

Levelling the playing field

China's evolving regulatory landscape

CDP China water report 2016

Written on behalf of 643 investors with US\$67 trillion in assets





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The markets will favour companies that lead a collaborative approach to manage water as a vital shared resource, to ensure sustainable revenue generation and contribute to a more resilient future.

The world around us is changing and many of the fundamental assumptions upon which our economy is founded are being tested. Indeed, in some respects and in some regions, these assumptions may no longer be valid. As competition for water increases, the assumption that a stable supply of good quality freshwater can be guaranteed in many regions, is no longer true.

The situation in China is no exception. Home to 20% of Global population but only 7% of the global fresh water supply¹, pressure on water is mounting due to the country's explosive growth. However, with demand for water in the country set to outstrip supply in just 14 years, this impressive growth trajectory may be threatened if business as usual approaches to water management are not transformed. The Chinese Government has recognised this and has set aside RMB4 trillion or USD\$610 billion, to spend on water infrastructure between 2011 – 2030².

The Global attention this situation has received coupled with the urgent need to transition to a low carbon economy, puts tackling this issue at the top of the Chinese government's agenda. Stricter regulation, enforced with strengthened environmental law is the mechanism through which the Chinese government is set to combat worsening water security. This situation offers the potential for both risk and reward. Take water pricing: the Chinese Government has indicated that water is undervalued in the country. While price hikes may erode profit margins for some companies it will enhance the economic case for investment in an exciting range of water tech solutions.

Investors have woken up to water risk. Our investor base, which has grown enormously since the water program was launched in 2010, now represents the interests of 643 investors with US\$67 trillion in assets, and 24 multinational organizations with a combined procurement spend of US\$214 billion. Addressing water challenges will create losers as well as winners and for these important stakeholders, the insights we provide enables them to take

action. They use CDP data to guide shareholder and supplier engagement and investment and procurement decisions, rewarding companies that are well positioned to succeed.

CDP, our signatory investors, members of CDP's Water in Supply Chain program and CDP's Water A List provide a model for the brand of proactive leadership we need. These organizations have been working with their portfolio companies and suppliers to manage and disclose water issues for some time and last year collected information from over 1,226 companies around the world. More large corporations with interests in China should follow their lead.

Improving water security is fundamental to achieving our climate neutral ambitions. The Paris Agreement has presented the world with an opportunity to prove that we are serious about working together to combat climate change. Improving water security requires us to respond in the same collaborative, determined manner. Companies and investors must move quickly, efficiently and collectively if the global challenges posed by water insecurity are to be addressed. The markets will favour companies that lead a collaborative approach to manage water as a vital shared resource, to ensure sustainable revenue generation and contribute to a more resilient future.

Improving water security is no longer the sole remit of governments and NGO's but is now viewed as a business imperative. Everyone is under starter's orders including companies with interests in China and their investors.

Cate Lamb
Head of water, CDP



Executive summary

As governments move to address water security, those companies responding and adapting stand to realize significant business benefits. The situation is rapidly evolving in many parts of the world and is already evident for corporations operating in and buying from China.

A growing population and increasing economic activity coupled with declining water quality in many regions of China has resulted in increased competition for water in the public and private sectors. While the term water scarcity is frequently heard, we are more specifically experiencing greater competition for water – a finite resource for which there is no alternative.

The response to this situation is multifold. Global awareness of the issue is rising and importantly, the real value of water is increasingly recognised. This, coupled with the urgent need to transition to a low carbon economy, puts tackling water security at the top of the Chinese government's agenda.

China's 13th 5 year plan places significant emphasis on tackling water issues, second only to achieving the country's energy targets. The Plan acknowledges the relatively poor quality of China's water resources and the severe over-extraction of groundwater in some regions³, setting the stage for more stringent regulation, enforced with strengthened environmental law.

While changing regulatory landscapes may have limitations on those businesses unprepared or unable to adapt, it is not always viewed this way by the private sector. A small but growing number of companies view effective regulation and sound water governance in China as fundamental to enabling vibrant business growth.

This report, prepared on behalf of 643 institutional investors and 24 global purchasing organizations, evaluates the preparedness of companies in light of this new and changing regulatory landscape. Analysis of the 2015 CDP water disclosures from 122 companies is included - 37 with headquarters in China, and 85 headquartered elsewhere but with facilities and/or supply chains exposed to water risk in China. These companies are from the most water

dependent sectors including the Electric Utilities, Food and Beverage, Metals and Mining and Textiles. Its key findings are:

Business anticipates challenges from a changing regulatory landscape.

The majority (76%) of CDP respondents analysed consider themselves exposed to water-related risks in China. A quarter (25%) of which are driven by regulatory issues. Higher water prices, more stringent standards for water discharge and water withdrawal limits are the main drivers behind these risks, almost half of which are expected to impact now or within the next 3 years.

Where there's risk, there's reward.

Analysis found that 74% of companies identified opportunities related to improved water management and stewardship. The majority of which are anticipated to result in improved water efficiency and cost savings as well as increased regulatory preparedness. One company alone has saved more than USD\$ 12 million since 2012 due to efforts in achieving their water use goal.

Corporate water stewardship is emerging as a valid response to succeed in a changing regulatory landscape.

Companies with robust water stewardship strategies have a more comprehensive knowledge of water use across their value chain and the impact (current and projected) that water-related issues have on their business and vice versa. Companies that continue to pursue a business-as-usual approach to water management, may not have the appropriate plans and processes in place to more effectively respond. By managing and communicating these issues, companies are avoiding value destruction and seizing competitive advantage, thereby building business resilience.

Introduction

CDP is an international, not-for-profit organization providing the only global system for companies and cities to report, measure, manage and act on vital environmental information.

The global economy will favor businesses that take a pro-active approach to water stewardship.

