

Acquisition Research

Turning on the tap

Uncovering Buyout Opportunities in the Asian water industry



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In Asia – **Singapore** and **China** are the most attractive markets for buyouts. In the Asian water industry, we have identified **five companies** as potential buyout opportunities: (i) **SIIC Environment (China)**; (ii) **Tee International (China, Singapore)**; (iii) **Eastern Water Resources (Thailand)**; (iv) **United Environtech (China, Singapore)**; and (v) **PT Dwi Surya Adabi Kharisma**.

- Globally, the water industry is **moderately attractive**
 - Large market (US\$554b) with strong historical secular growth trend of 5.6% CAGR
 - Companies in water and wastewater treatment are considered privileged assets, and average industry profitability is high at 12% (2013)
- Within the industry, **Wastewater Treatment and Equipment and Consumables** are the most attractive segments
 - Wastewater Treatment enjoys the highest profitability at 10%
 - Equipment and Consumables form the largest unregulated segment with a market size of US\$153b in 2013 with a CAGR of 6%
- In Asia, **Singapore and China** have the most potential
 - Strong regulatory backing promotes water technologies and local enterprises
 - Proximity to untapped market for treatment and equipment suppliers
 - Favourable policies by state and local governments that favour Asian players
- These **five potential targets** have strong market positions and potential growth upside
 - Untapped growth potential through unrealised concessions and young technologies
 - Strong market position and brand in respective sub-segments

There have seven buyout deals in the segment since 2005 and most of these involved acquisitions of companies that have been awarded exclusive concessions for water and wastewater treatment. An analysis of global private equity deals reveals the following themes and lead to a **copycat deal in Asia**.

- Private equity deals have been concentrated in Western countries with acquisitions of privatised water treatment companies in UK and consolidation among players in the US
- Asia, on the other hand, has seen lower deal activity targeting companies awarded concessions in large domestic countries
- **Recommended exit options** (in order of priority) are:
 - Trade sale to strategic buyer looking for market access of technology
 - IPO
 - Secondary sale to private equity funds

Acquisition Summary

What We Like

- Huge market and stable historical growth at 5.6% CAGR
- Water companies are privileged assets.
- Preference for local and regional players create favourable opportunity for strong market position of Asian firms
- Potential multiple arbitrage through roll-up play
- Maximize exit potential at attractive valuation – leverage networks to identify suitable trade buyers, and experience in taking companies for IPO

What We Don't Like

- Regulatory-driven growth from awarding of concessions and contracts
- Unproven success of private equity investments in Asia
- Unable to find exit options/opportunities

Fresh water that is usable for industry, agricultural and domestic use is scarce and rare

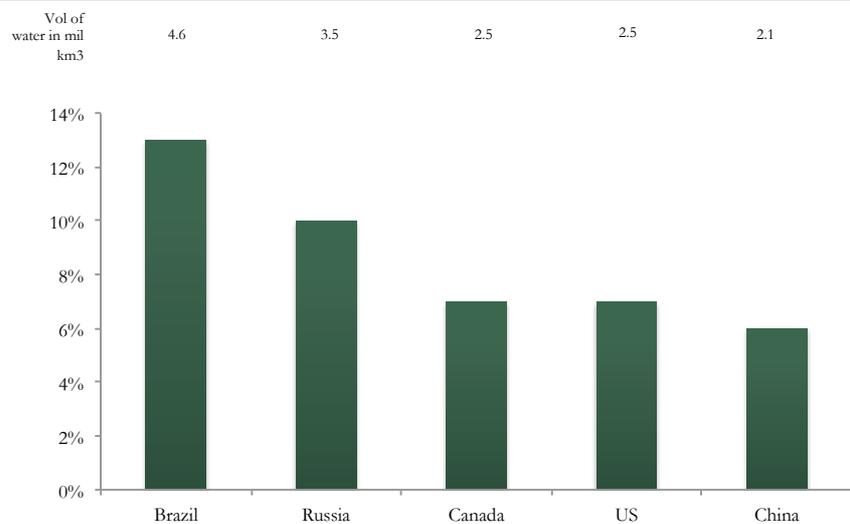
I. Overview

Clean water is an irreplaceable input for agriculture, industrial use, and domestic consumption. The water treatment industry is crucial to the production of one simple and yet indispensable product in our lives: fresh water. While there can be substitutes for other inputs, there is none that can replace water.

The earth's water supply is paradoxically – both abundant and scarce. The planet has more than 1,400 million km³ of water, of which 97.25% is found in oceans and seas. Even though 71% of the world's surface is covered in water, only less than 0.01% or 35 million km³ of that water can be used to cover the needs of humanity.

Of the 0.01% of freshwater that is on earth, c. 60% is found in 10 countries, with the top five possessing 43% of supply - Brazil (13%), Russia (10%), Canada (7%), US (7%), China (6%).

Figure 1. Global Distribution of Freshwater Among Top 5 Countries



Source: UN Water¹

Water treatment is essential for the production of potable water (for retail consumption) and non-potable water (for agriculture and industry)

Water is a unique resource because it can be recycled and its consumption follows a cycle. However, it needs to be treated either via physical, chemical and/or membrane filtration before it can be used for consumption.

Water is processed into two main types:

1. **Potable water** – water that is safe for human consumption and is deemed free from toxic contaminants and is chemically treated. Mainly delivered as bottled or piped water for retail consumption.
2. **Non-potable water** – water that is not examined and deemed to be safe for human consumption. Mainly used for agricultural and industrial purposes.

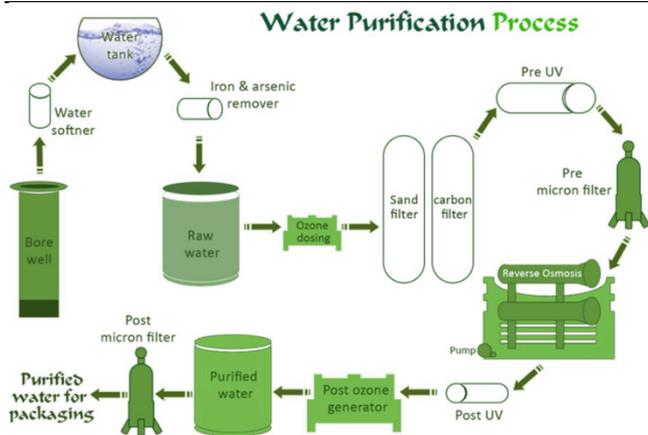
Water treatment involves performing a combination of the following steps:

1. **pH adjustment** – water may be too acidic or alkaline for use, treatment involves adding chemicals to neutralise water to a pH close to 7.
2. **Coagulation and flocculation** – process to remove particles that suspend in water. Water extracted from the ground may have algae, bacteria, protozoa and viruses, and coagulants are added to water to precipitate these particles as well as combining particles into larger pieces via flocculation.
3. **Sedimentation** – water allowed to settle to allow particles to sink to the bottom of the pool. This process involves removal of the sediments called sludge, which has to be taken out of the water tank manually.

¹ http://www.unwater.org/downloads/Water_facts_and_trends.pdf

Membrane filtration, the most recent innovation in water treatment, uses a mixture of chemicals and special membranes to perform the above-mentioned functions.

