

## Water: Undervalued and Misunderstood

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It seems that water is at the top of the agenda for global leaders with the recent Natural Declaration and commitment by 45 CEOs to advance corporate water management practices at Rio+20 in June. The UN Global Compact signed by these leaders also called on governments attending Rio+20 to make global water security a top priority. HSBC has recently launched a five-year programme to invest US\$100million to help transform the lives of more than one million people by providing access to safe water and spearheading water protection projects. Why? Because a HSBC commissioned a report by Frontier Economics shows that five out of the world's ten most populated river basins, whose share of global GDP is forecast to rise from 10% today to 25% by 2050 are experiencing water withdrawals that are already above sustainability thresholds. HSBC's chairman, Douglas Flint continues to say in his forward: *"without investment in both water efficiency and water resource management this situation will deteriorate further in the decades ahead, potentially straitjacketing growth in these areas"*.

In reality, the crisis is already here. In China, it is particularly urgent. In February 2012, Hu Siyi, Vice Minister of China's Ministry of Water Resources, issued a 'stark warning' stating that water usage in China had *"already surpassed what our natural resources can bear"* and warned that the water crisis has become a bottleneck for sustainable development. Awareness and interest in water issues continues as China's water woes continue to be covered in Caixin, Finance Asia, the Economist and even fashion magazine Elle China dedicated a 50 page spread on water.

### **The urgency of the crisis**

According to the National Bureau of Statistics of China, 11 of the 31 regions of mainland China have average annual renewable water resources per capita below 1,000m<sup>3</sup>, a level considered by experts to pose a severe constraint on food production, economic development and protection of natural systems. These "Dry 11" water resources are comparable to Middle Eastern countries, yet their combined Gross Regional Product contribution to China's national GDP is a staggering 45%.

On top of this, there is pollution. Pollution exacerbates water scarcity by making 39% of the seven rivers and basins monitored and 58% of the 26 key lakes and reservoirs, and 55% of national groundwater unfit for human touch, according to the 2011 State of Environment Report by the Ministry of Environmental Protection released in May 2012. Experts estimate that if business continues as usual in China, the supply of water will not be able to meet the demand for water by 2030. The supply shortfall in 2030 is estimated to be 2.6x total municipal water use in 2009.

### Regions with Annual Renewable Water Resources below the World Bank Water Poverty Mark of 1,000m<sup>3</sup>



Source: The Big Picture, [www.chinawaterrisk.org](http://www.chinawaterrisk.org)

There are also energy security issues, with 96% of electricity in China requiring water to generate. Energy security is further threatened by China's reliance on coal: approximately 47% of China's ensured coal reserves lie in the Dry 11.

These headline numbers are serious and urgent and it is not surprising that water is at the top of the agenda for the Chinese government too. In 2011, water topped agriculture as the top policy priority. The Chinese government introduced a cap on water consumption of 670 billion m<sup>3</sup> by 2020, and set aside RMB 4 trillion for water infrastructure from 2011-2020. The 12th Five Year Plan (12FYP) echoed this, targeting a 30% improvement in water efficiency, an 85% sewage water treatment rate for cities, and six new specific water pollutant reduction targets. A National Groundwater Plan ensued in November 2011 prohibiting the sinking of new wells and excessive groundwater use. In February 2012, the State Council took further action by drawing up more concrete policies to protect and manage water in a new water management decree setting water usage quotas and efficiencies for 2015, 2020 and 2030.

### Water clearly undervalued

Given water scarcity, water is clearly undervalued. Water bills currently account for less than 1% of China's disposable household income compared to international peers at 2.5%-3.0%. According to Standard Chartered Bank, China's Ministry of Housing and Urban-Rural Development recommends the top end of this range at 3% given the level of water scarcity and stress. This would amount to a 3.75 times increase in water pricing. Water prices are lower in Southern China than in the North so in reality, we are looking at a possible 300-500% rise in water tariffs across different regions in China.

If you think the magnitude of this hike is unrealistic and will only be implemented over a long period of time, think again: Guangzhou has recently raised the price of residential water by 50% from RMB1.32/m<sup>3</sup> to RMB1.98/m<sup>3</sup> whilst "Special Category" water users including car washes, nightclubs, saunas and spas face a ~500% increase from \$3.38/m<sup>3</sup> to \$20/m<sup>3</sup>. Progressive-use water tariff plans with hikes for high water usage of up to 306% are currently in public consultation and are expected to be implemented within this year. If this is not enough to convince the skeptics, the report by Premier Wen Jiabao at the opening of the Fifth Session of the National People's Congress, stated that the government will rationally set and

adjust water resource fees in different localities, and carry out integrated price reform of water used for agricultural purposes.