Eurizon Capital
(US\$215 billion)

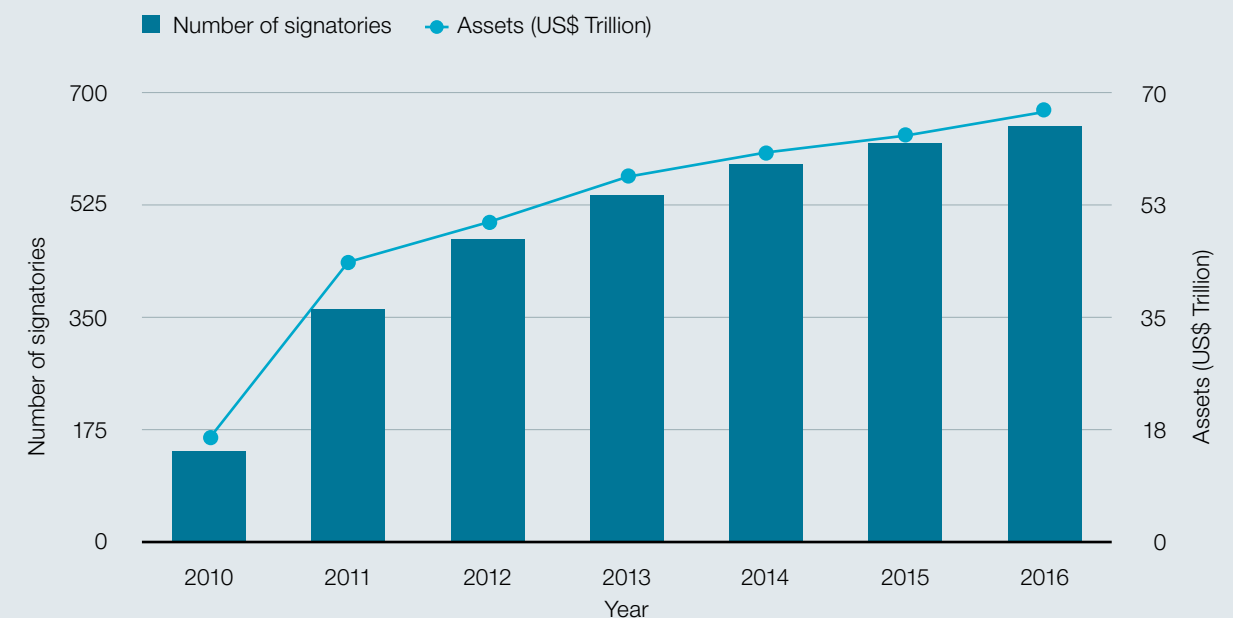
The number of institutional investors using data collected by CDP's water program has more than quadrupled since it began in 2010. These investors are requesting companies to disclose business critical water-related information, to enable informed decision-making and drive strategic alignment of investments. CDP's objective is to improve water security.

In 2015, CDP issued its water questionnaire to 1,079 of the world's largest publicly listed companies. Additionally, through CDP's supply chain program, global purchasing organizations including **Dell, Juniper Networks and S.C. Johnson & Son**, used CDP's water program to engage more than 2,096 of their suppliers.

Analysis for this report is based off the responses of 122 companies - 37 with headquarters in China, and 85 companies with facilities and/or supply chains located within the region that responded to CDP's 2015 water questionnaire⁴.

This report explores China's new and changing water regulatory landscape and what this means for business including analysis of the data collected by CDP in 2015. The report is intended to demonstrate the growing need for action and CDP's role in driving transparency and action around this critical issue in China.

CDP Signatories & Assets: 2010 - 2016



The China water challenge

Worsening water security is a growing problem that affects governments, businesses and individuals in many parts of the world. The implications of this is that a stable supply of good quality fresh water can no longer be guaranteed in many regions.

According to the World Economic Forum (WEF), the world now faces an unprecedented global crisis due to a growing demand for a finite natural resource. This year's Global Risk Report, produced by WEF, highlighted the water supply crisis as the greatest risk facing society in terms of impact over the next decade⁵. This is the fifth consecutive year in which the water supply crisis has emerged in the top ten risks.

China is home to approximately 20% of Global population but only 7% of the world's freshwater resources⁶. Further, the resource is unevenly distributed throughout the country. The South has 75% of China's total renewable water resources; however, according to China Water Risk, almost half of China's agricultural activities and 86% of the country's coal reserves lie to the North⁷.

Increased industrialisation and urbanisation, an ever growing population and the impact of climate change are putting pressure on this precious resource. The remarkable growth in China's population and economy over the past several decades has negatively impacted both water availability and quality.

In China, demand for water is set to exceed supply to the tune of 199 billion cubic meters by 2030 if a business as usual scenario is followed⁸. This is the equivalent amount of water flowing over Niagara Falls constantly for just over two years. This situation suggests further potential limitations on China's economic development with estimated economic losses of US\$35 billion every year due to shortages of water⁹.

Widespread pollution of water resources further exacerbates the problem. According to the latest report from the Chinese Ministry of Environmental Protection, 61.5% of ground water and 28.8% of key rivers are classed as unfit for human contact¹⁰.

It's clear that this situation poses a major risk to businesses operating in the region and their investors. An overwhelming 76% of CDP respondents analysed consider themselves exposed to water-related risks in China, either in their direct operations, supply chain or both. Interestingly 24% of respondents analysed don't consider themselves to be at risk, suggesting they may be unaware of and unprepared for the potential impacts to their business¹¹.

There is increasing recognition by the Chinese government that water security is a critical issue. Water has risen to the top of the political agenda from both an economic and environmental perspective. US\$617 billion has been set aside by the Chinese government to invest in water infrastructure between 2011 – 2020¹². An additional US\$850 billion has also been set aside to improve the quality of water supplies over the next ten years¹³.

Furthermore, a water secure future is critical for China's successful transition to a low carbon economy and underpins the agreement made in Paris to keep global temperature rise well below 2 degrees. As part of its Nationally Determined Contribution, China lists "improving ecological red lines" as a key aspect of regional strategies on climate change. Effective water resources management is essential to their efforts in achieving this and is reflected in China's evolving regulatory landscape.

Fig 1. The top five global risks of highest concern for the next 10 years

Source: Global Risks Perception Survey 2015, World Economic Forum.