Figure 2. Sample Water Processing Cycle

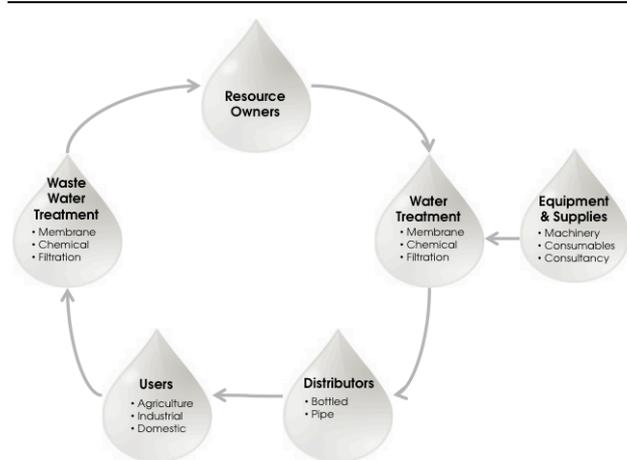


Source: OLX²

Wastewater treatment is an integral part of the water cycle and is a necessary treatment for all agriculture and industrial waste

The water industry can be sub-divided into five meaningful segments, namely Treatment Equipment & Consumables, Treatment & Distribution, Wastewater Treatment, Infrastructure and Bottled Water

Figure 3. Global Water Value Chain



Source: Nalco³

After used for industrial or agricultural purposes, wastewater that is contaminated with particles and chemicals is created. This output needs to be treated before it can be disposed back into nature's water cycle, creating a need for wastewater treatment. Wastewater that is treated is still not clean enough for consumption and has to be discharged into the environment. Although there is currently no international standard for disposable wastewater, treatment typically involves treatment in the following ways:

1. **Brine Treatment** – the removal of salt ions from water using membrane filters or evaporation.
2. **Oil and grease removal** – the removal of oil and grease from water via a physical process of skimming the hydrocarbons from the surface of the water.
3. **Removal of biodegradable organics** – to remove small particles from water using either via sludge removal or trickling filter process.
4. **Neutralising water** – changing the pH of water to be close to neutrality.
5. **Treatment of toxic chemicals** – specialised treatment of industry specific toxins using chemical method.

The water industry includes players that participate in various parts of the water cycle and include:

1. **Water treatment equipment and consumables** – suppliers of fixed assets such as pipes, fixtures and equipment as well as filters and chemicals
2. **Water treatment and distribution** – service providers who treat and process water as potable or non-potable
3. **Wastewater treatment** – service providers who treat agriculture and industrial waste water before disposal to nature
4. **Infrastructure** – facility operators who own and distribute water to industrial, agriculture and retail customers.
5. **Bottled water** – suppliers of potable bottled water for human consumption

² <http://howrahmc.olx.in/20l-isi-marked-and-iso-approved-packaged-drinking-water-at-high-discount-iiid-492801732>

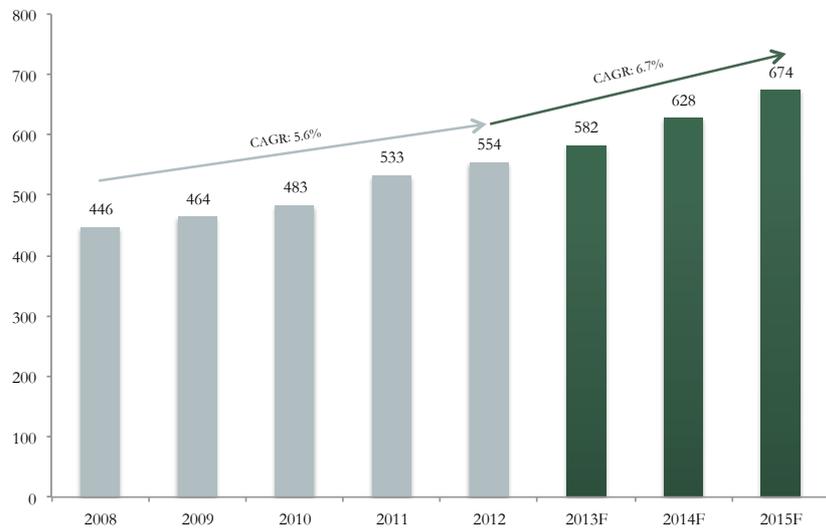
³ <http://www.nalco.com/services/integrated-water-management.htm>

II. Market Economics

The global water market is acyclical and has grown at 5.6% since 2008, reaching US\$554b in 2012...

The global water industry is made up of a broad range of players including specialty chemical producers, equipment-manufacturing firms and bottled water service providers⁴. The water industry is market agnostic and has enjoyed a growth rate of 5.6% y-o-y even through the Global Financial Crisis in 2008.

Figure 4. Global Water Market Size And Growth

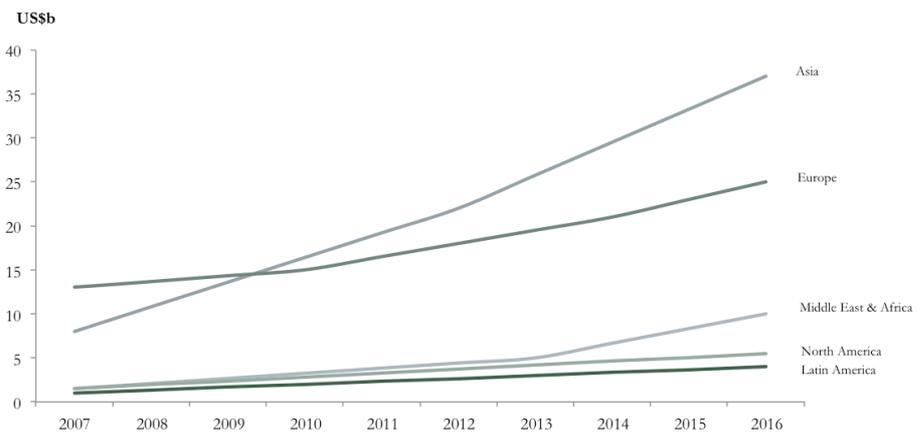


Source: Business Week, Helmut Kaiser, FAO⁵

... and is expected to reach US\$674 billion in 2015 driven by private and public investments

It is expected to grow at 6.7% CAGR between 2013 and 2015 due to increasing government investment into water infrastructure. Asia, in particular, is expected to experience the largest growth in investments from \$22b in 2012 to \$37b in 2016.

Figure 5. Private Investment In Water (2007 – 2016F)



Source: S-AM Study⁶

Wastewater treatment is expected to be the fastest growing segment at 10% CAGR

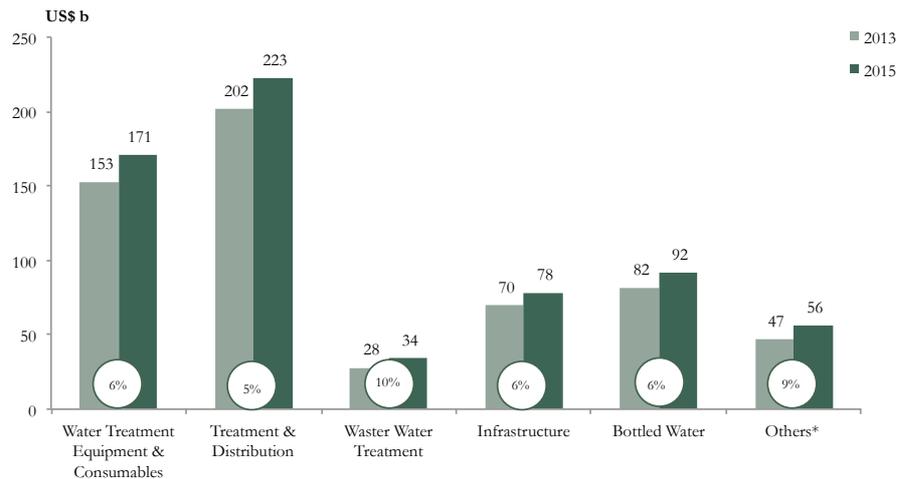
Treatment & Distribution is likely to be the slowest growing segment and likely to trail population growth rates in developed countries and grow steadily in emerging economies. Wastewater treatment is likely to grow at 10% CAGR due to increasing demand for services resulting from increased industrial activity.

