

# Market Profile: China's industrial water market

## Fighting the war on water pollution

With the Chinese government showing an unprecedented determination to tackle industrial water pollution, a new primary research report from GWI looks at the industries offering the best opportunities for water companies.

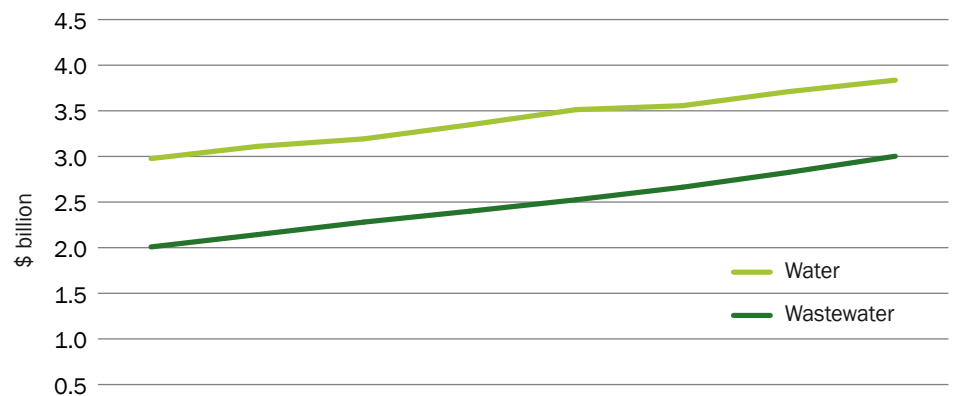
Capital expenditure on industrial water and wastewater treatment in China is set to increase by nearly 25% over the next five years, hitting a massive \$6.8 billion in 2020. Despite reductions in the country's wider economic prospects (China's economic boom slowed down after 2012, with GDP growth rates expected to remain at around 7% in the coming years), there is still substantial growth ahead as key industries continue to expand, while the country knuckles down to tackling its pollution problems.

As a result of increasing enforcement of environmental regulations, spending on wastewater treatment is expected to grow faster than for water treatment, at around 5.7% a year to reach \$3.0 billion in 2020. Spending on water treatment will, however, remain important to maintaining and expanding industrial production (see chart, above right).

### Regulatory drivers

While official data claims that 70% of China's industrial wastewater is treated before discharge, experts consider 30% to be a far more realistic number. To tackle this situation, the Chinese government has introduced an increasing number of policies, particularly since the beginning of 2015, revealing for the first time a willingness to promote environmental protection at the expense of industrial profits (see table below). In the past, environmental regulation has been hindered by weak enforcement, due to the priority given to economic

Capex on industrial water/wastewater treatment in China (2013-2020)



Source: GWI

development. State-owned enterprises in particular have generally been able to ignore discharge and emissions standards without repercussions. The new water pollution action plan, introduced in April 2015, restricts water abstraction to favour water reuse, forces the worst polluters to treat their wastewater to a higher standard, and gives the government the option to shut down smaller non-compliant facilities. The Ministry of Environmental Protection has introduced tighter wastewater discharge standards for the worst polluting industries, most notably refining and petrochemicals, and a new environmental protection law removes the cap on fines for environmental violations. In addition to this, the government has introduced much more effective enforcement mechanisms, and inspections are being increased, with high-level central government officials

being sent to state-owned enterprises (SOEs) and local governments to highlight cases where regulations are violated.

### Key markets

The wastewater treatment sector offers the most significant opportunities for water companies, as the government attempts to bring a heavily polluting industrial bloc in line through tougher regulations. In addition, the wastewater treatment market is expected to offer the greatest opportunities for international players, as they can provide access to technologies that domestic companies cannot offer.

Zero liquid discharge (ZLD) solutions are mandatory in the booming coal-to-chemicals industry, and there is increasing demand for ZLD systems for flue gas desulphurisation wastewater treatment in the power industry. International players such as Aquatech and Oasys Water have already gained a major foothold in this market. The coal-to-chemicals industry also offers opportunities for outsourcing water operations, with 20% of new projects expected to be procured through BOT contracts over the next five years.