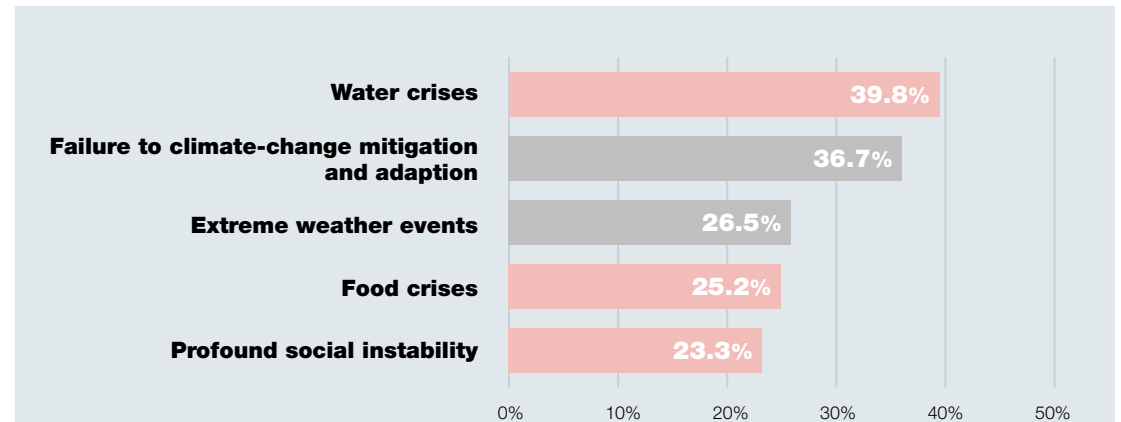


Fig 2. China's sown area and ensured coal reserves in 2013 against water availability (i.e., water resources per capita)

Source: China Water Risk (based on China Statistical Year Book, historical average water resources by province 2003-13).

Note: 1,700-2,000 m³/person/year is considered borderline adequate.

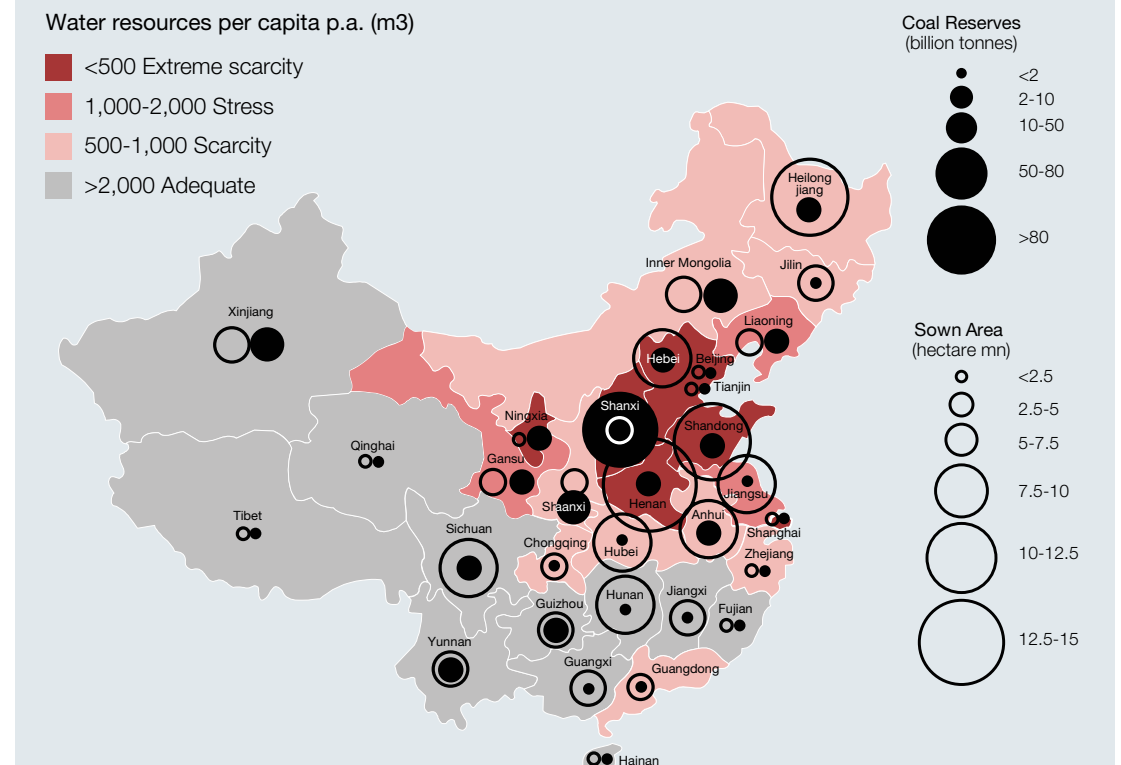
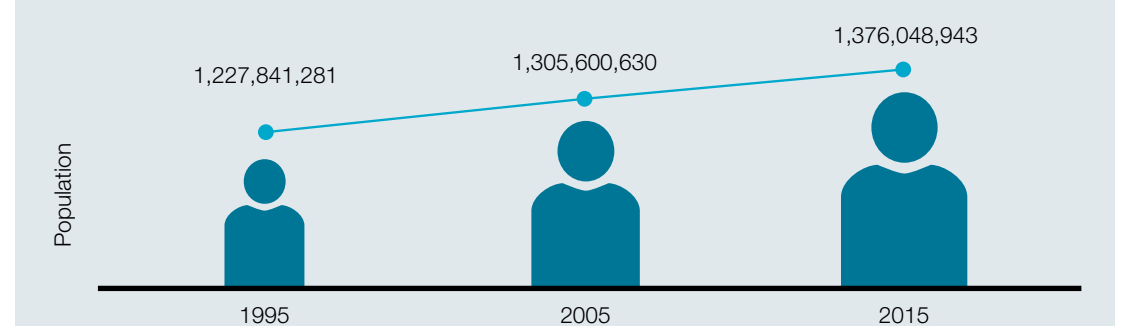


Figure 3. Growth in China's population



China's changing regulatory landscape

Water security has been rising up the political agenda in China for a number of years. The government recognizes that availability of and access to water could be a choking point for economic development and are firmly fixed on achieving harmony between the economy & the environment to ensure long-term sustainable growth¹⁴.

Pollution control and environmental protection are important to both the health of our people and sustainable development. So we must work hard moving forward and resolve to take a path that leads to both economic development and environmental improvement.