⁴ <http://woods.stanford.edu/sites/default/files/files/Wastewater-As-A-Resource-State-Of-Water-2010521.pdf>

⁵ http://www.unwater.org/downloads/Water_facts_and_trends.pdf

⁶ http://www.bhopal.net/petition/application/views/waterstudy_e.pdf

Figure 6. Projected Growth in Water Industry Segments



Source: SNet Global Water Indexes, Impax Asset Management, Houghton Street Partners Analysis
Note: Others include water resource management, monitoring services and other public sector players.

Asia is poised to capture more growth driven by macro trends and investments into the sector

Future growth will be driven by strong demographic, financial and technological tailwinds that increase demand for water treatment and other segments of the value chain. Asia, in particular, is expected to see an increase in investments by both governments and the private sector to cope with the massively urbanizing population. Asia mega (population more than 10 million) and large (population between 5 – 10 million) cities are expected to grow at 5% and 4% CAGR respectively, putting a strain on city’s infrastructure and freshwater supplies⁸.

Figure 7. Summary of Key Growth Drivers and Impacts on Global Water Industry

| Type | Key Drivers | Impact | Regions | Magnitude |
|------------------------|--|--------|--------------|-----------|
| Demographic | • Increasing demand for water quality | + | Global | ● |
| | • Water scarcity in cities as urban population increases | + | Asia | ● |
| | • Increasing demand for residential water consumption for growing middle-class | + | Global | ● |
| Political / Regulatory | • Increasing regulation in emerging countries and state control of supplies | - | Global | ● |
| | • Lack of funds among state government hinder introduction of new technologies into water treatment and distribution | - | US, Europe | ● |
| | • Increase investment into infrastructure and water treatment capabilities for industrialising nations | + | Asia, Africa | ● |
| Financial | • Increasing need to revitalise old distribution infrastructure | + | US, Europe | ● |
| | • Increase in private sector participation in development public-private-partnerships | + | Global | ● |
| Technological | • Emerging technologies in monitoring and measuring usage | + | Global | ● |
| | • Innovations in membrane treatment and desalination of sea water | + | Global | ● |

Source: Technoknowledge Strategic Group⁹, Houghton Street Partners Analysis

⁷ <http://www.snetglobalwaterindexes.com/market.html>

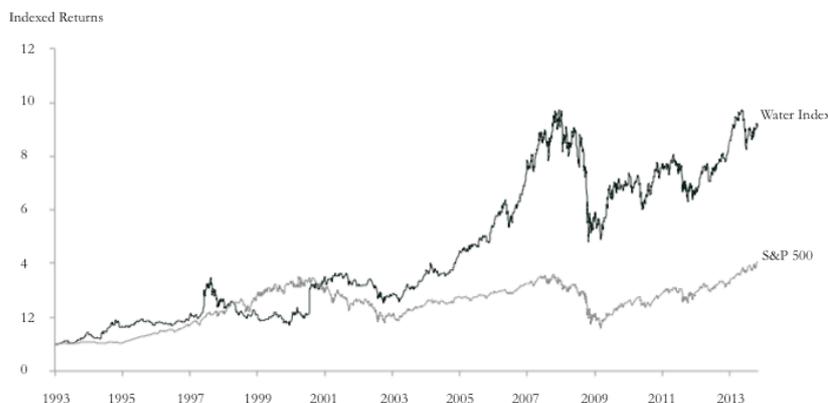
⁸ <http://asiasociety.org/files/pdf/WaterSecurityReport.pdf>

⁹ <http://woods.stanford.edu/sites/default/files/files/Wastewater-As-A-Resource-State-Of-Water-2010521.pdf>

The water industry has outperformed the S&P 500 returning 9.0x and 12% IRR over the last 20 years

The water industry has outperformed the S&P 500 over the last 20 years returning 9.0x with an IRR of 12% compared with 4.0x with an IRR of 7% performance of the S&P500. Like the S&P500, the industry has recovered from the GFC and has reached pre-2009 valuation.

Figure 8. Indexed Return of Top 20 Listed Water Player Against S&P 500



Source: Bloomberg

Regulation creates buyout opportunities in fast growing unregulated segments as well as in strongly regulated segments that result in natural monopolies

III. Market Structure

Regulation in the water value chain is concentrated in specific segments of the value chain. Highly regulated segments experience price controls via legal enforcement or are crowded out by government-linked companies. Political reasons such as water security and protection of domestic industries hinder the entrance of private companies into these sub-segments. Even with unregulated segments, governments favor local players over international ones, creating opportunities for the emergence of strong local companies along various parts of the water value-chain.

Figure 9. Market Size and Activity Key Water Sub-segments

| Sub-segment | Size (2012) | Description | Regulation |
|---|-------------|---|---|
| Resource Owners | n.a. | <ul style="list-style-type: none"> Management of water resources Can be integrated with treatment and distribution | High – Mainly state owned |
| Treatment & Distribution | US\$202b* | <ul style="list-style-type: none"> Treatment of water inputs to potable water or non-potable water Mainly integrated with pipe distribution to agricultural, domestic and industrial customers Includes bottled water players who supply potable water | High – Mainly public utility players owned, only c. 20% of market attributable to private companies |
| Water Treatment Equipment & Consumables | US\$153b | <ul style="list-style-type: none"> Supply support machinery and consumables to water treatment players Can provide manufacturing or construction consulting services to public sector projects | Low – Mainly private sector players |
| Waste Water Treatment | US\$28b | <ul style="list-style-type: none"> Treatment or recycling of industrial and domestic waste water for disposal | Low – Mainly private sector players |
| Infrastructure owners | US\$70b | <ul style="list-style-type: none"> Maintenance of pipes and distribution system | High – Mainly state owned |
| Bottled Water | US\$82b | <ul style="list-style-type: none"> Distribution of bottled water | Low – Mainly private sector players |

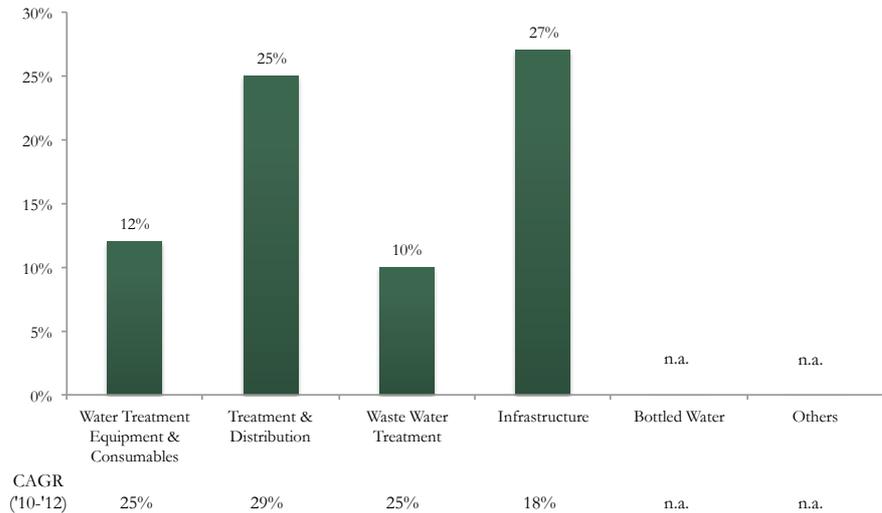
Source: SNet Global Water Indexes, Impax Asset Management, Houghton Street Partners Analysis¹⁰
Note: *estimated US\$202billion are from government owned companies

¹⁰ <http://www.snetglobalwaterindexes.com/market.html>
http://www.impaxam.com/media/156188/investing_in_water_global_opportunities_in_a_growth_sector_uk_final.pdf

Treatment & Distribution leads in Asia with high NPAT margins of 25% due to the monopolistic nature of players in the segment

Asian players in the Treatment & Distribution and Infrastructure segments enjoyed high profit margin of 25% and 27% respectively. Treatment & Distribution players enjoy monopolistic positions in geographies where governments have awarded exclusive licenses to companies. Players in this segment in particular almost doubled their collective NPAT from US\$455m in 2010 to US\$761m in 2012. Opportunities also lie in the Wastewater Treatment and Water Treatment Equipment & Consumables segments for investments in niche players or players well-positioned in local fast growing markets.

