrial wastewater helps prevent corrosion, contamination, and buildup of harmful deposits.
<b>Residential Water Treatment</b>	\$12	+MSD-HSD	Treated water reduces harmful contaminants prior to consumption, and protects home plumbing/appliances.
<b>Produced Water</b>	\$8	+MSD	This market is driven by expansion of land-based natural gas drilling and hydraulic fracturing.
<b>Filtration</b>	\$28	+LSD	Includes a diverse set of equipment and consumables. This market is driven mainly by product innovation.
<b>Infrastructure</b>	\$50	+LSD	This market is made up of a wide collection of water systems and equipment used to maintain, build or repair.
<b>Automation Systems</b>	\$10	+MSD-HSD	Strict water quality standards and rising operating costs are key growth drivers for process control equipment.
<b>Desalination</b>	\$10	+10%	Desalination removes salt from seawater as a source of fresh water supply.
<b>Engineering &amp; Consulting</b>	\$20	+MSD	E&C captures various services across the water spectrum including wastewater, desalination, and water reuse.
<b>Irrigation</b>	\$8	+MSD	Food prices, federal subsidies and conservation are key drivers, potentially offset by soft nonresi construction.
<b>Global Water Sector</b>	<b>\$450</b>	<b>4%-6%</b>	

Note: LSD is low single-digit; MSD is mid single-digit; HSD is high single-digit

Our estimated \$450 Bil Global Water Market excludes overlap between the Filtration and Residential Water Treatment Markets

