

**CHINA STRUGGLING TO COPE WITH ITS
WATER CRISES: FOREIGN PARTICIPATION
IN CHINA'S WATER INDUSTRY**

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Executive Summary

1. The current Chinese leadership under Hu Jintao and Wen Jiabao is very much aware of the enormous amount of water resources needed to sustain its economic growth. The 11th Five-Year Program (2006-2010) has strategic measures to deal with the recent water shortage problems.
2. In order to deal with the water crises, China is urgently introducing new technologies and business models to create a sustainable water supply industry. After 2002, multinational water companies, listed holding companies, new large local tap water groups and private companies have developed rapidly.
3. The water industry's structure has been changed through mergers and acquisitions. With the looming water crises, opportunities aplenty exist for industry players in the development of China's water industry.
4. In the Eleventh Five-year Program (2006-2010), the Chinese government advocated building a water-conservation society (with efficiency in water supply and consumption) and an adequate waste water treatment industry (with reusable water). Total investments in the water industry under the Eleventh Five-year Program will be more than a trillion Yuan.
5. Future rises in water prices will encourage water conservation. It will also attract investments to China's water industry. To prevent inflation, the government has recently postponed price reforms on oil, water, electricity and other resources.
6. The niche area where Singapore has an advantage will be in China's recyclable and renewable water industry which is in its infancy. Renewable water technology has been officially recognized as an important national project in China, as seen in the April 2006 "City Waste Water Renewable Technology Policy".

7. The average annual increase of per capita dispensable income in the last five years was about 10.8%. China water prices in 2010 could be priced between 4.54 to 11.34 Yuan per cubic meter.
8. The present water prices may increase further by 100% to 400%. The potential leeway for large increases in water prices will encourage the conservation of water and also attract investments to China's water industry.

CHINA STRUGGLING TO COPE WITH ITS WATER CRISES: FOREIGN PARTICIPATION IN CHINA'S WATER INDUSTRY

YANG Mu & TENG Siow Song*

Dealing with China's Water Crises

- 1.1 In ancient Chinese mythology, the dragon always flies with a storm in the background. This explains why during times of drought, people always pray to the Dragon God for rain. If there is a shortage of water, then a rising China (dragon) is not possible.
- 1.2 The current Chinese leadership under Hu Jintao and Wen Jiabao is very much aware of the enormous water resource related challenges that China faces in its efforts to sustain economic growth. The 11th Five-Year Program (2006-2010) under the present government has a package of strategic measures to deal with the water shortage problems.
- 1.3 These include big investment projects that deal with water pollution; moving water from the south to the north; increasing water supply capacities in the cities; and encouraging farmers to conserve water by changing irrigation and crops pattern to reduce water consumption.
- 1.4 On the supply side, the government welcomes multinational companies (MNCs), to list on the water market, while restructuring and re-engineering the large state-owned companies, making the market more competitive through mergers and acquisitions (M&A). With these institutional changes,

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the equipment and technology, management and efficiency in the water industry were improved.

- 1.5 On the demand side, the government tried previously to reform the water price structure to a level so as to encourage consumers to conserve water. However, this effort temporarily stalled due to inflationary pressures from the middle of 2007; the Chinese government continues to face a number of policy dilemmas in their effort to deal with the water shortage problems.

Controlling Water Pollution to Increase Supply of Clean Water

- 2.1 According to the 11th Five-Year Program, water pollution should decrease by 2 percentage points every year in terms of chemical oxygen demand (COD) in every province. In 2006 the pollution target was not met. As a result, in order to guarantee that the target would be met in the future, more local governments introduced *huanbao yipiao fouxuezh* (环保一票否决制); this meant that if the pollution target is not met, the official at the helm of the respective areas would not be promoted.¹ Industrial parks and banks also introduced similar regulations to reject unqualified investment projects or loan applications.²
- 2.2 In 2007 the State Environmental Protection Agency (SEPA) stated that from 2009, all companies that discharge pollutants must obtain environmental permits to operate and heavy fines await the heads of the polluting companies.³ By the end of 2010, tougher standards will be adopted for key drinking water resources and the country will speed up efforts to phase out outdated techniques, equipment and products.⁴ Performance appraisals for

¹ <http://www.daynews.com.cn/zthj/101885/2006jxx/46339.html>

² <http://www.stockcity.cn/hkstock/ah/200710/228926.html> and <http://www.cnhubei.com/200703/ca1313652.htm>