Figure 10. 3-Year Average Net Profit Margin of Asian Players



Source: Bloomberg

Favorably market conditions will allow Asian players in Wastewater Treatment and Equipment & Consumables to expand profit margins in the next 5 years

Future profitability in the Water Treatment Equipment & Consumables and Wastewater Treatment is likely to increase over the next five years given the increase in demand in Asia. Asian players in both segments have an increase in average NPAT margins by 8% and 50% respectively between 2008 and 2012¹¹. Margins are expected to grow albeit at a slower rate as more local players enter the market.

Private sector players in regulated segments such as Treatment & Distribution and Infrastructure are expected to experience margin pressures from controlled pricing of water by governments. However, these private players may enjoy economies of scale or first mover advantages as governments become more open to public-private partnerships.

¹¹ Bloomberg

Figure 11. Projected Impact On Profitability of Segments (5-year projection)

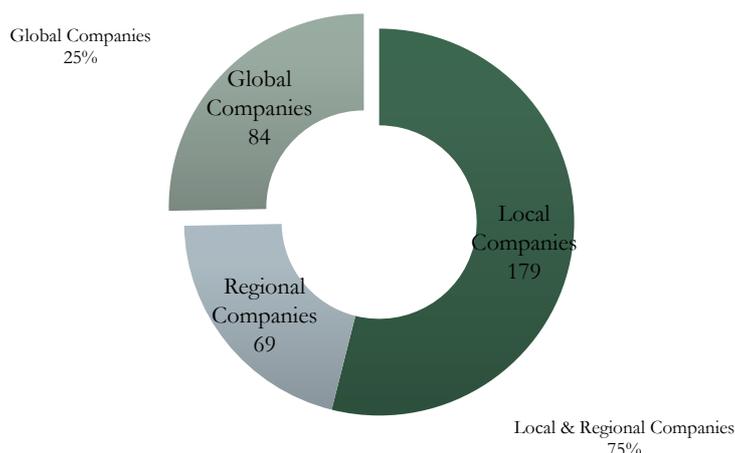
| | Water Treatment Equipment & Consumables | Treatment & Distribution | Waste Water Treatment | Infrastructure | Bottled Water |
|---|---|---|--|--|---|
| Overall Impact of Future Profitability | ↑ | ↔ | ↑ | ↔ | ↓ |
| Suppliers | + Inputs increasingly substitutable as firms source from global market place | - Specialist suppliers continue to control price | - Specialist suppliers continue to control price | + Inputs remain highly substitutable | + Inputs remain highly substitutable as firms source from global market place |
| Customers | + Customers remain highly dependent on specialist suppliers | - Price expected to remain highly regulated and controlled | + Lack of wastewater treatment service providers create demand-driven advantage | - Price expected to remain highly regulated and controlled | + Buyers continue to remain fragmented |
| New Entrants | + High barriers to entry due to high setup costs | + High barriers to entry due to high setup costs | + High barriers to entry due to high setup costs | + High barriers to entry due to high setup costs | - Low barriers to entry with low setup costs |
| Threat of Substitutes | - Increasing availability of substitutes by emerging global players + Niche technologies disrupt marketing and creates unique position | n.a. | n.a. | n.a. | - Demand for filters for retail use decrease need to bottled water |
| Competitive Rivalry | - Expected to remain fragmented with many players. | - Commoditised product create price competition within segment Players with exclusive distribution rights maintain monopoly-like position + | - Persistence of the lack of regulation standards in the medium term create opportunities for a variety of players | + First-mover advantage creates monopoly-like presence in specific locations | - Fragmented with many players offering similar products |

Source: Houghton Street Partners Analysis

Asian players are catching up with European leaders due to increasing government support...

Local and regional players are able to enjoy higher margins and stronger market position because of government support. In China, 75% of all water projects were awarded to local and regional players, with local players awarded 54% of all water projects between 1998 and 2008. This creates opportunities for local players to scale and become strong market leaders on a regional basis.

Figure 12. China Water Projects Awarded By Country Of Origin (1998-2008)



Source: APCO Worldwide²

...and improved quality of service that enable them to compete with global firms

European companies dominate across most segments in the water industry with conglomerates such as Veolia emerging to become the largest water player in the world by revenue. However, Asian players are catching up in segments such as infrastructure and Water Treatment Equipment & Consumables as they tap into fast growing markets in Southeast and North-East Asia.

Figure 13. Overview Of Market Structure Of Water Segments

| | Water Treatment Equipment & Consumables | Treatment & Distribution | Waste Water Treatment | Infrastructure | Bottled Water |
|---|---|--|---|--|--|
| Value Proposition | Niche players for specialised equipment | Close proximity to large markets | Close proximity to large markets | Close proximity to large markets | Cost |
| Top Listed Players (by revenue size) | Sabesp (Brazil) Puncak Nia (M'sia) Aguas Metro (Chile) Hyflux (SG) Suido Kiko (Japan) | Veolia (France) Sabesp (Brazil) Severn Trent (UK) American Water (US) Aqua American (US) | Veolia (France) Severn Trent (UK) American Water (US) Pennon (UK) Aguas Andinas (Chile) | Nanghai Dev. (China) Interchina Hldgs (China) China Water (China) Western Water (Thai) Sabesp (Brazil) | Coke (US) Danone (France) Pepsi (US) |
| Reach of Leading Firms | Regional | Regional | Regional | Local | Global |
| Key Success Factors | Superior technology | Price and relationship with government | Price and relationship with government | Price and relationship with government | Cost |
| Market Structure | Fairly Fragmented | Concentrated - top players who control 17% of market | Fragmented | Fairly Fragmented | Concentrated |

Source: Bloomberg, Forbes¹³, Annual Reports, Houghton Street Partners Analysis

Note: Market share of top 5 players in private sector market

Top players either have long track record or have been awarded exclusive government rights

The largest 10 global players are players with either a long track record or have exclusive government rights to operate treatment services in a specific geography. 6 out of 10 of the top players have government ownership and are at various stages of privatisation. The fragmented nature of the industry can be seen through the revenue sizes of the top players, the largest – Veolia, only accounts for 5% of the water industry market share.

¹² http://www.export.gov.il/uploadfiles/03_2012/chinaswatersector.pdf

¹³ <http://www.forbes.com/sites/ivancastano/2012/01/31/how-coke-and-dannon-are-fighting-to-dominate-the-worlds-largest-bottled-water-market/>