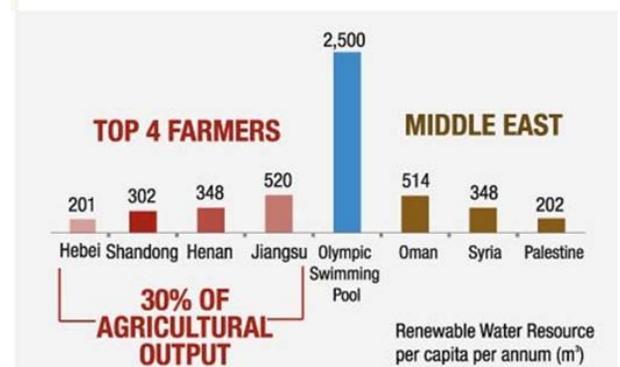
Nevertheless, according to one of the large full water service providers in China, the demand for water is inelastic. History has shown that with a significant tariff hike, there may be a short term fall in demand for water but the overall long term demand trend is upwards with increasing population and affluence. So why raise tariffs at all? The hike is not to reign in demand but is necessary to make certain water solutions like wastewater recycling to potable levels and desalination economically viable.

A hike of this magnitude will also encourage a more effective use of water in industrial operations and irrigation as businesses will be pushed to use water more efficiently to protect profit margins. Unless subsidized, smaller companies in margin sensitive industries who cannot gather economies of scale to install water-savings measures ahead of the rise will most likely feel the brunt of these tariff hikes. Is it then game over for the small businesses and factories? Could this accelerate industry consolidation? Regardless, smaller factories generally tend to be more polluting and less efficient at using water so either way, central government goals will be achieved.

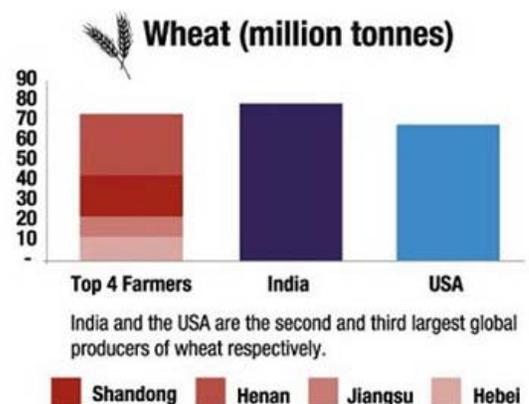
### China's problem but global repercussions

We have often heard that water is a local issue and that water risk is confined to the particular location of water shortage/ contamination. So, it follows that China's water crisis is China's problem, it should not affect those who don't do any business with or have any investments in China. Wrong.

With the Dry 11 accounting for around 52% of total industrial output, and China's position as 'the factory of the world', China's water crisis has global repercussions. It's dominance in global agricultural production is also a concern when the Dry 11 account for 40% of China's total agricultural output. Indeed four out of China's top five farming provinces are water scarce: Shandong, Hubei, Jiangsu and Hebei collectively produce 30% of China's agricultural output but have similar per capita water resources as Oman, Syria and Palestine. Yet together, these four provinces are the number one producer of pigmeat globally and produce more wheat than the USA and sheepmeat than Australia and New Zealand. So due to China's sheer size of production, any disruption in water will have an impact on the pricing of agricultural goods globally.



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The global textile industry was another industry that felt these water shocks last year. Drought in China caused the price of cotton to rise by more than 50% in 2010/2011 resulting in global textile companies like H&M seeing lower profits of 20% over the first 9 months of 2011 and GAP slashing its profit forecasts by 22% for the year. It is not surprising that water risks in China lead to price volatility as China is the largest producer of cotton globally and cotton represents 90% of natural fibres used in the global textile industry. It doesn't stop there – last year's high cotton prices led manufacturers to switch to synthetics, and the higher synthetic prices in turn pushed up the prices of many base chemicals.

With limited water resource, allocation of water between agriculture, industrial and municipal use is key. Competition for water resources is inevitable with three of the top five producers of Industrial Output and four of the top five producers of Agricultural Output amongst the Dry 11. What is the priority? Water for people, growing of food, extraction of ore or manufacturing of products? Should China import more water intensive foods like beef instead of farming them in the Dry 11 to free up more water to produce iPads or more fast fashion?

There is no single answer. However, it should be noted that China's industrial use of water and electricity consumption is disproportionately high compared to developed countries. This is primarily because China's population is not consuming that much electricity or water on a per capita basis. In short, competition for water in these regions will be greater going forward as the Chinese become more affluent, leaving provincial governments with no choice but to consider changes in their mix of industries to maintain social stability and economic growth.