³ Heavy Fines Await Water Polluters, *China Daily* 27 Feb 2008

⁴ SEPA Chief Outlines Vision for Clean Drinking Water, *China Daily* 22 Nov 2007

provincial leaders will be based on pollution curbing efforts and the reduction of energy consumption instead of GDP growth as in the past.⁵

- 2.3 SEPA imposed the “river basin project approval restriction” on six cities, two counties and five industrial parks in the Yangtze River, Yellow River, Huai River and Hai River basins for making no significant improvement to rampant pollution in their river basins on 3rd July 2007.⁶
- 2.4 Under the Tenth Five-Year Plan (2001-2005) China invested 123.4 billion Yuan in 1,590 projects to curb water pollution in the most polluted basins including the three rivers, Huai River, Hai River and Liao River, and three lakes, Taihu Lake, Chao Lake and Dianshi Lake.⁷
- 2.5 According to the Eleventh Five-Year Program (2006-2010) total investment to clean the most polluted basins will be increased by 80% compared to the last five years. However, after the May 2007 incident whereby an algae bloom contaminated Taihu lake and its water supply for several days (affecting more than 2.3 million people in the nearby city of Wuxi), total investment will be increased further to 108.5 billion Yuan.⁸

Increasing Water Supply in the Drought Prone North

- 3.1 Since September 2005, China has launched a big investment project of 500 billion Yuan to transfer water from the Yangtze River in the south to the north of China through the Eastern, Central and Western Lines. This is called the *Nanshui Beidiao Gongcheng* (南水北调工程⁹) in China. The total project will

⁵ Performance Appraisals Come in Green Forms, *China Daily* 29 Nov. 2007

⁶ <http://www.p5w.net/news/gncj/2007/t1109494.htm>

⁷ <http://www.dzwww.com/dazhongribao/shehuizhoukan/200307030097.htm>

⁸ China to Spend S\$21b to Clean up Lake, *The Straits Times*, 27 Oct. 2007

⁹ For more on this see EAI Background Brief No. 141 ‘*Nan Shui Bei Diao*: China's Mammoth Water Diversion Project (II)’ by Elspeth Thomson, 2 Dec 2002.

be completed in 2050 to transfer 44.8 billion tons of water from the south to the north every year (14.8 billion tons through the Eastern Line; 13 billion tons through the Central Line, and 17 billion tons through the Western Line). It is almost equal to adding another Yellow River to supply water to northern China.¹⁰

- 3.2 The Eastern Line Project was based on the Great Canal and other existing rivers and lakes, building 33 pump stations in Jiangsu and 51 in Shandong (see Map 1). The main waterway which will start from Jiangdu (Jiangsu) will be 1,156 kilometers long. Total investment is about 65 billion Yuan with 39 billion Yuan investment for engineering and construction and 26 billion Yuan for curbing pollution. The line will supply water to Tianjin, Hebei, Shandong, Jiangsu and Anhui.

MAP 1 NANSHUI BEIDIAO (SOUTH-TO-NORTH WATER TRANSFER PROJECT)



¹⁰ The idea was initiated by Mao Zedong in 1952 when he commented on a Report on Transferring Water from the Yangtze River to the Yellow River. After 50 years of investigation and research and based on hundreds of projects, a special office to evaluate these projects was established in 1996 under the State Council. From 1999 to 2002, after many meetings and arguments the present projects including Eastern, Central and Western Three Lines were approved. http://www.hbtv.com.cn/misc/2005-09/23/content_522879.htm and <http://www.jsnsbd.gov.cn/WebMain/News.aspx?Id=4>

- 3.3 The Central Line starts from Danjiangkou Reservoir (Hubei province), passes through Henan province, across the Yellow River to the west of Zhengzhou, to supply water to Hebei, Beijing and Tianjin¹¹ (see Map 1). Beijing, the host of the 2008 Olympics Games, will receive most of its additional water supply from this line.¹² Total investment will be about 83 billion Yuan in the first stage; 68 billion Yuan will be channeled to engineering and construction, 1.6 billion Yuan to increase the height of the dam of Danjiangkou Reservoir, 2 billion Yuan to environment protection and 12 billion Yuan to compensate the peasants for their lost lands.¹³
- 3.4 The Western Line starts from Jingsha River (the upstream of Yangtze River), Daduhe River and Yalong River (both of them are branches of the Yangtze River), passes the Qingzang Plateau through many tunnels under mountains before entering the upstream of the Yellow River, at a length of 300 kilometers, to supply water to Gansu, Ningxia, Shaanxi and Shanxi (see Map 1).¹⁴ The total investment will be 300 billion Yuan, much higher than the other two lines owing to its difficult construction conditions.¹⁵ So far, only the eastern and central lines are under construction; the western line is the most controversial due to environmental concerns and is still in the planning stages.¹⁶