Figure 14. Summary of Largest Players Globally

| Company | Business Segments | Owners | Year Est. | Latest Financials | Valuation (PER) | Reach | Value Proposition | Growth Strategy |
|-------------------------------|---|--|---------------------------|-------------------------------------|-----------------|---------------|---|--|
| Veolia Environmental Services | <ul style="list-style-type: none"> Wastewater Treatment Treatment & Distribution Equipment & Consumables | 50% - Institutions 31% gov. 19% free float | 1953 | Rev: US\$44b NI: US\$0.6b (1%) | 53x | Global | <ul style="list-style-type: none"> Brand name and track record Variety of proprietary and licensed technologies | <ul style="list-style-type: none"> Expansion via government projects to build large scale plants in China and central Asia R&D focus on efficiency and new technologies in wastewater treatment process and filtration |
| Suez Environment | <ul style="list-style-type: none"> Wastewater Treatment Treatment & Distribution | 90% institutions 6% gov. 4% free float | 2008 (spun off from Suez) | Rev: US\$18b NI: US\$0.3b (2%) | 16x | Global | <ul style="list-style-type: none"> Brand name and track record | <ul style="list-style-type: none"> Expansion via government projects globally |
| United Utilities | <ul style="list-style-type: none"> Wastewater Treatment Treatment & Distribution | 80% institutions 6% gov. 14% free float | 1995 | Rev: US\$3b NI: US\$0.5b (8%) | 17x | UK | <ul style="list-style-type: none"> Legacy position from privatisation | <ul style="list-style-type: none"> Product enhancement in current UK market |
| Sabesp | <ul style="list-style-type: none"> Wastewater Treatment | 50% gov. 50% free float | 1973 | Rev: US\$11b NI: US\$1.9b (17%) | 10x | Mainly Brazil | <ul style="list-style-type: none"> Specialist for cities and regional systems | <ul style="list-style-type: none"> Increase penetration into local Brazilian market |
| Severn Trent Plc | <ul style="list-style-type: none"> Treatment & Distribution Wastewater Treatment | 77% institutions 6% gov. 17% free float | 1989 | Rev: US\$3b NI: US\$0.5b (15%) | 30x | Global | <ul style="list-style-type: none"> Strong balance sheet and size to see through large projects | <ul style="list-style-type: none"> Existing markets: continue to expand presence via winning projects |
| American Water Works Company | <ul style="list-style-type: none"> Treatment & Distribution Wastewater Treatment | 88% institutions 12% free float | 1886 | Rev: US\$3b NI: \$0.3b (10%) | 21x | US, Canada | <ul style="list-style-type: none"> Long history and track record | <ul style="list-style-type: none"> Increase penetration into local North American market |
| Pennon Group Plc | <ul style="list-style-type: none"> Wastewater Treatment infrastructure | 87% institutions 4% gov. 9% free float | 1989 | Rev: US\$2b NI: US\$0.2b | 92x | UK | <ul style="list-style-type: none"> Exclusive rights to currently held 2 projects | n.a. |
| Agua Andinas | <ul style="list-style-type: none"> Treatment & Distribution Wastewater Treatment | 85% institutions 15% free float | 1861 | Rev: US\$0.4b NI: \$0.2m | 19x | Chile | <ul style="list-style-type: none"> First-mover in Chile | <ul style="list-style-type: none"> Increase penetration into local Chilean market |
| Aqua America Inc | <ul style="list-style-type: none"> Treatment & Distribution | 89% institutions 11% free float | 1886 | Rev: US\$0.7b NI: US\$0.1b (14%) | 21x | US | <ul style="list-style-type: none"> Long history and track record | <ul style="list-style-type: none"> Increase penetration into local US market Acquire privatisation assets from municipals and state governments |
| Chongqing Water Group | <ul style="list-style-type: none"> Treatment & Distribution Wastewater Treatment | 84% gov. 16% free float | 2001 | Rev: US\$0.6b NI: US\$0.3b (50%) | 13x | China | <ul style="list-style-type: none"> Track record and local presence in China | <ul style="list-style-type: none"> Increase penetration into local China market |

Source: Bloomberg, Annual Reports, Company Websites

IV. Transaction Analysis

The top 20 water industry players traded at a median EV/EBITDA between 9.5x and 11.3x over the last 3 years

The top 20 water industry players traded at a median EV/EBITDA between 9.6x and 11.3x over the last three years. These top players are located in countries with a large domestic population and several are privatised entities in which governments still retain a shareholding (as will be seen in subsequent sections).

Figure 15. Summary of Largest 20 Listed Players (October 2013)

| Company | Px | 52-week | | EV* | Net Debt* | Mkt Cap* | EV/Sales | | | EV/EBITDA | | |
|-------------------|-------|---------|------|--------|-----------|----------|----------|------|-----|-----------|------|------|
| | | High | Low | | | | 2011 | 2012 | LTM | 2011 | 2012 | LTM |
| VEOLIA | 17.2 | 17.2 | 9.2 | 25,113 | 13,261 | 9,389 | 1.0 | 0.8 | 0.7 | 7.9 | 8.8 | 6.4 |
| SUEZ ENVIRONNEME | 17.5 | 17.5 | 9.7 | 22,256 | 10,372 | 8,890 | 1.2 | 0.9 | 1.1 | 8.5 | 6.7 | 8.4 |
| UNITED UTILITIES | 11.3 | 12.5 | 9.7 | 17,277 | 9,074 | 7,702 | 6.0 | 6.2 | 6.6 | 10.1 | 10.7 | 11.4 |
| AMERICAN WATER | 42.9 | 43.7 | 36.0 | 13,388 | 5,708 | 7,629 | 4.0 | 4.3 | 4.7 | 9.6 | 10.0 | 10.3 |
| SABESP | 10.6 | 16.0 | 9.6 | 10,552 | 3,312 | 7,260 | 1.7 | 1.8 | 2.1 | 5.0 | 5.9 | 6.3 |
| SEVERN TRENT | 29.8 | 34.6 | 23.6 | 14,182 | 6,683 | 7,113 | 4.4 | 4.4 | 4.8 | 9.5 | 9.9 | 11.3 |
| GUANGDONG INVEST | 0.9 | 1.0 | 0.8 | 4,998 | (963) | 5,383 | 4.4 | 4.5 | 4.9 | 6.3 | 7.0 | 7.5 |
| AQUA AMERICA | 25.2 | 28.1 | 19.3 | 6,088 | 1,621 | 4,443 | 6.9 | 6.7 | 7.8 | 12.5 | 11.8 | 13.8 |
| PENNON GRP | 10.9 | 11.5 | 9.3 | 7,266 | 3,052 | 4,045 | 3.6 | 3.8 | 3.8 | 10.4 | 11.2 | 11.5 |
| AGUAS ANDINAS | 0.7 | 0.8 | 0.6 | 5,502 | 1,382 | 4,011 | 6.5 | 6.8 | 7.3 | 10.3 | 10.9 | 11.8 |
| BJ ENT WATER | 0.4 | 0.5 | 0.2 | 5,667 | 1,614 | 3,743 | 3.3 | 8.7 | 8.6 | 22.3 | 33.2 | 28.2 |
| METRO PACIFIC IN | 0.1 | 0.1 | 0.1 | 4,291 | 956 | 2,931 | 6.3 | 5.8 | 6.3 | 12.1 | 11.7 | 12.3 |
| GELSENWASSER AG | 707.1 | 739 | 567 | 2,292 | (126) | 2,423 | 2.5 | 2.2 | 1.5 | 14.4 | 17.6 | 17.8 |
| AGUAS METROPOLIT | 1.9 | 2.2 | 1.6 | 3,911 | 1,378 | 1,839 | 5.2 | 4.9 | 5.2 | 8.3 | 7.9 | 8.4 |
| TIANJIN CAP-A | 1.4 | 1.4 | 0.5 | 2,368 | 657 | 1,681 | 8.7 | 7.1 | 9.1 | 16.2 | 12.6 | 13.3 |
| THAI TAP WATER | 0.3 | 0.4 | 0.2 | 1,536 | 218 | 1,318 | 7.5 | 5.8 | 9.4 | 9.2 | 7.3 | 12.2 |
| EYDAP WATER | 11.3 | 11.5 | 4.6 | 1,284 | 81 | 1,200 | 1.8 | 1.4 | 2.7 | 9.5 | 6.0 | 8.3 |
| MANILA WATER | 0.6 | 0.9 | 0.5 | 1,800 | 619 | 1,162 | 5.2 | 5.5 | 5.2 | 7.7 | 7.8 | 7.2 |
| AMER STATES WATER | 28.5 | 33.1 | 20.3 | 1,429 | 327 | 1,102 | 2.5 | 2.4 | 3.0 | 9.0 | 7.5 | 8.9 |
| CALIF WATER SRVC | 21.8 | 22.4 | 16.8 | 1,509 | 469 | 1,041 | 2.7 | 2.5 | 2.7 | 9.5 | 8.9 | 10.0 |

| | EV/Sales | | | EV/EBITDA | | |
|--------|----------|------|------|-----------|------|-------|
| | 2011 | 2012 | 2011 | 2012 | 2011 | 2012 |
| High | 8.7 | 8.7 | 9.4 | 179.6 | 33.2 | 127.2 |
| Mean | 4.3 | 4.3 | 4.8 | 17.1 | 11.1 | 15.8 |
| Median | 4.3 | 4.3 | 4.9 | 9.6 | 9.9 | 11.3 |
| Low | 1.0 | 0.8 | 0.7 | 5.0 | 5.9 | 6.3 |