And we haven't even talked about potential geopolitical tensions with neighbouring countries such as India, Bangladesh, Cambodia, Laos, Myanmar, Pakistan, Thailand, and Vietnam over shared watersheds and main river arteries such the Indus, Brahmaputra, Salween and the Mekong. Absolutely, the availability of China's water has global repercussions and government policy response to the water crisis with new pollution targets and water usage quotas could change the conduct of business, investments, manufacturing, food production, influence global consumption patterns and dictate trade flows; yet many investors continue to misprice and underestimate water risk.

### **Investors misprice water risk**

Water pricing is commonly used to measure water risk. Common sense dictates that since the price of water is low in China, the exposure of investments/business operations to water risks is low. However a low water price environment may not last much longer, and profit margins will be at risk. More seriously, if there is a disruption in water supply, whether through contamination or scarcity brought on by drought or water quotas, there will be disruption to business. Water risk is beyond pricing – as Marcus Norton, the Head of Investor CDP and CDP Water Disclosure says *“the value of water lies in business continuity and the value of brands.”* At a recent seminar to discuss water risks in Singapore, a panel of five institutional investors, managing a collective Assets Under Management of US\$1.8 trillion echoed the same sentiment.

Companies generally only start looking at water risks because of reputation risk to the brand or when there is a possibility that it threatens the license to operate. However, given China's dominance in most raw materials and supply chains, China's water risk has global impact and companies need to move beyond their immediate water use and risk by mapping their supply chain exposure. Professor Upmanu Lall, Director of the Columbia Water Center and leading expert on hydroclimatology, climate change adaptation sums this up succinctly: *"Water is local, but supply chain is global"*. He warns, *"just because where you operate is not facing water risk in terms of scarcity or pollution locally, doesn't mean your supply chain is not exposed to it"*. He recommends that *"water needs to be a part of a company's risk management policy and not independent of it"*.

Mitigation strategies for water risk may even involve relocation of operations to ensure long term continuity of the business. Of course more research is required in order to make this decision, but there is little data or research on this at the moment as companies/investors have yet to invest in this area. We are a long way from this, but the dialogue has started globally with the UN CEO Water Mandate and with the CDP Water Disclosure Project encouraging companies to measure and disclose their water use and risk profiles.

### **Water: a clear business risk**

Regardless of whether we care for the environment, it is not difficult to see that we have come to a point where water risks affect us all – as businesses, as investors and ultimately as individuals. Currently, water is generally viewed as an environmental risk but in reality, water is a business risk and deserves to be treated accordingly.

Water issues are here to stay and are expected to worsen with climate change exacerbating water scarcity. Freshwater resources in China are falling whilst water utilization ratios are on the rise due to growing affluence. Droughts and floods have also hit the water-rich South. China's Second National Assessment Report on Climate Change issued in November 2011 warns that *"climate change will lead to severe imbalances in China's water resources within each year and across the years. In most areas, precipitation will be increasingly concentrated in the summer and autumn rainy seasons, and floods and droughts will become increasingly frequent"*.

Of course in situations of risk, there are also opportunities to make money, there is a slew of opportunity for investment in water supply and water services sectors. Citibank estimated the market for global water subsectors to be worth USD450 billion. This appears to be a conservative estimate against the SGD13.6 billion (USD10.9 billion) worth of projects awarded, tenders, investments and R&D collaborations announced during Singapore International Water Week in July.

It's time to give water its proper dues. We need water to grow our food, to extract our ore, to produce our power, the economy runs on water, we run on water. Given the global implications of China's water crisis, we should be including water in our all our investment decisions. Indeed, the HSBC commissioned

wider economic benefits over the long term, in addition to the social and environmental benefits. That's a ROI of 500% - who wouldn't want to make that kind of investment in this kind of market?

*Note: All statistics, comments sourced from China Water Risk, [www.chinawaterrisk.org](http://www.chinawaterrisk.org)*

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Debra heads the China Water Risk team and was responsible for the build out of China Water Risk portal for ADM Capital Foundation. She has given numerous talks, moderated and participated in panel discussions and conferences around water issues in China to investors and corporates. Debra started her career in finance, spending over a decade as a chartered accountant and investment banker. She has lived and worked in Beijing, Hong Kong, Kuala Lumpur, London, New York and Singapore. Debra left banking to explore her creative side. She has since pursued her interest in photography and within a year had her first solo exhibition sponsored by a global bank. She also ran and organized hands-on philanthropic and luxury holidays for a small but global private members travel network and applied her auditing, financing and photography skills in the field for various charitable organizations and foundations.

**China Water Risk**

China Water Risk is a non-profit initiative dedicated to addressing business and environmental risk arising from the country's urgent water crisis. We aim to foster efficient and responsible use of China's water resources by engaging the global investment and business communities, civil society and individuals in understanding and managing China's water risk.