Li Keqiang
Premier of
the State Council
of the People's
Republic of China

In 2011, water rose to the top of the political agenda when the central government set about major reforms to implement more effective water resources management. The 'three red lines' were established to control total water use, improve water use efficiency, and control water pollution. As a result, national water caps were introduced and targets were set for total water use, water use efficiency, and ambient water quality¹⁵. A series of quotas were set up to control abstraction from specific rivers, lakes, and groundwater aquifers, providing a basis for approving and issuing water licences¹⁶. Companies

in water intensive industries were given efficiency targets, such as a limit on water use intensity¹⁷ of 40 cubic meters per US\$ 1,600 of industrial added value, to be achieved by 2030¹⁸. This has resulted in increased pressure on businesses to do more with less.

Since then, various policies, regulations, laws and standards have been introduced and implemented to ensure stringent water management practices, laying the groundwork for change.

Companies are under pressure and local governments are under pressure, but there is still a long way to go before every enterprise obeys the law.

Chen Jinjing,
China's Environmental Minister

Sectors most affected by these regulations

Paper and pulp

Coking

Nitrogenous fertilizer

Non-ferrous metals

Printing and dyeing

Agriculture

Food production & processing

Pharmaceutical production

Leather

Pesticide production

Electro-plating

Amendments to China's environmental protection law

As of January 1st 2015 the Chinese government passed a series of amendments to its environmental protection law, the first legislative change since its enactment in 1989. The amendments strengthen both preceding and ensuing environmental regulation, enabling government to increase the environmental accountability of the private sector via:

- Penalties and fines for non-compliance which can now result in criminal charges;
- Possible closure of operations due to non-compliance;
- Greater liability through mandatory pollution discharge licenses and environmental information disclosure requirements; and
- A publicly available pollution blacklist of companies with illegal waste-discharging activities.

As a result, to succeed, companies will need to take a proactive approach to understanding the boundaries they and their suppliers have been set.

Water Pollution Prevention & Control Action Plan

In 2015, the Chinese government released what is believed to be its most comprehensive water policy to date. The Water Pollution Prevention and Control Action Plan, focused on a selection of heavily polluting and water intensive industries, establishes a set of key indicators aimed at driving improvements in water quality, wastewater discharge, water use efficiency and water consumption. Programs will be launched on small, 'outdated' factories in ten major industries to adopt cleaner production methods, including papermaking, coking, nitrogen fertilizer, nonferrous metal, textile, agricultural products procession, manufacture of drug substances, tanneries, pesticides and electroplating. Companies in breach of new standards are subject to a penalty system. First a yellow card is issued, resulting in an immediate restriction of operations. Those companies still unable to meet the requirements are issued a red card and operations are closed.

Trading water use & wastewater discharge permits

Trading water use and discharge permits is an important market-based instrument to implement the Three Red Lines policy. The mechanism incentivizes more efficient corporate water use and improvements in water discharge quality. Companies capitalizing on this system are realizing significant benefits through trading surplus water savings to companies looking to expand production. Introduced as a pilot in 2014, trading of water use permits is set to increase, ensuring that it pays to do more with less.

Water tax policy

In 2016, the Ministry of Finance and State Administration of Taxation jointly issued a 'Notice on The Promotion of Resource Tax Reform', and from July 1, resource tax will be levied on most mineral products based on price instead of quantity. A pilot project is also being conducted, introducing a water resources tax in Hebei Province. A tax on the extraction of surface and ground water by water intensive industries will be introduced to tackle over extraction in the water scarce region. The pilot initiative is expected to expand to wood, pastures and tidal flats in the future.

Green Insurance Policy

It is now compulsory for companies in selected heavily polluting industries to purchase environmental liability insurance. The Policy introduces the polluter pay's principle, shifting financial liability for environmental damages from Government to the private sector. The Policy ensures that those likely to pollute, will now have adequate finances to address associated costs and obligations. Prior to the Policy, companies responsible for pollution incidents usually resorted to bankruptcy to avoid paying substantial compensation costs.



Written by CECEP Consulting Co., Ltd., a wholly-owned subsidiary of China Energy Conservation and Environmental Protection Group (CECEP)

Effects are evident and anticipated to increase

Using CDP's water questionnaire as a framework, we have benchmarked our strategies for addressing water-related impacts against sector peers, supporting us to further advance water stewardship in our direct operations and wider supply chain.

Mars

CDP's analysis indicates that business in China is already being impacted by water related challenges.

17% of respondents report having experienced detrimental impacts related to water issues in the reporting period (2014-2015), more than a third (36%) of which were driven by regulatory factors. The top impacts include:

Higher operating costs.

Bayer AG experienced an increase in the price of water at a site in Beijing due to worsening water scarcity and restrictions on municipal water supply causing a significant financial impact at site level.

Production disruption leading to reduced output.

An industrial site owned by **Veolia** was found to be leaking benzene into the local ground water supply. As a result, the water supply was cut leading to reduced output from the site and **Veolia** are now anticipating litigation.

Brand damage.

Porton were fined RMB 100,000 for its involvement in litigation around the discharge of 70 tonnes of waste water into the Yangtze River by a contractor, which, the company reports, led to reputational damage.

Further challenges are anticipated. 76% of CDP respondents analysed consider themselves exposed to water-related risks in China, either in their direct operations, supply chain or both.

Volkswagen, Sekisui Chemical Co., Ltd. and **Mars**, report higher water prices, resulting in potential impacts such as higher operating costs or a reduction in revenue. For example, **Mars's** operations in China has experienced increasing water costs since 2009, in line with the government objective to limit water usage.

The average price of water in China is still very low by international standards. However, this price is set to increase. A 2014 China strategy report from Deutsche Bank cites as a result of this reform, it expects water prices to be raised substantially, predicting a 30% increase in water tariffs nationwide within three years²⁰.

Porton, Kering and **Volkswagen AG** report increasing regulation of discharge quality/volumes as a significant risk driver. Another example can be seen through the manufacturing company **Cummins** who

recognize that regulatory constraints could affect its operations related to both water supply availability and discharge requirements. The company reports that all sites at risk are required to conduct an annual compliance audit that includes water and wastewater requirements.