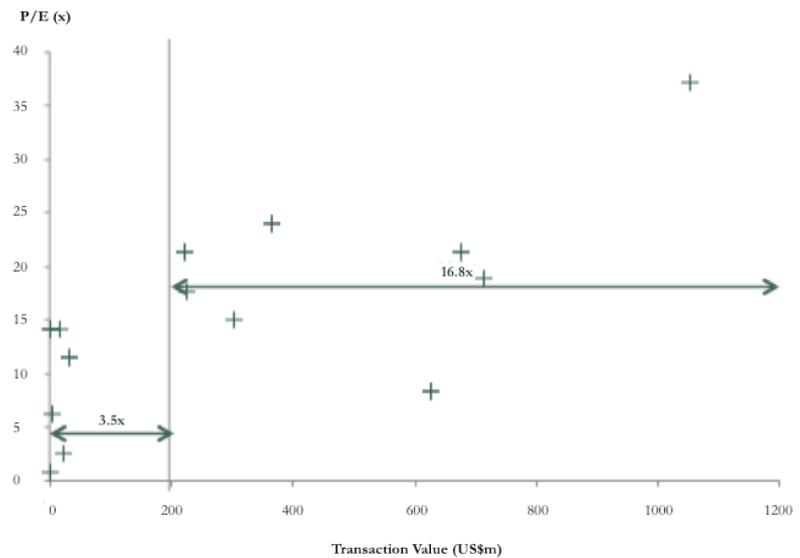
Source: Bloomberg

Note: Figures are in US\$ millions

There are attractive entry opportunities for mid-sized companies below \$200m with an average PER of 3.5x

An analysis of the historical transactions between 1990 and 2013 reveal that smaller buyouts below US\$200m are at a lower mean of 3.5x P/E compared to 16.8x P/E for transactions above US\$20m. This provides a possible roll-up opportunity or for acquisitions below 3.5x P/E which are below publicly traded multiples.

Figure 16. Transaction Value and PER (1990-2013)

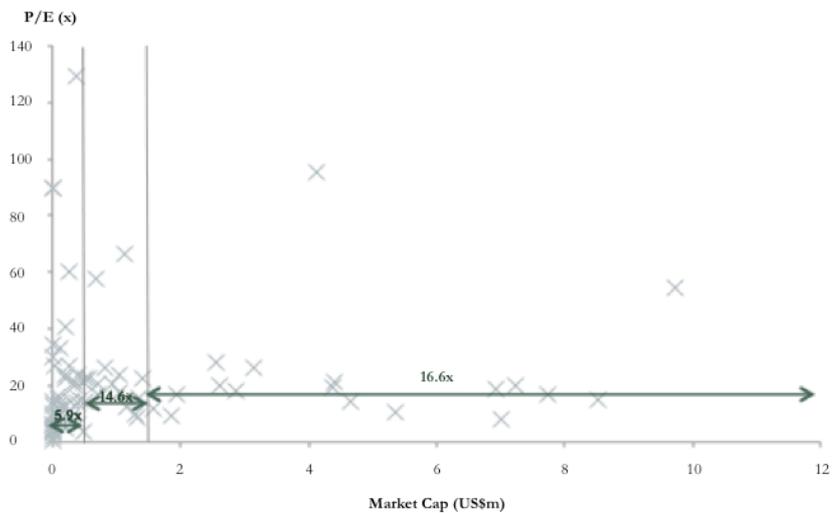


Source: Bloomberg
Note: average calculated using harmonic mean

There are also opportunities for multiple arbitrage for roll-ups of mid-sized companies

Listed water players are trading in an average P/E range of 5.9x and 16.6x. Size does play a role in valuations as larger companies are able to enjoy economies of scale and enjoy higher margins as well as have a larger geographical reach.

Figure 17. Current Valuation of Listed Water Players

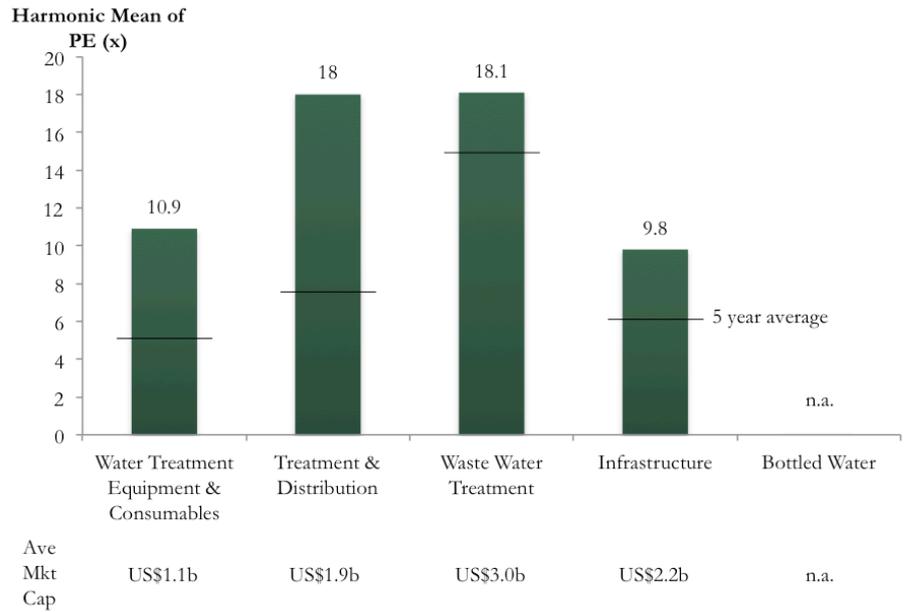


Source: Bloomberg
Note: average calculated using harmonic mean

Treatment & Distribution and in Wastewater Treatment are attractive segments for exits with a high PER of 18.0x and 18.3x respectively

Service providers such as Wastewater Treatment and Water Treatment players have high PE of 18x as compared to Infrastructure and Equipment suppliers. These could be due to the monopolistic and stable nature of the businesses which larger companies can enjoy in local markets. Wastewater Treatment service providers on average are three times larger in market capitalization than their water treatment peers due to the unregulated nature of the industry and the ability of companies to charge market prices for services.