A major uptick in wastewater reuse is expected on the back of tightening regulations, particularly in the petrochemical, steel, microelectronics, and pharmaceutical industries. It is an area in which foreign companies can more easily distinguish themselves from the competition, as

### Selected Chinese industry-related water and wastewater regulations (2015)

Date	Policy
Jan 2015	New environmental protection law came into effect, removing cap on fines for environmental violations
Jan 2015	Policy issued promoting the outsourcing of industrial effluent treatment to 'professional third parties'
Mar 2015	Appointment of new Ministry of Environmental Protection (MEP) minister Chen Jining, who has the professional background, experience and intention of addressing environmental pollution
Apr 2015	Water pollution action plan
May 2015	New industrial wastewater discharge standards issued

Source: GWI

more advanced technologies are typically required.

There are more than 3,300 industrial parks in China, and fewer than half have installed centralised wastewater treatment plants. The government requires that all industrial parks have centralised treatment plants by the end of 2017. The administrative committees of the industrial parks are looking to outsourcing to meet this need, with BOT/BOO/TOT, EPC + O&M and pure O&M contracts all on the table. Petrochemical and fine chemical industrial parks offer the most opportunities for international players, due to more challenging wastewater treatment needs.

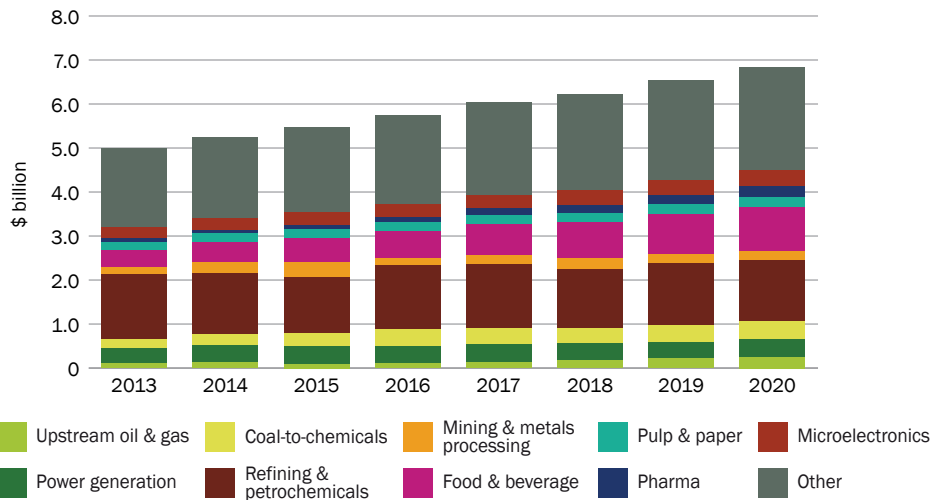
The biggest growth areas in terms of technology will be those applications which enable industrial users to treat their wastewater to a high standard; these include reverse osmosis, nanofiltration and membrane bioreactor systems. Ultrafiltration membranes are becoming more popular as a pre-treatment method, particularly in industries that require ultrapure water. Tertiary treatment systems with an additional oxidation step will become increasingly common in the petrochemical and pharmaceutical industries, driven by the need to comply with new wastewater discharge standards.

Meanwhile, process water treatment offers opportunities for international players, particularly in the market for ultrapure water treatment in the microelectronics and pharmaceutical industries. International know-how is needed in order to achieve the high water quality requirements of the semiconductor and pharmaceutical industries, and domestic companies are unable to deliver these at present. Both of these industries are experiencing double-digit growth in China.

**The industries that matter**

Five major industrial sectors present the most significant opportunities for international players, whilst also representing the

Capex on water/wastewater by industry in China (2013-2020)



Source: GWI

most significant investments in wastewater treatment: power generation, coal-to-chemicals, refining and petrochemicals, microelectronics, and pharmaceuticals (see chart above).