Konica Minolta, Inc. and **Daiichi Sankyo Co., Ltd.** report statutory water withdrawal limits/changes to water allocation. **Associated British Food's** brand **Primark** and **UPM-Kymmene Corporation**, anticipate that regulatory controls for water availability and quality will increase and potentially have new implications for its operations.

Time is of the essence. Almost half (46%) of regulatory risks are expected to impact now or within the next 3 years.

Water use and waste water discharge permitting systems put into place to enforce the "Three red lines" policy²¹ along with national water caps means that business has to do more with less water. However, standards vary across each sector and heavily polluting and water intensive industries have been singled out²². One such industry is the textile & fashion industry. **Associated British Foods** reports that its clothing brand **Primark** experienced supply chain disruption due to changes in China's environmental regulation, particularly stricter legislation around wastewater discharge quality. **Primark** is working with its suppliers to help them consider operational changes that will enable them to meet the new legislation.

China's revised environmental protection laws along with the Water Ten Plan²³, both released in 2015 have an increased focus on strict compliance, whilst providing weight to punish environmental violations. This is not to be taken lightly. In January of 2016 China's top court upheld the original ruling of an environmental public interest case, ordering six companies to pay more than US\$26 million in compensation for discharging waste acids into two rivers in 2012, the largest environmental penalty imposed to date²⁴.

The need for companies to take a proactive approach to understanding the boundaries in which they and their suppliers have been set to operate in is clear and compelling.

Fig 4. Water risk drivers:

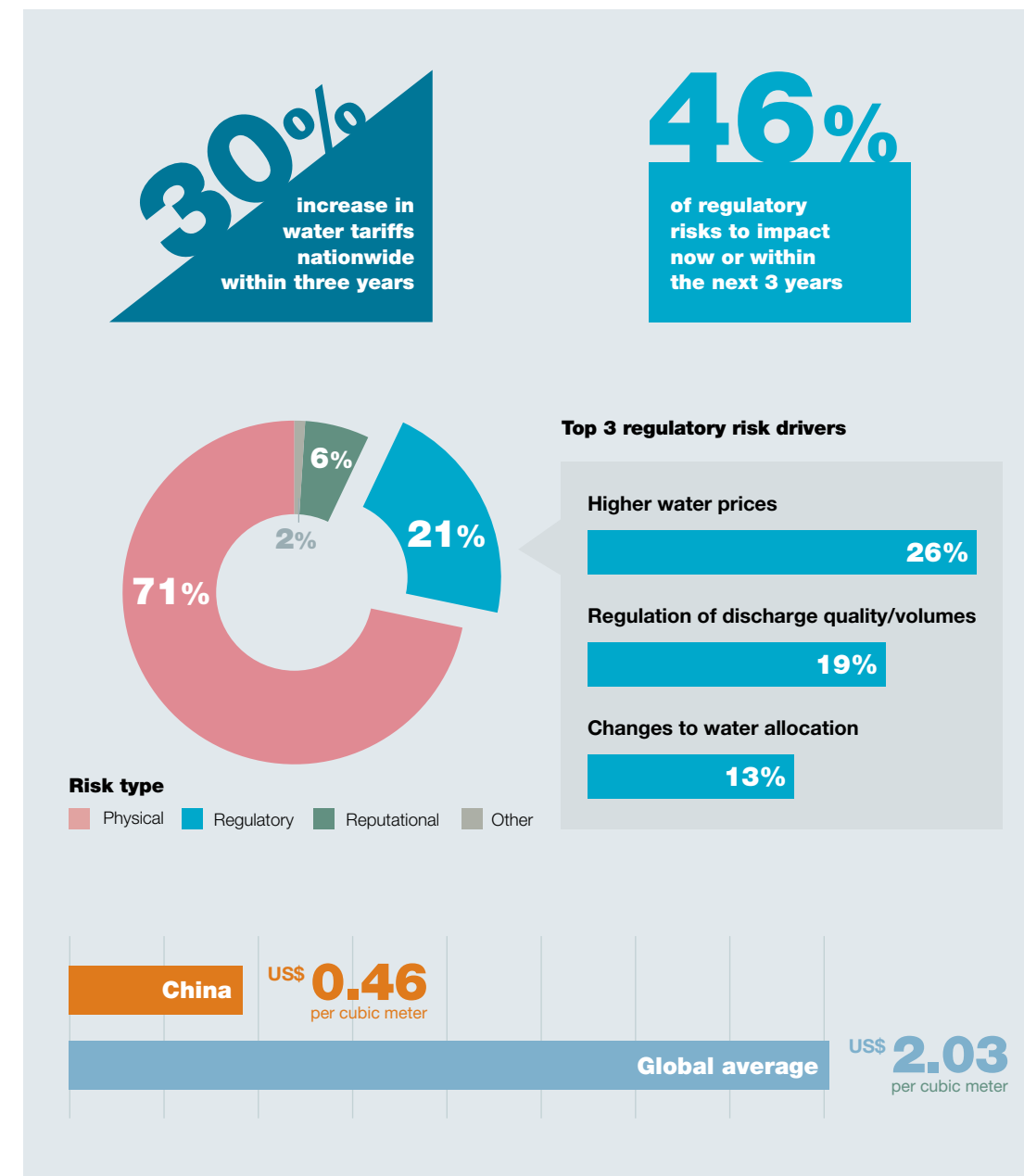
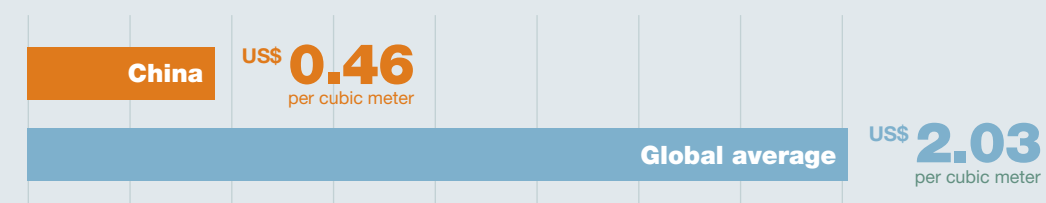


Fig 5. Average price of water:

Source: <http://www.wsj.com/articles/SB10001424052702303870704579297410328066466>



Pressure on water availability and quality has led to the government setting targets at the national level to improve efficiency and reduce pollution. The implementation of which at a local or regional level can vary, creating uncertainty. As a result, H&M regularly monitor regulatory changes, keep a close dialogue with suppliers and use collective action to engage multiple stakeholders with the aim of improving the local governance of water.