Figure 18. PER by segments (2013)

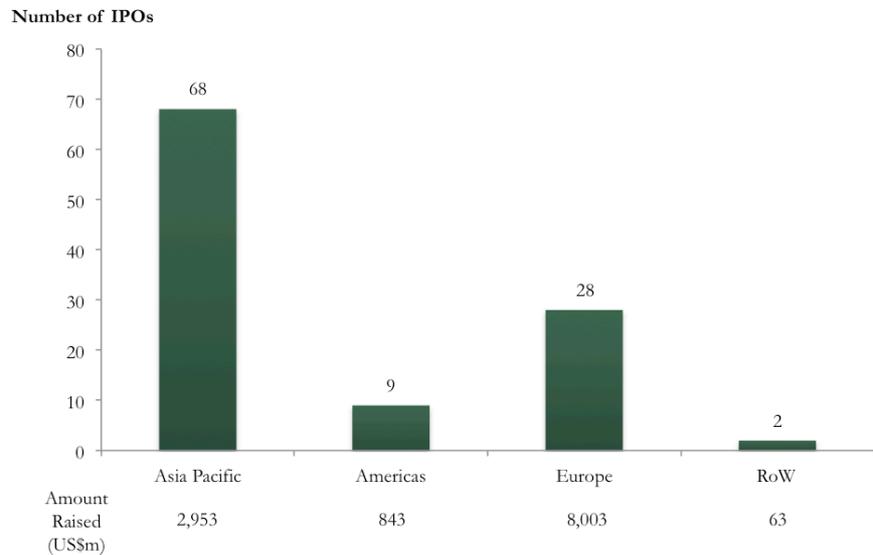


Source: Bloomberg

Demand for Asian Water IPOs have been high, raising \$13b over the last 13 years

Demand for Asian water IPOs have been strong, raising c.\$3.0 billion over the last 13 years second to European players which raised \$8.0 billion. 32 of the last 68 IPOs in Asia are players listed in China and Hong Kong and 17 are listed in South-East Asia.

Figure 19. Number of IPOs and Money Raised (1990-2013)



Source: Bloomberg

Buyouts have mainly been 100% acquisitions by private equity investors in the Treatment & Distribution segment

Buyouts in the water industry have been buyouts of small to medium sized players with an enterprise value between US\$24m and US\$89m. Investors are mainly local funds with the exception of Macquarie acquiring the Korean subsidiaries of Singapore Power International in February 2007.

Figure 20. Selected Buyout In Water Industry in Asia Since 2005

| Target | Target Country | Target Business | Acquirer | Deal Type | Deal EV (US\$m) | Deal EV/EBITDA | Date Completed |
|----------------------------------|----------------|---|---|-------------|-----------------|----------------|----------------|
| Total Eden | Australia | Water and irrigation management system | Anchorage Capital | Buyout 100% | 20 | n.a. | Jan 2011 |
| Hankook Jungsoo Industries | Korea | Water treatment | KoFC | Buyout 100% | 49 | 13.2x | Nov 2010 |
| Salcon Water | China | Water and waste water treatment, infrastructure | Challenger Emerging Market Infrastructure | Buyout 40% | 89 | n.a. | Nov 2010 |
| Aquaintec | Japan | Equipment & consumables | Nippon Mirae Capital | Buyout 40% | 24 | n.a. | Oct 2010 |
| IBC Water Group | Australia | Water treatment | NBC Capital | Buyout n.d. | n.d. | n.a. | Jul 2007 |
| SPI Cogen Ltd and SPI Seosan Ltd | Korea | Water treatment | Macquarie | Buyout 100% | n.d. | n.a. | Feb 2007 |
| VA Tech WaBaq | India | Wastewater treatment plant consultant | ICICI Ventures | MBO 100% | 23 | n.a. | Apr 2005 |

Source: Merger Market, Business Times

V. Target Profiles

Figure 21. Company Profiles

| Target | Target Country | Target Business | Public/Private | Financials (US\$m) | Valuation | Market Cap (US\$m) | Investment Rationale |
|-----------------------------|------------------|--|----------------|--|------------|--------------------|---|
| SIIC Environment | China | Equipment & Consumables | Public: SGX | Sales: 131 EBITDA: 34 (26%) NPAT: 28 (21%) | P/E: 20.9x | 597 | Monopoly position in treatment concessions and infrastructure in specific cities in China |
| Tee International | Singapore, China | Wastewater Treatment, Real Estate | Public: SGX | Sales: 173 EBITDA: 16 (9%) NPAT: 11 (6%) | P/E: 12.1x | 114 | Yet to realize synergies, monopoly in Bang Poo due to acquisition of Thai wastewater company, Global Environmental Technology |
| Eastern Water Resources | Thailand | Treatment & Distribution, Wastewater Treatment | Public: SET | Sales: 109 EBITDA: 64 (59%) NPAT: 39 (36%) | P/E: 16.0x | 656 | Strong position in Thailand with water concessions in many cities |
| United Envirotech | Singapore, China | Equipment & Consumables | Public: SGX | Sales: 148 EBITDA: 43 (29%) NPAT: 25 (17%) | P/E: 20.2x | 412 | Yet to realize synergy from backward integration with membrane filter supplier, Memstar (acquired in 2013) |
| PT Dwi Surya Adabi Kharisma | Indonesia | Equipment & Consumables | Private | n.a. | n.a. | n.a. | One-stop shop for Indonesian water treatment projects |

Source: Reuters, Bloomberg, Company Websites

Appendix A: Segment Profiles

A. Equipment & Consumables

Water Treatment Equipment & Consumables segment is expected to grow at a CAGR of 10.4% and reach US\$85b in 2017

The Water Treatment Equipment & Consumables sub-segment is expected to grow at a CAGR of 7% with the filters and membrane segment leading growth at 14% CAGR. The largest sub-segment, forming US\$62b of the market, are water treatment equipment providers which are mainly generic manufacturing suppliers that provide generic equipment to water treatment service providers. Chemicals form the next largest segment with US\$61b consisting mainly of generic chemical producers that supply to a wide variety of industries. Filtration and membrane manufacturers make up the smallest but fastest growing segment and consist of niche players with specialised technologies for water treatment.

Figure 22. Projected Growth in the Water Treatment Equipment & Consumables



Source: SNet, Impax Asset Management¹⁴

Companies with unique product innovation or strong distribution channels are attractive targets

Corporations have been acquiring other peers mainly for technology acquisition or to access markets. Recent deals show that companies with unique product innovation or strong distribution channels are attractive buyout targets.

Figure 23 Selected Strategic Acquisitions in Equipment & Consumables in Asia

| Target | Year | Acquirer | Deal Value (\$ m) | Investment Rationale |
|---------------------------------|------|---|-------------------|------------------------|
| Memstar | 2013 | United Envirotech | 2,323 | Backward integration |
| Beijing Environment Development | 2013 | Luoyang Longhua Heat Transfer & Energy Conservation | 78 | Technology Acquisition |
| Aquaintec | 2013 | Nihonkaisui | n.a. | Economies of Scale |
| Cool Clear Water | 2013 | Waterlogic | 58 | Market Access |
| Multitrode | 2013 | Xylem | 26 | Technology Acquisition |
| Enpure | 2013 | Doosan Heavy Industries | n.a. | Technology Acquisition |
| Park Wealth International | 2013 | Fresh Water Group | 23 | Market Access |

Source: MergerMarket

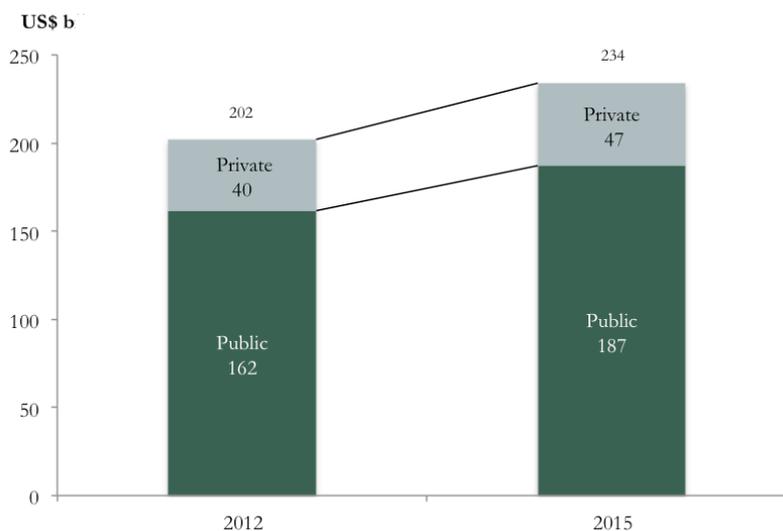
¹⁴ http://www.impaxam.com/media/156188/investing_in_water_global_opportunities_in_a_growth_sector_uk_final.pdf
<http://www.snetglobalwaterindexes.com/market.html>

B. Treatment & Distribution

Treatment & Distribution is expected to grow at 5% p.a. to US\$234b in 2015

The global water treatment is expected to grow at a 5% CAGR to reach \$234b by 2015. Private sector serves 12% of the global population but accounts for 20% of total value because of their ability to charge full cost of service.