Increasing Water Supply in the Growing Cities

- 4.1 With the looming water crises, opportunities exist for the future development of China's water industry. In the Eleventh Five-year Program (2006-2010), the Chinese government advocated building a water conservation society that is

¹¹ Olympics Threaten Millions, says official, *Financial Times*, 27 Feb 2008

¹² Quenching Beijing's Thirst, *Beijing Review*, 7 Feb 2008

¹³ <http://www.china.org.cn/chinese/difang/203708.htm>

¹⁴ http://www.xhby.net/xhby/content/2006-08/01/content_1352227.htm

¹⁵ *Zhuan zhi yi yu shui li jian she: nanshui beidiao gong cheng de nan ti* (Monopolistic Ideology and water infrastructure construction: the North-South Water Diversion Project & its Problems) FICS Newsletter Vol. 11 No. 2 Feb 2008

¹⁶ As Water Vanishes, Chinese City Booms, *International Herald Tribune*, 28 Sep 2007

more efficient in water supply and consumption and a waste water treatment industry (with reusable water). Total investment in the water industry will be more than a trillion Yuan in the following three main areas.¹⁷

Increasing Water Supply Capacity

- 4.2 The water supply capacity in the cities will be increased to support 95% of the urban population in 2010, up from 91% in 2005, when the population in the cities is estimated to grow from 559 million (43% of China's total population) to 650 million (50% of China's total population). Total investment in the five years will be more than 600 billion Yuan.

Increasing Waste Water Treatment Capacity

- 4.3 Waste water treatment capacity will be increased from 80 million cubic meters of water per day (52% of waste water) in 2005 to 100 million cubic meters of water per day (60% of waste water). Investment in the five years will be about 330 billion Yuan to build up at least 1,000 new waste water treatment plants.

Increasing Water Recycling and Renewable Capacity

- 4.4 The capacity to make recyclable or renewable water will be increased from 4 million cubic meters of water per day (5% of waste water) in 2005 to 7 million cubic meters per day (7% of waste water) in 2010, representing an increase in investment by 10 billion Yuan to build up the new capacities.

Water Market Restructuring

- 5.1 Increasingly since 2002, more city governments have sold about 50% (or less) of their tap water companies' shares through open market competition. There

¹⁷ The investments in the water industry do not include costs of cleaning up water, such as those required to clean up China's third largest freshwater lake, Taihu (which will be 108.5 billion Yuan in these five years). It also does not include costs of transferring water from Yangtze River to the North (Nanshui Beidiao), which is about 500 billion Yuan. *The Straits Times* 27 Oct 2007.

is a high tendency for M&A in the restructuring of the many local domestic water markets.