H&M Hennes & Mauritz AB

Where there's risk, there's reward

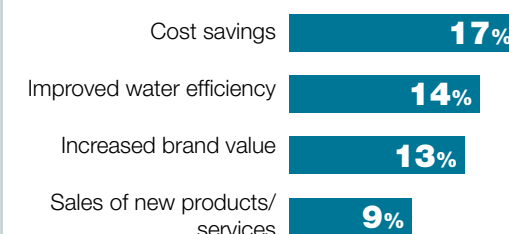
Effective regulation and sound water governance in China is fundamental to addressing worsening water security and enabling vibrant economic growth.

While water resource management and allocation may have limitations on those businesses unprepared or unable to adapt, it is not always viewed this way by the private sector. **General Mills Inc** for example, regard the presence of strong water regulatory frameworks as a positive measure, helping to ensure the availability of adequate and reliable water resources of acceptable quality, within the landscape in which they operate in or source from.

While tightening regulation may come at a price, it provides a clear opportunity for companies to follow a path of innovation and operate in a sustainable manner. Those pursuing water stewardship efforts and disclosing through CDP, appear to be well placed to succeed in this new and changing regulatory landscape. No fewer than 74% of the companies analysed, report that water action offers operational, strategic, or market opportunities.

These opportunities include:

Fig 6. Top reported opportunities



Improved water efficiency

Vale has implemented a number of water efficiency projects throughout its global operations, including China, with estimated financial savings of US\$ 76 million. Examples include the installation of leak monitoring equipment and automated water meters leading to a reduction in total water demand. Companies such as **Vale** who are actively pursuing improved water use monitoring and efficiency may be well placed to operate in a water constrained environment, under regional and sectoral water caps.



Cost savings

Daiichi Sankyo Co., Ltd. aim to enhance the operational efficiency of its onsite waste water treatment plant. This will reduce its associated operational costs, whilst adhering to wastewater treatment standards. In addition, by increasing the recycling/recirculating ratio at its plants, **Owens Corning** has reduced its fresh water use, achieving financial benefits and lessening its dependency on local or regional water sources.



Increased brand value

By following a path of improved water stewardship, **H&M Hennes & Mauritz AB** demonstrate to its customers and other stakeholders its commitment to ensure water is used sustainably throughout its value chain. This has increased customer perception of its company as a sustainable brand and preferred retailer.



Increased sales of products or services

Companies such as **Kao Corporation** and **BASF** have products that contribute to the water conservation of other end users. **BASF** established a new production plant for water treatment chemicals in Nanjing, China. By providing chemical solutions for water recycling, reuse, savings and drinking water, **BASF** reports that it can support its customers to comply with stricter regulatory standards. Whereas **Kao Corporation** has expanded its range of low water use laundry detergent, requiring only a one rinse cycle, contributing to reduced domestic consumption of water.



Are businesses in China prepared?

Below we present a comparison of the CDP respondents that are headquartered in China (Chinese companies) and those respondents headquartered elsewhere but with operations or supply chains in China (Multinational companies). Analysis suggests that Multinational companies, the majority of whom have been reporting to CDP for more than 3 years, are better placed to respond and adapt to changes in water regulation when compared with their Chinese counterparts.

82%

38%

Back to basics

Only 38% of Chinese companies are able to report total, enterprise wide water withdrawals, discharges and consumption compared with 82% of Multinational companies.

Fundamental to responding effectively to water risk, capitalising on opportunities and remaining compliant within a complex regulatory environment such as China's, is effective and regular measuring and monitoring of water use. As the adage says, you can't manage what you don't measure. Accurate

measurement allows the methodical identification and implementation of water-saving and pollution prevention interventions, as well as the accurate tracking and reporting of progress, and should form an integral part of all water management programs.

The situation worsens when reporting more granular, facility level water use data. When looking at Chinese companies ability to measure and report this information for facilities they deem to be a risk, only 14% are doing so compared with 42% of Multinational companies. Without such monitoring, effective water risk assessment and response is impossible.

89%

41%

Risk assessment is key

Only 41% of Chinese companies are undertaking a water related risk assessment compared with 89% of Multinational companies.

Reassuringly, the majority of Multinational companies are undertaking a water related risk assessment, although there is significant opportunity for improvement amongst Chinese companies.

Further analysis of the responses to these questions from Chinese companies indicates that, in many cases, the water risk assessments that are being undertaken may be inadequate. Just one company, **SLT**, is conducting this assessment at the river basin level. Given that many of the fundamental risk drivers companies are exposed to reside within the basins they operate in or buy from, these companies may potentially be underestimating their exposure to substantive risks and opportunities may be going unnoticed.

82%

33%

Engagement with regulators

Only 33% of Chinese companies engage with regulators as part of their water related risk assessment compared with 82% of Multinational companies.

Increased pressure on business to operate in the boundaries set through strengthening regulation makes it critical to engage with local authorities and regulators as part of a robust risk assessment. Cause for concern are the number of Chinese companies failing to do so.

Companies taking a proactive approach such as **BASF** engage in constant dialogue with its stakeholders, including local authorities and regulators. It recognises that water withdrawals and wastewater discharges have to comply with national, state and local regulations. The company reports that a failure to do so could result in an impact to its business.

Goodyear includes regulators as part of its water risk assessment due to the significant impact that both existing and future regulations could have on its ability to operate and the increased costs associated. And **Stanley Black & Decker**, Inc engage regulators at a national and local level in order to proactively prepare for new regulations and ensure they stay within the operating limits set by the government.

82%

47%

Assessing regulatory factors

Only 47% of Chinese companies incorporate current regulatory frameworks and tariffs into water risk assessments compared with 82% of Multinational companies.