Figure 24. Projected Growth in Water Treatment



Source: SNet, Impax Asset Management¹⁵

Private equity buyouts have been focused on companies with exclusive rights given by governments

Private equity buyouts into the sector have been focused on companies with exclusive rights from governments for Treatment & Distribution services to specific geographies. While revenue growth is not as attractive, these assets provide a stable stream of dividend income and are attractive targets for companies looking for geographical expansion into these areas.

Figure 25. Major PE Buyouts in Treatment and Distribution

| Region | Main Investment Rationale | Selected Active Firms |
|--------|---|--|
| UK | <ul style="list-style-type: none"> Scarce and unique asset – only 10 utility companies were privatised, seven are held by infrastructure funds and only three are publicly listed | 3i, Cheung Kong Infr. Macquarie, Aqueduct Capital, Infracapital, Morgan Stanley, Citi, GIC |
| US | <ul style="list-style-type: none"> Consolidation of fragmented industry across different municipalities Realise economies of scale as part of roll-up play | Maquarie, J.P. Morgan, Water Asset Management |
| Europe | <ul style="list-style-type: none"> M&A has been limited due to municipalisation of water contracts – state governments have not renewed licenses and instead grant contracts to public-linked companies | n.a. |
| Asia | <ul style="list-style-type: none"> Acquisition of privatized assets albeit on a smaller scale than in Europe, with average deal size of US\$40m. Buyouts have been opportunistic, with only seven deals consummated in the last 10 years. | Sunrise, KoFC, Anchorage Capital, Challenger, Macquarie, AMP Capital |

Source: Yahoo Finance, University of Greenwich¹⁶

¹⁵ http://www.impaxam.com/media/156188/investing_in_water_global_opportunities_in_a_growth_sector_uk_final.pdf
<http://www.snetglobalwaterindexes.com/market.html>

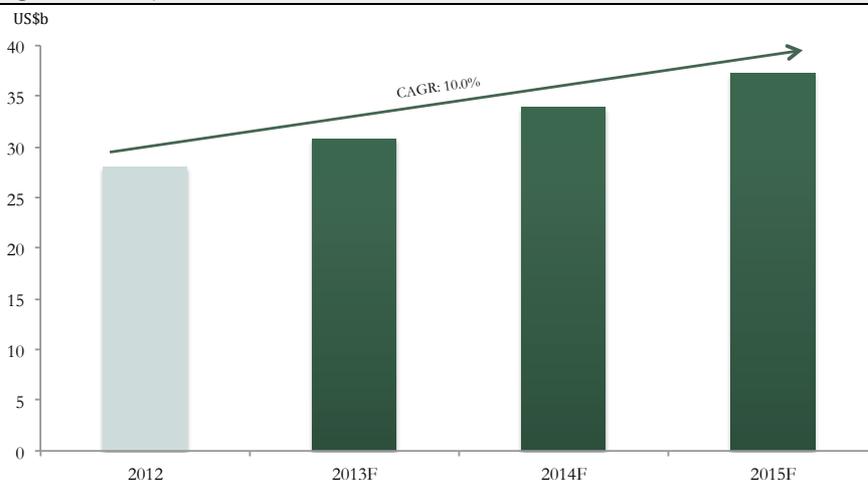
¹⁶ <http://finance.yahoo.com/news/private-equity-eyes-water-utility-154300185.html> http://www.epsu.org/IMG/pdf/2012_Water_companies-EWCS.pdf

C. Wastewater Treatment

Wastewater treatment will grow at 10% CAGR till 2015

The global wastewater treatment industry was worth US\$28bin 2012 and is expected to grow at a CAGR of 10% till 2015.

Figure 26. Projected Growth in the Wastewater Treatment



Source: SNet, Impax Asset Management¹⁷

Greater political will is expected to drive the growth of Asian wastewater treatment service providers

The Asian wastewater treatment industry is expected to lead growth driven by strong economic and regulatory forces that drive market demand for services. China, in particular, is expected to tighten enforcement of its Environmental Protection Law on local, municipal, provincial and ministerial levels. The rapidly industrialising country is experiencing a shortage of wastewater treatment service providers to cope with the increasing annual discharge that increased 18% y-o-y between 2004 and 2008¹⁸. The tightening regulation will translate into opportunities for players currently operating in China to benefit.

Figure 27. Selected Public Projects/Regulatory Changes in Waste Water Treatment

| Country | Policy/ Projects | Potential Impact |
|-----------|---|------------------|
| China | Prevention and Control of Water Pollution (1996 revision) | ● |
| China | 11 th 5 year plan: RMB 330b investment in waste water projects | ● |
| China | 12 th 5 year plan: RMB 450b investment in waste water projects | ● |
| Japan | Water pollution control law (1997) | ● |
| Singapore | Environment and Water Industry Programme (2006) | ● |

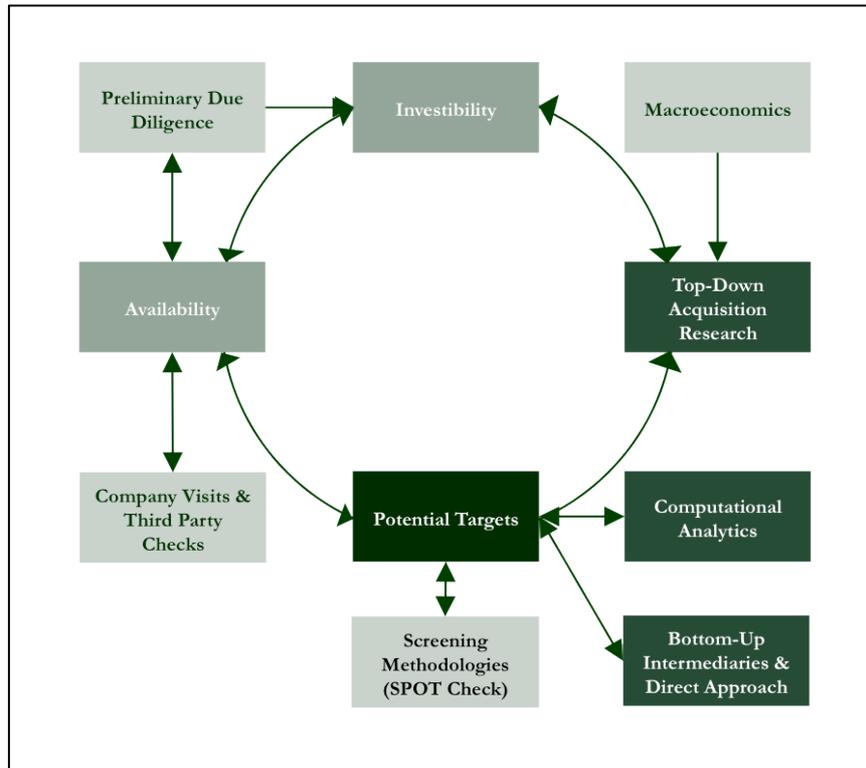
Source: Impax Asset Management

¹⁷ http://www.impaxam.com/media/156188/investing_in_water_global_opportunities_in_a_growth_sector_uk_final.pdf

<http://www.snetglobalwaterindexes.com/market.html>

¹⁸ http://www.mnkjournals.com/ijlrst_files/Download/Vol%201%20Issue%202/3-325-2-Craig.pdf

Proprietary SPOT Framework for origination



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