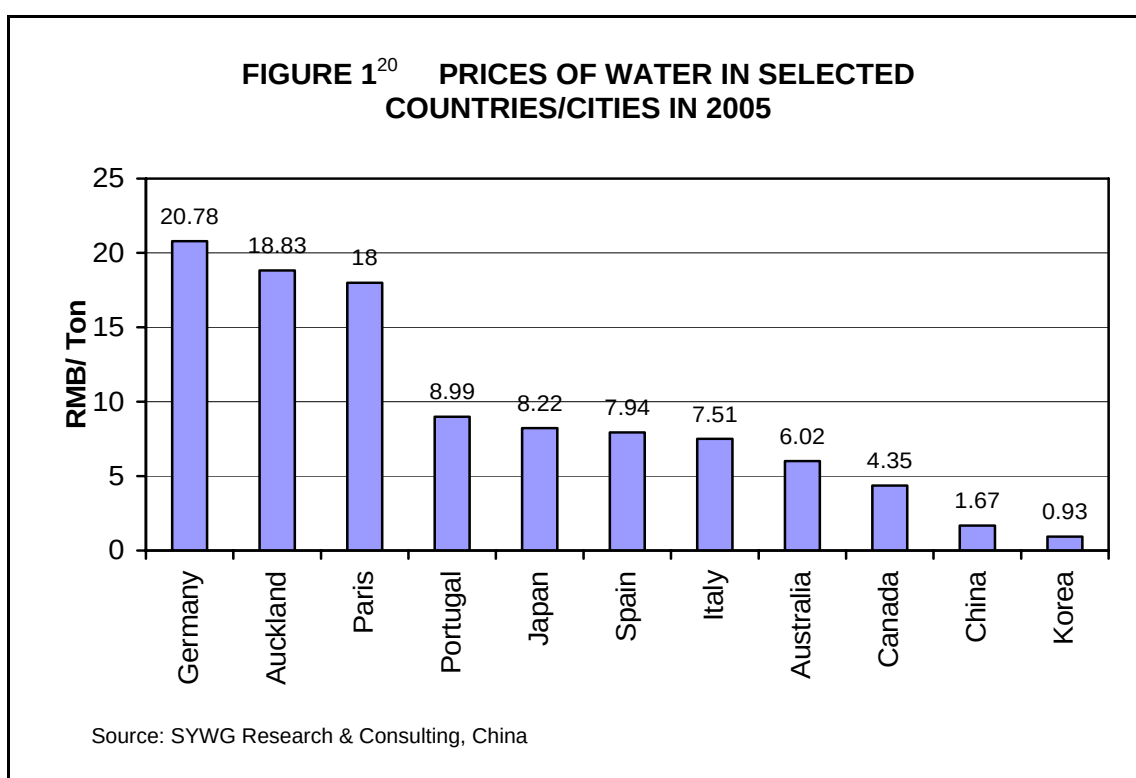
- 5.2 In 2006, French company Suez Environment entered into an agreement worth RMB 601 million with Jiangsu province's Chang Shu City Construction Property Company. Suez Environment will own 49% of Chang Shu Water Company Limited and the Jiangsu Chang Shu City government will own 51% of it. Suez also announced plans to further invest US\$ 150 billion over the next 10 years in waste water management.¹⁸
- 5.3 Suez Environment has already set up their Asia Pacific headquarters in Shanghai in early 2006 in preparation for its strategic presence in China. Back in 2002, Suez Environment already secured a 50-year special franchising contract to manage the water needs of Qing Dao province's 23 million people from 2003. Suez Environment does not seem to have any new success story until 2006, whereby it announced that it has a presence in 16 Chinese cities, provinces or municipalities, with 20 joint venture companies providing 13.5 million people with potable water services.
- 5.4 In 2002, Suez Environment together with Hong Kong's New Century Holdings Company set up a joint venture Sino-French Limited Company (中法水务). Suez Environment also set up Shanghai Xinghuo Development Zone and the world's largest industrial park, the Shanghai Chemical Industrial Park, in Shanghai. Since the 1970s, Suez Environment has already stationed a water expert in China to set up over 160 water factories to provide potable water services for over 20% of China's population.

¹⁸ "Jue Jing Zhong Guo Shui Wu" *Shang Wu Zhou Kan* (Business Weekly) 20 Nov 2006 pp 65-69

Moderating the Demand

Setting the Right Water Prices

6.1 A free market economy allows prices to be set according to supply and demand. When demand exceeds supply, the higher prices reduce demand and encourage supply. In a planned economy, water prices, together with the prices of all other commodities, were decided by the government and kept very low. After 30 years of reform, most commodities' prices are decided by the market, but the price of water is still controlled by the government to keep inflation low for the benefit of the low-income. The water prices in China are thus much lower than those in other countries.¹⁹



¹⁹ Air, Water Pollution Decreases, *China Daily* 15 Nov 2007

²⁰ For a comparison with Singapore's water prices, see appendix Table 3.

6.2 In 2006, the National Development and Reform Commission of China (NDRC) indicated that China would reform the costs and prices of oil products, water, electricity, natural gas, coal and land. In China the average price of water in 36 middle and large cities is RMB 1.67/ cubic meters. There is a lot of room for increases in water prices in China, including waste water treatment charges.²¹

TABLE 1 SELECTED CHINESE CITIES' WATER PRICES IN SEPT 2006 (RMB/ TON²²)