Refining and petrochemicals is expected to be the largest single industrial market for water and wastewater investment in China, with water and wastewater spending reaching \$1.39 billion in 2020. While water treatment will remain the largest area of spending in the refining and petrochemicals industry (\$742.9 million in 2015), higher growth is expected on the wastewater side (around 13.7% a year) as the enforcement of tougher regulations tightens up (see chart below).

As China seeks to reduce its dependence on foreign oil, the booming coal-to-chemicals (CTX) industry is driving the demand for high-recovery wastewater treatment, given that it produces some of the most challenging wastewater streams. The CTX industry is highly water-intensive, but the coal reserves in China are predominantly located in arid areas with limited access to water. This mismatch is a strong driver of the need for high-recovery wastewater treatment solutions. Investments in

the high-recovery wastewater treatment sector are set to grow at 9% a year to reach \$114.5 million in 2020.

**Routes to market**

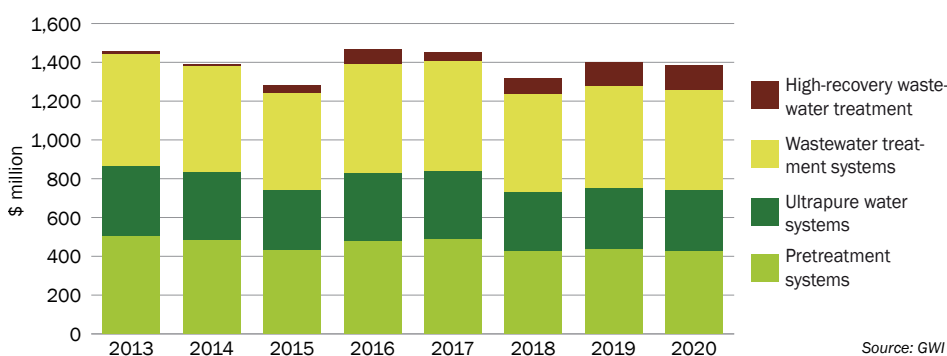
Establishing partnerships with Chinese companies is likely to be the main route to market for international players. The changing political environment for industrial polluters has created opportunities for international water and wastewater companies, with both local market players and industrial clients looking to partner with international technology providers.

For international newcomers wishing to enter the market, the trend is to team up with Chinese players either by setting up a joint venture, or absorbing an equity injection from the Chinese partner, who then has exclusive rights to the technology. Establishing long-term partnerships is also an important strategy for established international players looking to increase their market presence. They can target both emerging international advanced technology providers and respected Chinese players.

Partnerships can be formed either with industrial end-users themselves or with an existing Chinese water treatment company. Both are looking for technology and investment, and are willing to partner with international advanced technology providers who can co-operate at the research stage to develop products to solve specific wastewater treatment challenges. They then need investment to help sell these products or solutions to the market.

● The *China Industrial Water Markets* research report is available now, priced at £2,200/\$4,000. For more information, contact GWI's sales team at [orders@globalwaterintel.com](mailto:orders@globalwaterintel.com) or visit [www.globalwaterintel.com/market-intelligence-reports](http://www.globalwaterintel.com/market-intelligence-reports).

Chinese refining and petrochemicals water/wastewater capex (2013-2030)



Source: GWI

NEW MARKET REPORT: NOW PUBLISHED

# China Industrial Water Markets

**Opportunities and partnerships in the new focus on industrial wastewater treatment**

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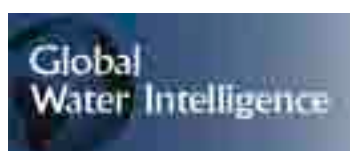
For the first time, Chinese industrial clients are beginning to take water seriously and are investing in advanced water treatment technologies - they will need the help of international companies to get adequate systems in place.

This report will help you understand **how regulations are driving opportunities** and will enable you to **assess which industries offer the greatest opportunities** - and the least competition - for your solutions.

## **What does this report offer?**

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