# Best in Breed in Water Sector Today

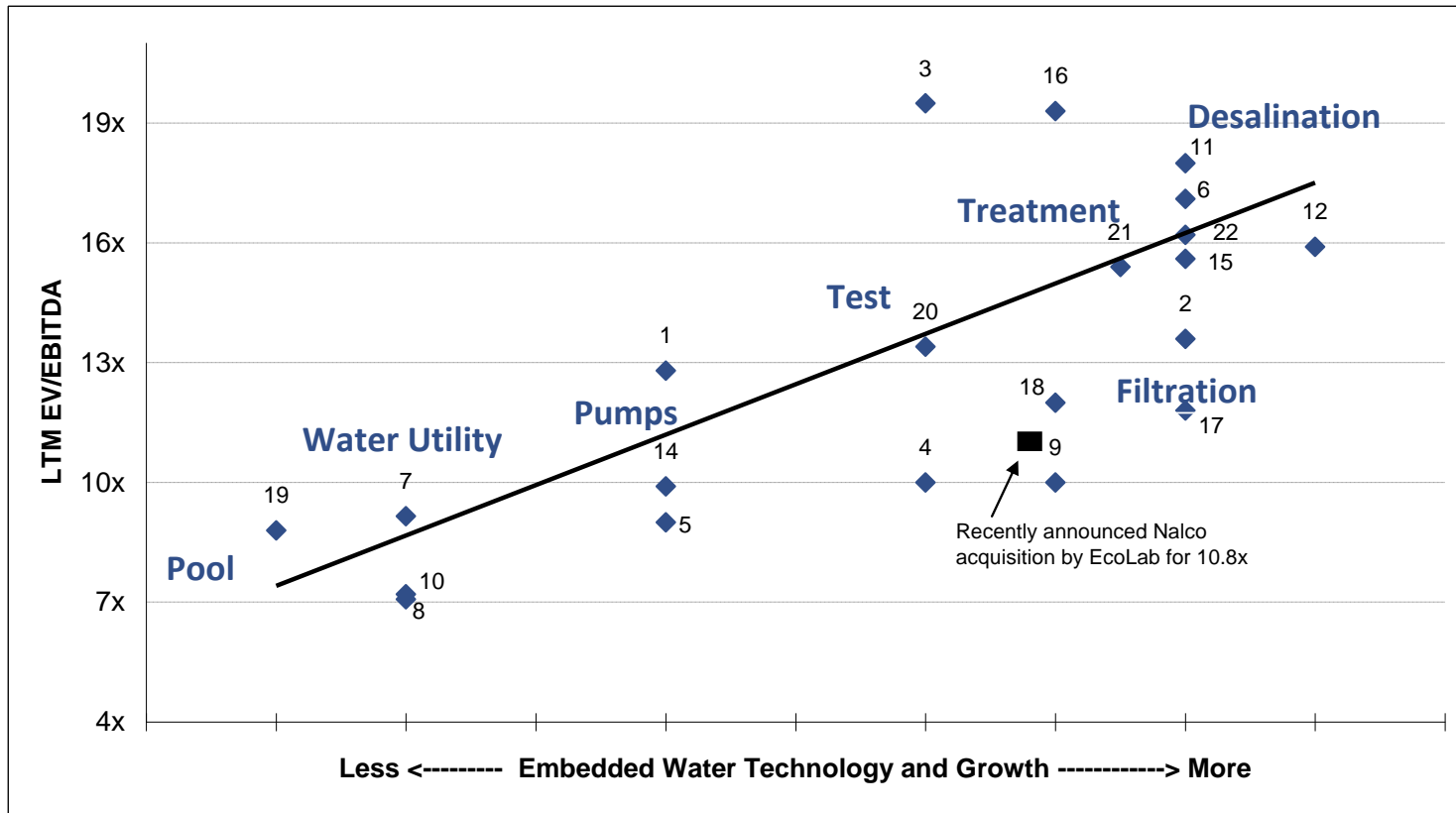
	Water Technology	Top Companies	Citi Comments
	<b>Desalination</b>	Hyflux (600.SI) Veolia (VE)	84% of sales in China and Middle East Global builder and operator of desal plants
	<b>UV</b>	Danaher (DHR) ITT (ITT)	Trojan is No. 1 in UV disinfection systems WEDECO UV disinfection and ozone oxidation is No. 2
	<b>Filtration</b>	Pall (PLL)	Last independent filtration company
	<b>Water Rights</b>	PICO Holdings, Inc. (PICO) Pure Cycle Corp (PCYO)	Owns ground water rights throughout Southwest US Owns rights to water around Denver, CO
	<b>Test</b>	Danaher (DHR) Thermo (TMO)	No. 1 in worldwide test, 5x larger than No. 2 competitor Leader in niche ion chromatography
	<b>Service</b>	Suez (SZE) Veolia (VE)	Two largest competitors with wide global reach
	<b>Industrial Treatment</b>	Nalco (NLC) Danaher (DHR)	No. 1 in industrial and institutional markets ChemTreat is Danaher's most recent water acquisition
	<b>Residential</b>	Pentair (PNR) Siemens (SI)	80% interest in residential joint venture with GE USFilter acq. added leading water treatment products
	<b>Meters</b>	Roper (ROP) Badger Meter (BMI)	Neptune has estimated 36% share of U.S. market Roughly 25% share, but larger portion of total sales
	<b>Automation</b>	Rockwell (ROK) ABB (ABB)	Leaders in process systems automation for water utilities
	<b>Irrigation</b>	Valmont (VMI)	Global leader in mechanized irrigation systems
	<b>Valves</b>	Tyco (TYC)	Water and Environmental Systems
	<b>Pumps</b>	ITT (ITT) Flowserve (FLS)	No. 1 worldwide, particularly strong in municipal No. 2 worldwide
	<b>E&amp;C</b>	Tetra Tech (TTEK)	Expertise in water infrastructure
	<b>Pipes</b>	Insituform (INSU)	Leader in pipe re-lining, driven by aging infrastructure
	<b>Water Utilities</b>	American Water Works (AWK) Aqua America (WTR)	Largest public US water utility; serves 15 million people 200 acqs. in past 10 years; now serves 3 million people