It's no surprise that the majority of Multinational companies incorporate current regulatory frameworks and tariffs into water risk assessments. Promisingly, just under half of Chinese companies such as **Asia Vital Components Co., LTD** and **Waychein** are also factoring this into their risk assessments, although there is still room for improvement. Forward thinking companies such as **Associated British Foods** closely monitors both current and future regulation and engages with regulators at a national and local level to anticipate potential impacts to its operations.

94%

62%

Aim high, use less

Encouragingly 62% of Chinese companies have water targets and/or goals in place compared with 94% of Multinational companies.

Key to companies taking action to mitigate water risk and progress their water stewardship efforts is setting concrete targets and/or goals and encouragingly the majority are doing so. Companies who are setting appropriate and meaningful targets may be better able to operate safely within the boundaries set by regulatory objectives.

Analysis suggests that the majority of targets set by companies are focused on reducing water use and therefore reducing their freshwater dependence.

Although this is an important first step, in some cases, there may be a need to move beyond the pursuit for ever greater efficiency. All water targets, where possible should reflect the challenges companies are facing within the river basins they operate in or buy from. For example, given the state of water pollution in China, it is disappointing to note that only 13% of companies such as **HMA INC.**, are setting water pollution prevention targets.

Fig 7. Top reported targets and goals



28%

Absolute reduction of water withdrawals



25%

Reduction in consumptive volumes



23%

Engagement with suppliers



Conclusion

Sound and effective water governance is essential for driving dynamic, low carbon economic growth. As governments move to address water security, it is clear that those companies responding and adapting stand to realize significant business benefits.

Whilst it can be viewed as a risk to business, better water governance provides clear and compelling opportunities for companies to follow a path of innovation and operate in a sustainable manner. Those pursuing water stewardship efforts and disclosing through CDP, appear to be well placed to succeed in this new and changing regulatory landscape.

Investors and procurement teams should be holding portfolio companies and suppliers in China accountable, to demonstrate their ability to address fundamental concerns. The ability to measure, monitor and manage water use, conduct a robust water related risk assessment and set clear targets and goals for action, are some of the key aspects they should be questioning.

Utilizing CDP's questionnaire as a framework and pursuing a path of improved corporate water stewardship presents clear benefits for business:

- ▼ Secure a local legal and social license to operate and comply with regulation;
- ▼ Prevent or react to operational disruption from water availability, supply or quality issues;
- ▼ Assure current and potential key stakeholders that the business will be profitable now and in the future; and
- ▼ Gain a competitive advantage over companies who are not yet realising the benefits of corporate water stewardship.

Our ultimate goal is to raise the market as a whole beyond where it would otherwise be in the fight to improve water security in China. We want all companies to improve their water stewardship. The potential impact of inaction is significant and the opportunity to prosper by following a path of improved water security is clear. We urge companies to take action towards building a water secure China.

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Appendix I. Summary of key indicators

Key Indicators	Headquarters	Operations
Total respondents	37	85
Public respondents	33	64
Non-public respondents	4	21
Current State		
Respondents who have evaluated how water quality and quantity affects their organizations growth strategy over the next year or more	22%	74%
Respondents who have experienced detrimental impacts related to water in the reporting period	3%	22%
Water risk assessment		
Respondents that undertake water risk assessments at the river basin scale	3%	28%
Respondents that require key suppliers to report water use, risks and management	5%	48%
Water risks & opportunities		
Respondents exposed to risks in either direct operations or supply chian	32%	95%
Respondents exposed to risks in direct operations only	14%	28%
Respondents exposed to risks in supply chain only	3%	11%
Respondents exposed to risks in both direct operations and supply chain	16%	56%
Respondents that identify opportunity	51%	84%
Accounting		
Respondents that report water withdrawals	41%	91%
Respondents that report water discharge	38%	80%
Respondents that report water consumption	46%	86%
Respondents that monitor all water aspects for more than 50% of facilities at risk	14%	42%
Respondents able to verify (>1%) total volume of water withdrawal data by source for those facilities determined to be at risk	8%	36%
Respondents able to verify (>1%) water discharge quality data by destination	11%	20%
Governance & Strategy		
Respondents with water integrated into their business strategy	49%	87%
Respondents with board level oversight of water policy, strategy or plan	11%	69%
Respondents with a water policy with goals and guidelines for action	51%	82%
Compliance		
Respondents that were subject to penalties and/or fines	8%	24%
Targets and initiatives		
Respondents with goals or targets in place	62%	94%
Respondents reporting targets with quantitative actions to manage water resources	51%	81%
Respondents reporting qualitative goals leading towards improved corporate water stewardship	49%	69%
Respondents that align public policy position with water stewardship	14%	15%

Appendix II. Companies reporting no risk from water issues

Company name	Country HQ	Access
Consumer Discretionary		
N/A	N/A	NP
Dongguan Primax Electronic & Telecommunication Products Ltd	China	P
N/A	N/A	NP
Yangzhou Fuping Living Supplies Factory	China	P
Consumer Staples		
Giant Food Int'l Co	China	P
Kemin Nutrisurance Inc.	USA	P
Waychein	China	P
Energy		
Jintung	China	P
Health Care		
WuXi AppTec	China	P
Industrials		
Hi-P International Limited	China	P
Kim Printing (Xiamen) Co. Ltd	China	P
Victory Giant Technology	China	P
Information Technology		
Ascent/Mitac	China	P
Carli Electronics Co. Ltd	China	P
Chicony Power Technology Co. Ltd	China	P
Feng Chuan Electronics Co. Ltd	China	P
HannStar Board Tech. (Jiangyin) Corp	China	P
Mitac International	Taiwan	P
Quanta Computer	Taiwan	P
Source Photonics	China	P
Suzhou Fulfill Electronics Co. Ltd	China	P
Taitwun	China	P
Wus	China	P
Materials		
Amcor	Australia	P
Essel Propack Limited	China	P
Hung Hing Packaging (Wuxi) Co. Ltd	China	P
Jiangyin Chengxing Household Chemic	China	P
Sinochem Ningbo Ltd	China	P
Yuan Deng Metal Industrial (Kunshan) Co. Ltd	China	P
Utilities		
Veolia	France	P

Appendix III. Companies analyzed & KPI's

NP Not public response (company response is private)
P Public response (company response is available to the public)