City	Tariff	City	Price	City	Price
Beijing	2.80	Hefei	1.90	Nanjing	1.30
Chongqing	2.80	Shenzhen	1.90	Xining	1.30
Tianjin	2.60	Harbin	1.80	Yinzhou	1.30
Taiyuan	2.45	Xiamen	1.80	Suzhou	1.23
Dalian	2.30	Qingdao	1.80	Hangzhou	1.15
Jinan	2.25	Zhengzhou	1.75	Wuhan	1.10
Changchun	2.10	Haikou	1.55	Nanning	1.08
Kunming	2.05	Lanzhou	1.45	Shanghai	1.03
Fuzhou	2.02	Shenyang	1.40	Changsha	1.02
Shijiazhuang	2.00	Urumqi	1.36	Guiyang	1.00
Hu he hao te	1.95	Chengdu	1.35	Nanchang	0.88
Xi'an	1.95	Guangzhou	1.32	Lhasa	0.60

Source: China Prices Information Net; China Jianyin Investments Securities

6.3 The experiences of other countries show that when the water expenses of a family are less than 2% of total family dispensable income, the family will have no incentive to save water. Five percent will be the optimal level to encourage them to conserve and use water rationally. Due to the low water price, the water expenses of a Chinese family are only about 1.2% of its income.

6.4 In 2005, the per capita water used per day in city was 204 liters. At 2-5% of water expenses in a family's dispensable income, the rational water price

²¹ 21st Century Economic Times, China

²² Price per ton is the same as price per cubic meter

could be between 2.82 and 7.05 Yuan per cubic meter in China. Compared to the real prices in 2005, rational water prices could be increased by 24% to 210% in China.

- 6.5 Based on the average annual increase of per capita dispensable income in the last five years of about 10.8%, the water price in 2010 could be between 4.54 and 11.34 Yuan per cubic meter. The present water price could be increased further by 100% to 400%. The potential leeway for large increases in water prices besides encouraging the conservation of water also demonstrates that the future is bright for enterprises that invest in China's water industry.

Policy Dilemma

- 7.1 China's economy is still in the midst of a transformation. In many instances, the present system has put the government's efforts to solve its water shortage problem in a dilemma.

Water Price Hike and Social Implications

- 7.2 Due to the recent inflation of 4.8% (highest in the past ten years) in 2007, the government has no other choices but to postpone the price reforms on oil, water, electricity and other resources so as not to disrupt peoples' daily lives and cause social instability.

Free Market versus Government Control

- 7.3 In 2007 a new problem arose when foreign companies made higher bids than domestic competitors for certain projects or acquire other domestic companies (see Box 1 in Appendix).
- 7.4 In May 2007, China's City & Town Water Association (中国城镇供水排水协会) organized a field study on foreign companies' monopolistic behaviour in China's water market. With such support, big domestic listed companies like

Shou Chuang Holdings (首创股份) and Chuangye Huangbao (创业环保) are set to win more projects and to become large international water companies like Veolia Water and Suez Environment.

Centralization versus Decentralization

7.5 Water control in China is currently too diversified. For example, rivers entering Taihu lake in Jiangsu province is under the jurisdiction of the Taihu Water Flow Office of the Jiangsu Government; in Zhenjiang, there is a similar organization under the Zhenjiang government. While the downstream government in Shanghai is stepping up efforts to curb water pollution, the local governments in upstream regions such as Jiangsu or Zhejiang could still encourage industrial development to achieve GDP growth.²³ Centralization of water management is thus essential to coordinate China's water efforts.

7.6 A centralized regional water authority, similar to that of the United States' Mississippi Delta Regional Authority, will be more effective to govern China's massive waterways.²⁴

Increasing Water Supply Versus Curbing Pollution

7.7 Transferring water from the south to the north via the Eastern Line could be completed within the next two years. However, it is possible that the people of Tianjin may refuse to drink the water from the Yangtze River because the water may have been polluted by the cities and factories along the way.

²³ Taihu: A Heavy loan Burden, 《*Caijing*》 No.18, 2007, Beijing, pp. 88-92.

²⁴ In 2000, the US Congress established the Delta Regional Authority to enhance economic development and improve the quality of life for residents of 240 counties in Alabama, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri and Tennessee. This federal-state partnership provides a unified voice for the region. In the first five years, the Delta Regional Authority's federal grant program funded 334 projects using \$48.5 million of authority funds, \$213 million of other federal funds and \$493.4 million of private funds. The investment of more than \$750 million in the region helped to create or retain almost 31,000 jobs while providing drinking water and sewer services to more than 24,000 families. Meanwhile, about 6,000 Delta residents received job training due to this investment. For more information see <http://dra.gov/>

- 7.8 China's water shortages, pollution and their related crises are deteriorating by the day. Urgent measures have to be taken to contain and improve the water situation in China. China welcomes foreign investors into its water industry to bring in new technology and management. This is where Singapore can come in and create a win-win situation for both countries.