# Top 25 Global Water Companies by Key Subsector Exposures

					Water End Market								
					⇨ Low-End to High-End of the Valuation Continuum ⇨								
Company (ticker)	Country	Total Water Revs	Water Revs Percent	Market Cap	Engineering/ Construction	Pumps	Valves	Automation	Industrial Treatment	Water Treatment	Water Test	Filtration	Other Water
Veolia (VE)	France	\$17,834	39%	\$6,973	1%					35%			3%
Suez Environment (SEV-FR)	France	\$7,600	41%	\$7,135	5%					35%			
Sabesp (SBS)	Brazil	\$5,257	100%	\$5,416						100%			
Grupo Ferrovial (FER-ES)	Spain	\$3,221	20%	\$7,933	20%								
ITT Corp. (ITT)	US	\$2,727	25%	\$7,683		14%				7%		4%	
Severn Trent (SVT-GB)	UK	\$2,716	100%	\$5,360	5%					95%			
American Water Works (AWK)	US	\$2,711	100%	\$5,227						100%			
Siemens (SI)	Germany	\$2,056	2%	\$77,080					<1%	<1%		<1%	
General Electric (GE)	US	\$2,000	1%	\$161,231				<1%	<1%	<1%		<1%	
Ebara (6361-JP)	Japan	\$1,936	37%	\$1,655		37%							
Kurita (6370-JP)	Japan	\$1,922	100%	\$3,504					69%	31%			
Tetra Tech (TTEK)	US	\$1,871	85%	\$1,197	85%								
Danaher (DHR)	US	\$1,452	11%	\$29,280					2%	2%	7%		
Nalco (NLC)	US	\$1,700	40%	\$4,850					40%				
AECOM Technology (ACM)	US	\$1,636	25%	\$2,124	25%								
Kubota (6326-JP)	Japan	\$1,603	16%	\$10,473									
Pentair (PNR)	US	\$1,485	49%	\$3,127		29%						20%	
Balfour Beatty (BALF.L)	UK	\$1,426	10%	\$2,632	10%								
Mueller Water Products (MWA)	US	\$1,338	100%	\$377			28%						72%
Watts Water Technologies (WTS)	US	\$1,275	100%	\$976		42%	20%					18%	20%
Dow Chemical (DOW)	US	\$1,000	2%	\$27,794						1%		1%	
Insituform (INSU)	US	\$915	100%	\$504									100%
Tyco International (TYC)	US	\$851	5%	\$19,958			4%		1%				
Acciona (ANA-ES)	Spain	\$746	9%	\$5,115				9%					
Aqua America (WTR)	US	\$726	100%	\$2,905						100%			