No
Yes
Not available

Company name	Country HQ	Access	Measure water withdrawals, discharges & consumption	Water risk assessment	Include current regulatory factors in risk assessment	Require suppliers to report on water	Identify opportunities	Has targets and/or goals
Consumer Discretionary								
BWI Group	China	NP						
BYD	China	NP						
Casio Computer Co., Ltd.	Japan	NP						
Denso Corporation	Japan	NP						
Dongguan Primax Electronic & Telecommunication Products Ltd	China	P						
Goodyear Tire & Rubber Company	USA	P						
H&M Hennes & Mauritz AB	Sweden	P						
HMA Inc.	China	P						
Inditex	Spain	P						
Kering	France	P						
Marriott International, Inc.	USA	P						
Mazda Motor Corporation	Japan	P						
Nemak	Mexico	NP						
Nikon Corporation	Japan	P						
Sekisui Chemical Co., Ltd.	Japan	P						
Sonavox	China	NP						
Staples, Inc.	USA	P						
State Development & Investment Corp	China	P						
Top Victory Electronics(Fujian) Co. Ltd	China	NP						
Toyota Boshoku Corporation	Japan	NP						
Valeo Sa	France	P						
Volkswagen AG	Germany	P						
Yangzhou Fuping Living Supplies Factory	China	P						
Yazaki	USA	NP						
Yokohama Rubber Company, Limited	Japan	P						
Consumer Staples								
Anheuser Busch InBev	Belgium	P						
Associated British Foods	United Kingdom	P						
CJ Cheiljedang	South Korea	NP						
General Mills Inc.	USA	P						
Giant Food Int'l Co	China	P						
Imperial Tobacco Group	United Kingdom	P						
KAO Corporation	Japan	P						
Kemin Nutrisurance Inc.	USA	P						
KHN Shanghai	China	P						
Mars	USA	P						
Meihua	China	P						
Nestlé	Switzerland	P						
Shiseido Co., Ltd.	Japan	P						
Waychein	China	P						
Energy								
Jintung	China	P						
Health Care								
Bayer AG	Germany	P						
Daiichi Sankyo Co., Ltd.	Japan	P						
Sanofi	France	P						
Sysmex Corporation	Japan	P						
Takeda Pharmaceutical Company Limited	Japan	P						
WuXi AppTec	China	P						
Industrials								
Assa Abloy	Sweden	P						
Cummins Inc.	USA	P						
Daikin Industries, Ltd.	Japan	P						
Hi-P International Limited	China	P						
Kim Printing (Xiamen) Co., Ltd	China	P						
Mitsubishi Electric Corporation	Japan	P						
NGK Insulators, Ltd.	Japan	NP						
NSK Ltd.	Japan	P						
Owens Corning	USA	P						
Rockwell Automation	USA	P						
Royal Philips	Netherlands	P						
Stanley Black & Decker, Inc.	USA	P						
Toshiba Corporation	Japan	P						

Company name	Country HQ	Access	Measure water withdrawals, discharges & consumption	Water risk assessment	Include current regulatory factors in risk assessment	Require suppliers to report on water	Identify opportunities	Has targets and/or goals
Victory Giant Technology	China	P						
Voilex Group	United Kingdom	P						
Information Technology								
Ascent/Mitac	China	P						
Asia Vital Components Co., LTD	China	P						
Brother Industries, Ltd.	Japan	P						
Carl Electronics co., LTD.	China	P						
Chicony Power Technology Co.,Ltd.	China	P						
Cooler Masterco.,Ltd.	China	P						
Dell Inc.	USA	P						
Delta Electronics	Taiwan	NP						
EMC Corporation	USA	P						
EMI Stop	China	P						
Feng Chuan Electronics Co. Ltd	China	P						
FujiFilm Holdings Corporation	Japan	NP						
Gold Circuit Electronics Ltd	Taiwan	NP						
HannStar Board Tech. (Jiangyin) Corp	China	P						
Hitachi, Ltd.	Japan	P						
Hon Hai Precision Industry	Taiwan	NP						
Ibiden Co., Ltd.	Japan	P						
KEMET Corporation	USA	NP						
Konica Minolta, Inc.	Japan	P						
Kyocera Corporation	Japan	NP						
Lite-On Technology	Taiwan	P						
Mitac International	Taiwan	P						
Murata Mfg. Co.	Japan	NP						
NEC Corporation	Japan	NP						
NetApp Inc.	USA	P						
Nordic Semiconductor ASA	Norway	NP						
OMRON Corporation	Japan	P						
Qisda	Taiwan	P						
Quanta Computer	Taiwan	P						
SLT	China	P						
Source Photonics	China	P						
Suzhou Fulfil Electronics Co., Ltd	China	P						
Taitwun	China	P						
Taiwan Semiconductor Manufacturing	Taiwan	P						
Wus	China	P						
Xerox Corporation	USA	P						
Yageo Corporation	Taiwan	P						
Materials								
AkzoNobel	Netherlands	P						
Amcor	Australia	P						
Ball Corporation	USA	NP						
BASF SE	Germany	P						
Birla Carbon	USA	P						
Chimex	France	P						
Eldorado Gold Corporation	Canada	P						
Essel Propack Limited	China	P						
Firmenich SA	Switzerland	P						
Hung Hing Packaging (Wuxi) Co Ltd	China	P						
J.M. Huber	USA	P						
Jiangyin Chengxing Household Chemic	China	P						
Mitsubishi Chemical Holdings Corporation	Japan	NP						
Porton	China	P						
Rong Hua(Qing Yuan) Offset Printing	China	P						
Shin-Etsu Chemical Co., Ltd.	Japan	NP						
Sinochem Ningbo Ltd.	China	P						
Solvay S.A.	Belgium	P						
Stora Enso Oyj	Finland	NP						
Toyo Ink Arets NV	Belgium	NP						
UPM-Kymmene Corporation	Finland	P						
Vale	Brazil	P						
Yuan Deng Metal Industrial (Kunshan) Co.Ltd	China	P						
Utilities								
Veolia	France	P						

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For access to a database of public responses for analysis, benchmarking and learning best practices, please contact reporterservices@cdp.net.

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