Appendix

Foreign Participation in China's Water Industry

In the past, all water enterprises in China were government public utility companies e.g. the Tap Water Company (*zilaishui gongsi*). In China's 669 cities and 2,000 counties are about 2,700 tap water companies with about 3,000 water factories. A fundamental problem under this system is that operations are limited to the local market with limited production capacity and market share (the market share of the largest water company is less than 3% of the national market).

As a part of the public administration, these companies are operated without competition, are subsidized and over employed. Their equipment are outdated, tap network old and poorly maintained, water leakages serious, utility payment system bureaucratic and poorly managed etc. Till the end of October 2006, 1,221 of 2,496 existing water enterprises (49%) operated with losses. The average profit for the whole industry was only 0.6%, much lower than the government's target of between 8 and 10%.

With water shortages and a deteriorating environment that pollutes and over exploits precious water resources, there is a sense of urgency for alternative water management expertise and business model to assist in creating a sustainable water supply industry in China.

In 2002 the Chinese government published the "Direction to Promote the Marketization of Public Utilities." Four different kinds of water enterprises have been singled out by the Chinese government for preferential policies. These include firstly, multinational water companies. Multinational water companies which are already in the China market include those from France, US, UK, Germany and Singapore. E.g. French companies, Veolia Water (威立雅) and Suez Environment.

Among these foreign companies, Veolia Water has the strongest presence in China's water industry now. Since its establishment in 1997, Veolia Water has provided drinking water and waste water treatment services to municipal and industrial clients. Its projects cover design and build, operation and maintenance, as well as full services including distribution and customer services. At present, Veolia Water serves approximately 18 million people in China, employing more than 2,000 employees and manages various municipal contracts in 14 provinces of China. In 2002 Shanghai Pudong Veolia Water started its operation with a 50-year concession to modernize installations, improve service quality and transfer know-how.

However, there are failures too in China. These include British Thames Water Limited, a company which withdrew from collaboration with a Shanghai Company after the Chinese government cancelled an agreement to guarantee a 15% rate of return to their initial investment. While there exist tremendous business opportunities, there are also numerous pitfalls in China's water industry.

Secondly, home grown listed holding companies. These include Shou Chuang Holdings (首创股份) and Yuan Shui Holdings (原水股份) which have been

building their new management and technology bases, employing more professionals, reducing residuals, and becoming strong competitors to the foreign companies in the water market. There are now 15 listed water companies (three in HK, nine in Shanghai, three in Shenzhen).

Shou Chuang Holdings (首创股份) is a leading domestic water company. It has water projects in Hebei, Zhejiang, Jiangsu, Anhui, Shaanxi and other provinces. It also has a 50-50 joint venture water company with Evian which holds some shares of Shenzhen Water Group (深圳水务集团). Shou Chuang Holding's current water treatment capacity is 7.3 million tons per day, a figure which will hit 15 million tons in 2010.

Thirdly, large local tap water companies. Some noteworthy names such as Shenzhen Water Group (深圳水务集团) and Beijing Water Group (北京排水集团) have been restructured and reengineered. They have now grown into large tap water companies in large cities with increased market share and strong assets, after having improved their management, upgraded their technology and tap water supply network, and restructured their supply and service systems; they are now beginning to invest and merge with water companies in other cities or provinces.

Fourthly, new domestic private companies. Shunde Huanbao (桑德环保) and Guozhen Huanbao (国祯环保) for instance started their private businesses in the environmental protection engineering sector and expanded their businesses in the upstream market through merger of the tap water companies. These private enterprises are very aggressive in the market with their very flexible and active business models. However, their operations and market are limited to the middle and smaller cities and towns due to their limited capital resources.