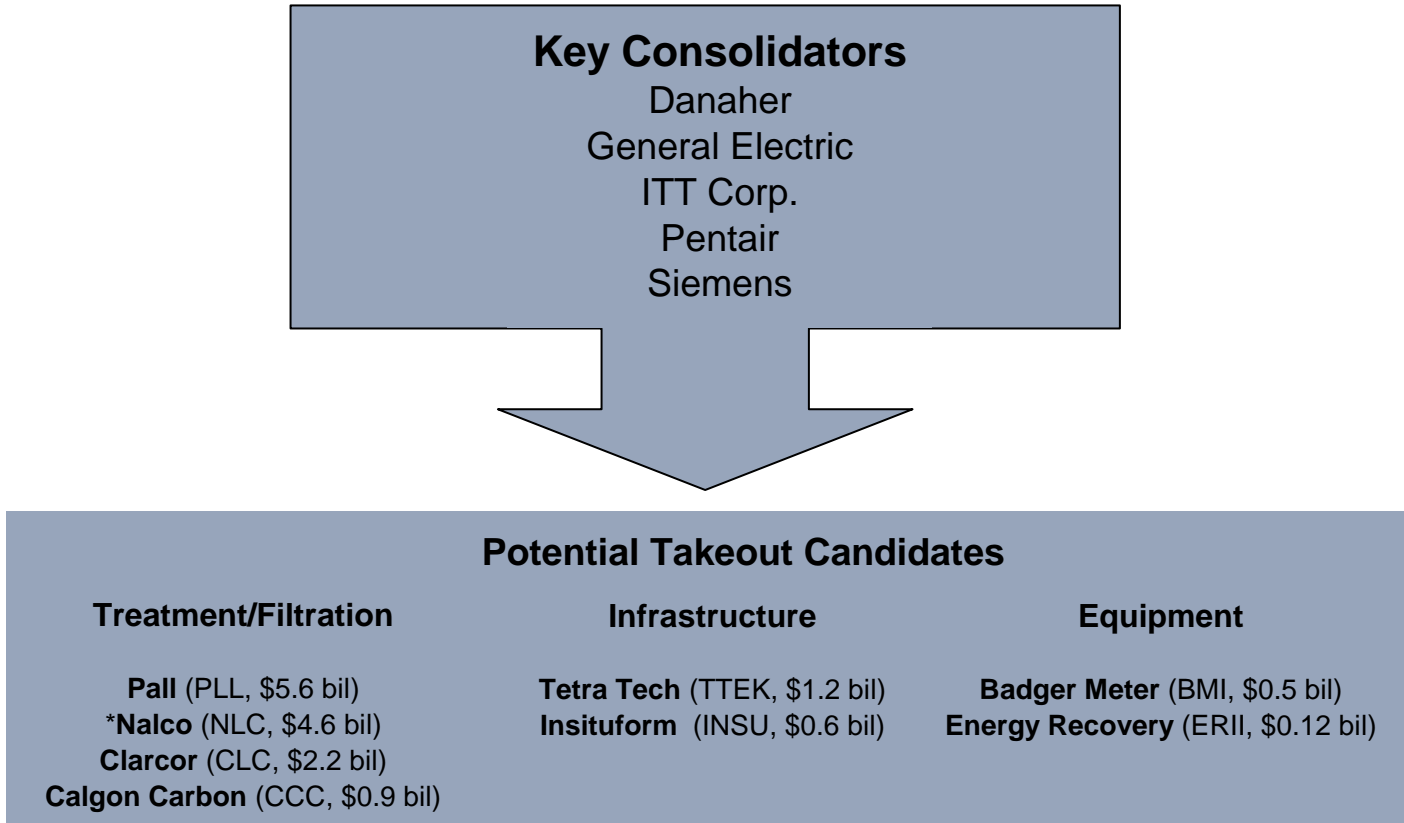
# Explaining Water M&A Valuations: High-End of Water Command Premium Valuations

## Citi Water Technology Valuation Continuum



Note: See our Water Sector Handbook published on May 24, 2011 for M&A transactions referenced in scatter plots

# Water Sector Still Has Consolidation Opportunities



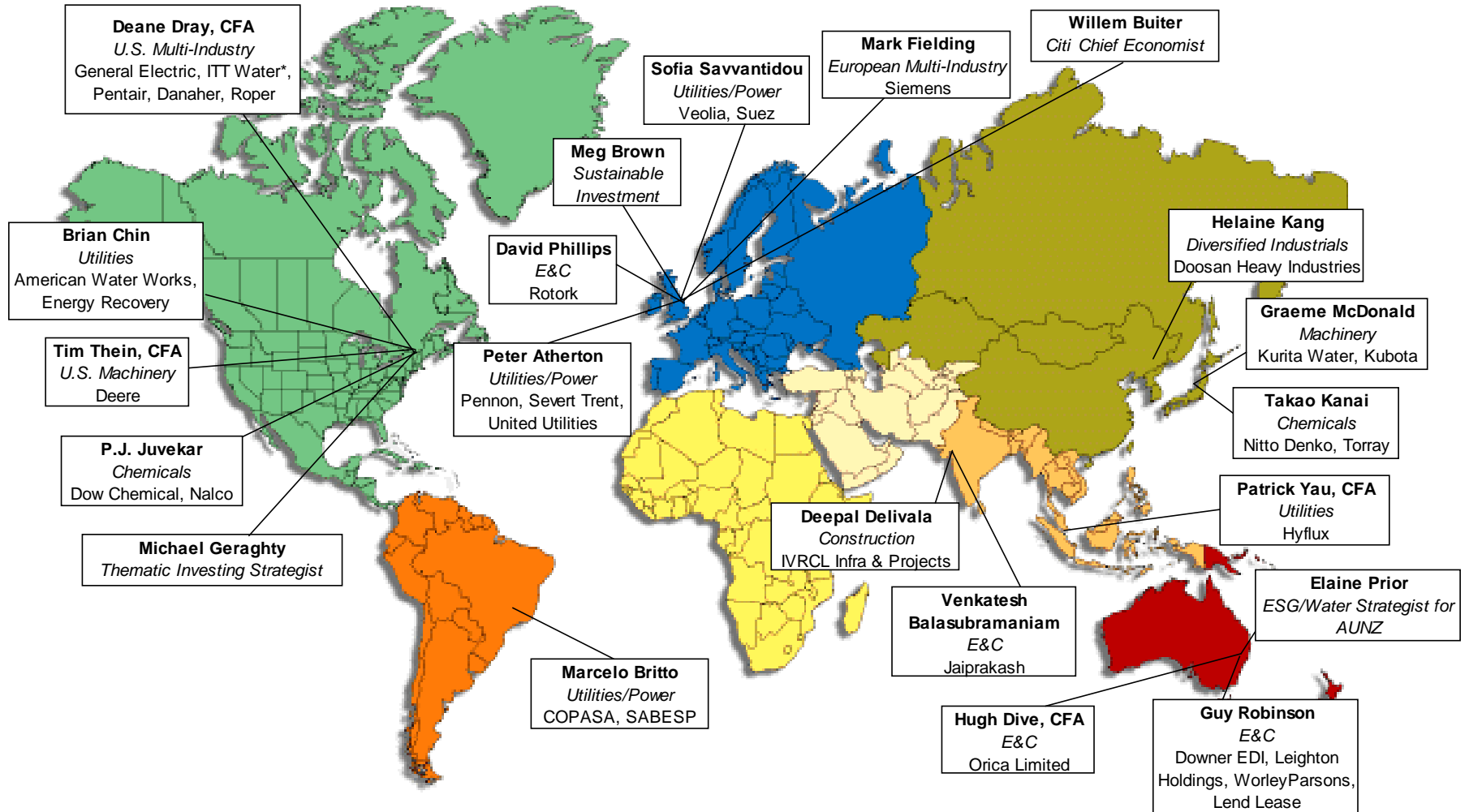
\*On July 20, Ecolab Inc. (ECL, \$10.9 bil) announced its intent to acquire NLC for \$8.1 bil (10.8x TTM EV/EBITDA); the deal is expected to close in 4Q11.

## Our Investment Conclusions

- **Water is a compelling megatrend with global supply-demand imbalances centering it on geopolitical, industrial & social agendas**
- **\$450 bil market, 13 subsectors, growing 4%-6%, mostly defensive**
- **Dispelling the myth about water being “un-investable”. Not all water business are valued alike.**
- **Investors should focus on the high-end of the water technology spectrum for higher growth, better margins: desalination, nano- + ultrafiltration, water test, smart meters, water rights.**
- **Water remains a challenging investment proposition. Investors should look to the best-positioned Multi-Industry companies, best-in-breed, consolidation candidates, and baskets/ETFs.**



# Citi Global Research with Key Water Sector Focus



Source: CIRA

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# Valuation Summary (1 of 2)