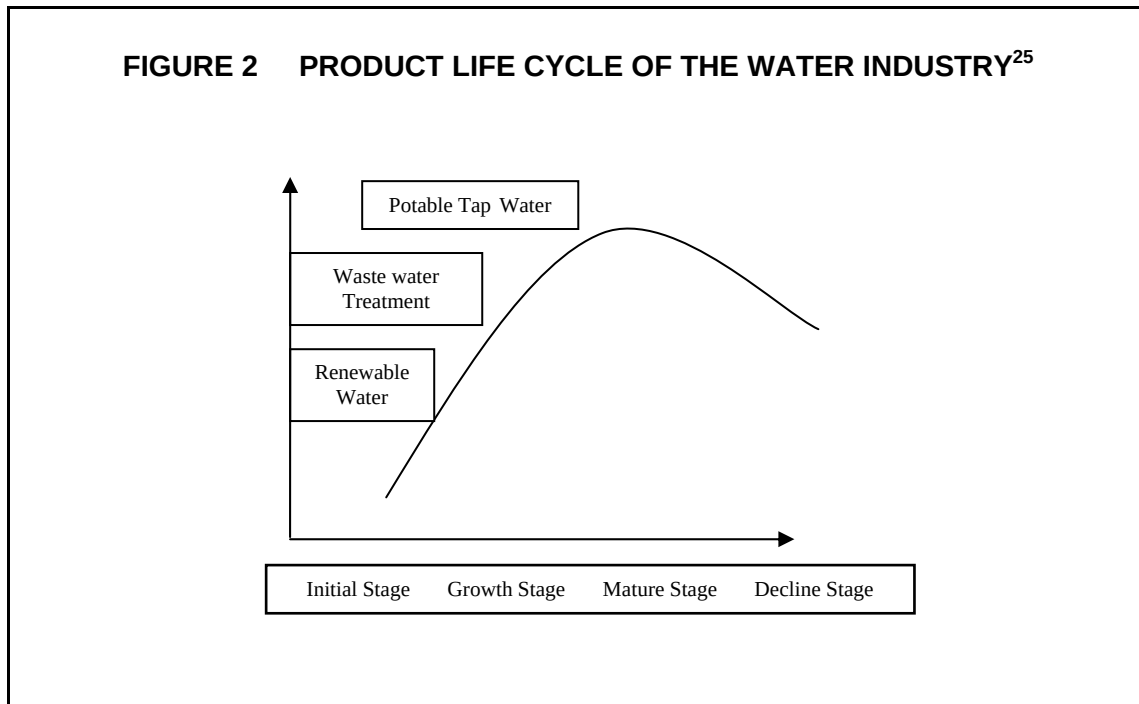
**TABLE 2 MAIN WATER COMPANIES IN CHINA TODAY:
AN OVERVIEW**

Company	Total Assets (RMB b.)	Main Services	Water/ Waste Treatment Facilities	Capacities (m. tons/ day)	Number of People Serviced (m.)
首创股份	8.3	Potable water, waste water treatment, management	30	7.3	14
威立雅	363	As above	-	10	18
中法水务	-	As above	17	3.1	10
深圳水务集团	7.0	As above	7	2.7	-
中国水务投资	8.0	As above	9	2.5	-
中环保水务	0.5	As above	-	-	-
天津创业环保	0.4	Waste water Treatment	8	2.7	-
金州控股	-	Engineering	-	-	-
同方水务	-	Engineering, Waste Water Treatment	2	-	-
桑德环保	-	Technical, Equipment	-	-	-
国祯环保	(RMB 54.18 m.)	Technical, Equipment, Waste water treatment	6	0.5	-

Source: China Jianyin Investment Securities

Opportunities for Singapore

There are three main sub-industries within the water industry: tap water supply, waste water treatment and recyclable or renewable water. All three have different business characteristics and are located at different stages of the business life cycle of the water market. (See figure 2 below)



The new entrants in tap water supply and waste water treatment ought to be large multinational companies with huge capital to win in project bidding and to cover the high initial investment necessary to sustain the initial losses in the first few years. The only niche area where Singaporean enterprises have an advantage will be in China's recyclable or renewable water industry, which is in its infancy. Renewable water technology has been officially recognized as an important national project in China, as seen in the April 2006 "City Waste Water Renewable Technology Policy".

In 2005, the annual usage of renewable water in China was only about 2 billion cubic meters out of total water consumption of 563 billion cubic meters (or just 0.36%). Under the Eleventh Five-year Program, China plans to increase renewable water usage to 20% of total water usage in Chinese cities which face water shortages.

With Singapore recently winning the Stockholm Industry Water Award, the equivalent of the water industry's Nobel Prize²⁶, the technology and management of the Republic's water industry is internationally recognized.