	Ticker	Rating	Risk	Price 9/23/11	Market Cap (\$ mil)	12-m o Target Price	Target Forward Multiple	Historical Range	Target Premium Discount	Estimated Total Return (ETR)	Div. Yield	
<b>Large &amp; Mid Cap</b>												
	Cooper Industries	CBE	Buy	M	\$45.17	\$7,452	\$53	13.0x	(15%) to 5%	0.0%	20.0%	2.7%
	Danaher	DHR	Buy	M	\$42.71	\$29,280	\$50	16.3x	10% to 25%	25.0%	17.2%	0.1%
	Dover Corp (2)	DOV	NA		\$46.28	\$8,609	NA	NA	(10%) to 0%	NA	NA	2.7%
	Emerson (1)	EMR	Hold	M	\$42.33	\$31,523	\$47	13.0x	0% to 15%	0.0%	14.6%	3.5%
	General Electric	GE	Buy	M	\$15.21	\$161,231	\$20	13.0x	(15%) to 10%	0.0%	35.7%	4.2%
	Granger	GWV	Hold	M	\$154.27	\$10,782	\$131	14.3x	(10%) to 15%	10.0%	-13.4%	1.7%
	Honeywell	HON	Hold	M	\$42.43	\$33,198	\$51	12.4x	(15%) to 5%	-5.0%	23.0%	2.8%
	Illinois Tool Works	ITW	Buy	M	\$42.66	\$20,964	\$50	12.4x	(15%) to 10%	-5.0%	20.7%	3.5%
	Ingersoll Rand	IR	Sell	M	\$31.00	\$10,260	\$29	9.1x	(30%) to (5%)	-30.0%	-4.9%	1.5%
	IIT Corp.	IIT	Hold	M	\$41.46	\$7,683	\$52	11.1x	(30%) to (5%)	-14.8%	28.3%	2.9%
	Pentair	PNR	Buy	M	\$31.66	\$3,127	\$37	13.7x	(5%) to 15%	5.0%	19.8%	2.9%
	Roper Industries	ROP	Hold	M	\$69.95	\$6,720	\$74	16.3x	10% to 30%	25.0%	6.4%	0.6%
	SPX Corp.	SPW	Hold	M	\$46.47	\$2,375	\$59	11.7x	(20%) to 10%	-10.0%	29.1%	2.2%
	3M	MMM	Hold	M	\$73.99	\$52,499	\$81	12.7x	(15%) to 10%	-2.5%	12.6%	3.1%
	Tyco International (1)	TYC	Hold	M	\$42.98	\$19,958	\$42	12.4x	(20%) to 0%	-5.0%	0.2%	2.5%
<b>Large &amp; Mid Cap Mean</b>						<b>13.0x</b>				<b>14.7%</b>	<b>2.5%</b>	
<b>Large &amp; Mid Cap Median</b>											<b>2.8%</b>	
<b>Small Cap</b>												
	Actuant (1)	ATU	Buy	M	\$18.18	\$1,248	\$25	14.4x	(10%) to 20%	15.0%	37.7%	0.2%
	Carlisle Companies	CSL	Hold	M	\$31.70	\$1,953	\$37	11.6x	(15%) to 0%	-7.5%	19.0%	2.3%
	Crane Co.	CR	Hold	M	\$36.06	\$2,094	\$40	11.3x	(25%) to (5%)	-10.0%	13.8%	2.9%
	Federal Signal	FSS	Hold	H	\$4.47	\$278	\$5.50	11.3x	(15%) to 20%	-10.0%	23.0%	0.0%
	Thomas & Betts Corp.	TNB	Hold	M	\$39.11	\$2,055	\$45	12.5x	(10%) to 10%	0.0%	15.1%	0.0%
	Hubbell Inc. (2)	HUB.B	NA		\$49.83	\$2,951	NA	NA		NA	NA	3.0%
	Graco (2)	GGG	NA		\$34.13	\$2,077	NA	NA		NA	NA	2.5%
	IEX (2)	IEX	NA		\$31.11	\$2,585	NA	NA		NA	NA	2.2%
	WESCO	WCC	Buy	M	\$35.95	\$1,555	\$51	12.5x	(30%) to 0%	0.0%	41.9%	0.0%
<b>Small Cap Mean</b>						<b>12.5x</b>					<b>1.5%</b>	
<b>Small Cap Median</b>											<b>2.2%</b>	
<b>S&amp;P 500</b>				<b>SPX</b>	<b>\$1,136.43</b>						<b>25.1%</b>	<b>2.2%</b>

(1) Based on calendarized estimates for EMR, TYC, and ATU

(2) Based on consensus estimates for DOV, HUB.B, GGG, and IEX

Source: CIRA Estimates, Factset

# Valuation Summary (2 of 2)

Large & Mid Cap	Ticker	Performance			Price vs.	EPS Growth		P/E		Relative P/E to S&P 500		EV/	EV/	FCF	Price/	FCF	Price/	2011E Margin	
		YTD	1 Week	2010	52-Week High	2011E	2012E	2011E	2012E	2011E	2012E	EBITDA	Sales	Conversion	FCF	Yield		Book	Gross
Cooper Industries	CBE	-23%	-5.2%	37%	65%	19%	13%	11.9x	10.5x	1.02	0.94	8.6x	1.5x	104%	12.6x	7.9%	2.4x	33.9%	14.2%
Danaher	DHR	-9%	-7.0%	25%	76%	27%	18%	15.2x	12.9x	1.30	1.16	9.4x	2.3x	100%	15.4x	6.5%	2.1x	52.2%	16.3%
Dover Corp (2)	DOV	-21%	-11.6%	40%	66%	30%	11%	10.3x	9.2x	0.88	0.82	5.5x	1.7x	96%	11.4x	8.7%	1.8x	38.0%	14.9%
Emerson (1)	EMR	-26%	-7.5%	34%	66%	21%	12%	12.5x	11.1x	1.07	0.99	6.9x	1.7x	112%	11.5x	8.7%	3.2x	43.0%	16.9%
General Electric	GE	-17%	-6.9%	21%	70%	20%	15%	10.9x	9.5x	0.93	0.85	NM	NM	71%	NM	NM	NM	32.6%	14.7%
Granger	GWV	12%	-3.5%	43%	93%	27%	12%	17.8x	15.9x	1.53	1.43	9.1x	1.5x	85%	19.9x	5.0%	4.9x	43.3%	13.3%
Honeywell	HON	-20%	-10.0%	36%	68%	30%	10%	10.9x	9.9x	0.93	0.88	6.0x	1.1x	83%	13.7x	7.3%	3.0x	25.7%	14.5%
Illinois Tool Works	ITW	-20%	-6.0%	11%	72%	30%	16%	11.4x	9.8x	0.97	0.88	6.5x	1.5x	105%	10.7x	9.3%	2.3x	35.0%	15.5%
Ingersoll Rand	IR	-34%	-13.2%	32%	59%	22%	23%	10.9x	8.9x	0.93	0.79	6.5x	0.9x	93%	10.9x	9.2%	1.3x	32.6%	10.3%
ITT Corp.	ITT	-20%	-7.7%	5%	65%	7%	5%	8.8x	8.4x	0.76	0.75	5.1x	0.7x	108%	8.1x	12.3%	1.7x	28.4%	10.9%
Pentair	PNR	-13%	-6.8%	13%	75%	23%	20%	12.9x	10.7x	1.10	0.96	7.4x	1.2x	106%	12.0x	8.3%	1.4x	31.9%	11.9%
Roper Industries	ROP	-8%	-7.9%	46%	79%	26%	13%	16.4x	14.6x	1.41	1.30	10.0x	3.3x	140%	11.5x	8.7%	2.5x	54.2%	23.2%
SPX Corp.	SPW	-35%	-12.6%	31%	53%	20%	31%	10.7x	8.1x	0.91	0.73	6.6x	0.6x	106%	9.9x	10.1%	1.1x	28.6%	6.9%
3M	MMM	-14%	-8.1%	4%	75%	6%	11%	12.1x	11.0x	1.04	0.98	7.1x	2.0x	100%	11.6x	8.6%	3.4x	47.5%	21.4%
Tyco International (1)	TYC	4%	-1.6%	16%	81%	21%	11%	13.2x	11.9x	1.13	1.06	6.8x	1.3x	127%	10.3x	9.7%	1.5x	38.2%	11.9%
<b>Large &amp; Mid Cap Mean</b>		<b>-1.6%</b>	<b>-7.8%</b>	<b>25%</b>	<b>71%</b>	<b>22%</b>	<b>15%</b>	<b>12.4x</b>	<b>10.8x</b>	<b>1.06</b>	<b>0.97</b>	<b>7.2x</b>	<b>1.5x</b>	<b>103%</b>	<b>12.1x</b>	<b>8.6%</b>	<b>2.4x</b>	<b>37.0%</b>	<b>14.4%</b>
<b>Large &amp; Mid Cap Median</b>		<b>-1.8%</b>	<b>-7.6%</b>	<b>28%</b>	<b>71%</b>	<b>22%</b>	<b>13%</b>	<b>12.0x</b>	<b>10.6x</b>	<b>1.03</b>	<b>0.95</b>	<b>6.9x</b>	<b>1.5x</b>	<b>104%</b>	<b>11.5x</b>	<b>8.7%</b>	<b>2.3x</b>	<b>34.4%</b>	<b>14.3%</b>
<b>Small Cap</b>																			
Actuant (1)	ATU	-32%	-9.8%	44%	60%	55%	11%	10.8x	9.7x	0.93	0.87	6.6x	1.4x	119%	8.8x	11.4%	1.8x	38.6%	13.0%
Carlisle Companies	CSL	-20%	-14.7%	16%	63%	31%	15%	10.7x	9.3x	0.92	0.83	6.2x	0.9x	101%	10.3x	9.7%	1.5x	21.2%	9.6%
Crane Co.	CR	-12%	-11.6%	34%	69%	29%	10%	10.7x	9.8x	0.92	0.87	5.9x	1.0x	75%	14.1x	7.1%	2.2x	34.3%	12.5%
Federal Signal	FSS	-35%	-14.4%	14%	57%	159%	145%	22.0x	9.0x	1.88	0.80	8.9x	0.7x	NM	NM	NM	1.2x	25.1%	4.0%
Thomas & Betts Corp.	TNB	-19%	-10.0%	35%	63%	18%	22%	12.0x	9.9x	1.03	0.89	6.2x	1.1x	103%	11.6x	8.7%	1.4x	32.0%	12.5%
Hubbell Inc. (2)	HUBB	-17%	-11.9%	27%	68%	13%	12%	11.8x	10.6x	1.01	0.95	6.0x	1.4x	120%	11.7x	8.6%	2.0x	32.6%	14.1%
Graco (2)	GGG	-13%	-9.7%	38%	63%	39%	14%	14.6x	12.8x	1.25	1.15	7.6x	3.5x	162%	13.9x	7.2%	6.1x	55.9%	22.9%
IDEX (2)	IEX	-20%	-10.0%	26%	65%	23%	15%	12.7x	11.0x	1.09	0.99	7.4x	2.4x	112%	14.9x	6.7%	1.7x	42.9%	17.1%
WESCO	WCC	-32%	-16.8%	95%	55%	48%	16%	9.5x	8.2x	0.81	0.73	6.3x	0.4x	82%	10.0x	10.0%	1.4x	20.1%	5.3%
<b>Small Cap Mean</b>		<b>-22%</b>	<b>-12.1%</b>	<b>37%</b>	<b>63%</b>	<b>46%</b>	<b>29%</b>	<b>12.8x</b>	<b>10.0x</b>	<b>1.09</b>	<b>0.90</b>	<b>6.8x</b>	<b>1.4x</b>	<b>109%</b>	<b>11.9x</b>	<b>8.7%</b>	<b>2.1x</b>	<b>33.6%</b>	<b>12.3%</b>
<b>Small Cap Median</b>		<b>-20%</b>	<b>-11.6%</b>	<b>34%</b>	<b>63%</b>	<b>31%</b>	<b>15%</b>	<b>11.8x</b>	<b>9.8x</b>	<b>1.01</b>	<b>0.87</b>	<b>6.3x</b>	<b>1.1x</b>	<b>107%</b>	<b>11.6x</b>	<b>8.6%</b>	<b>1.7x</b>	<b>32.6%</b>	<b>12.5%</b>
<b>S&amp;P 500</b>	<b>SPX</b>	<b>-10%</b>	<b>-6.5%</b>	<b>13%</b>	<b>83%</b>	<b>15%</b>	<b>5%</b>	<b>11.7x</b>	<b>11.2x</b>										

(1) Based on calendarized estimates for EMR, TYC, and ATU

(2) Based on consensus estimates for DOV, HUBB, GGG, and IEX

Source: CIRA Estimates, Factset

## Appendix A-1

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