²⁵ SYWG Research & Consulting, China

²⁶ Singapore wins kudos for water expertise, *The Straits Times*, 16 Aug 2007

The first major cooperation between Singapore and China has taken place. Singapore-style water recycling and renewable technology will be used for the Chinese province of Jiangsu in the city of Zhangjiagang.²⁷ The metropolis of Zhangjiagang will build high-concentration waste water treatment facilities, study water supply issues and learn how to make most of its water resources in an urban setting. Singapore's environment companies could also offer their services in the cleaning up of the Taihu Lake.²⁸

One major Singapore success story would be that of Hyflux, a Singaporean home grown water company with vast investments in China. Hyflux first entered China in the early 1990s and today, it has some 15 water treatment plants in China.

BOX 1 INCREASING COMPETITIVENESS OF CHINA'S WATER INDUSTRY

On 29th January 2007, the government of Lanzhou through Lanzhou Public Water Supply Holdings Company in Gansu province signed a contract with French company Veolia Water whereby Veolia will invest RMB 17.1 billion for 45% of the shares and a 30-year concession. Veolia estimated the company's annual revenue could be 1.6 billion Euros. It was the 21st contract signed in China by Veolia. This signifies that China's water industry is fast changing and the water market is becoming more and more competitive. The failed bids from Sino-French Water (中法水务) and Shou Chuang Holdings (首创股份) were 440 million Yuan and 280 million Yuan respectively, much lower than that offered by Veolia.

On 20th March 2007, Veolia won 50% of shares of Haikou Water Group when it bided 950 million Yuan, much higher than Sino-French Water's 440 million Yuan and Shou Chuang Holding's 410 million Yuan.²⁹

²⁷ Singapore-style water treatment for China, *The Straits Times*, 29 Aug 2007

²⁸ Seize chance to clean up Lake Tai. S'pore Firms told, *The Straits Times*, 2 Nov. 2007

²⁹ http://www.ijob.com.cn/indu_detail/service/company/other/0001.htm

TABLE 3 WATER TARIFFS IN SINGAPORE (\$\$)

Tariff Category	Consumption Block (m³/mth)	Tariffs (cents/m³)	Water Conservation Tax (% of tariff)	Water-borne fee (cents/m³)	Sanitary Appliance fee
Domestic	1 to 40	117	30	30	\$3/ fitting per mth
Domestic	Above 40	140	45	30	\$3/ fitting per mth
Non-domestic	All units	117	30	60	\$3/ fitting per mth
Shipping	All units	192	30	-	-
Industrial	All units	43	-	-	-

Source: Public Utilities Board Singapore, 2008

NB: Water Conservation Tax is meant to reinforce the message to conserve water usage;

Sanitary and water-borne fees are meant to offset the cost of treating used water and maintenance and extension of the public sewerage system.

TABLE 4 RECENT MERGERS & ACQUISITIONS IN CHINA'S WATER INDUSTRY

Date	M & A Targeted Company	M & A Hunter Company	Share Holdings (%)	M & A Price (RMB 100 mil)	Water Supply Capacity(10,000 tons/day)	Price of Transferred Shares (RMB 100 mil)	Price Premium (%)
Apr 2002	Pudong Water Company	Evian (威立雅)	50	2.66 (Euros)	120	7.6	160
Dec 2003	Shen Shui Holdings	Evian-General First	45	4 (US\$)	167 + 108	25.7	5.5
Jul 2004	Wang Xiao Huang Waste Water Factory	Berlin Water Utilities	100	4.8	30	2.68	79
Dec 2004	Xiamen Water Utilities Holdings	Zhong Huan Bao	Potable water: 45; Waste water: 55		100; 55.9	0.999; 3.371	
Sep 2005	Liu Zhou Potable Water	Evian	49	1.562	45.5	1.54	1.5
Oct 2005	Chang Zhou Potable Water	Evian-Zhongxin Qin Fu	49	4.5	71	3.75	20
Nov 2005	Kunming Potable Water	Evian-Zhongxin Qin Fu	49	10.05	111.5	7.78	30
Sep 2006	Chang Shu Potable Water	Zhong Fa Water Utilities	49	6.01	67.5	3.08	95
Jan 2007	Lan Zhou Water	Evian	45	15.7 (capital injection RMB 140 mil)	118	4.122	280

Source: Everbright Securities

TABLE 5 MAJOR SPECIAL ENVIRONMENTAL LAWS IN CHINA

Renewable Energy Law	2005
Law on Radioactive Pollution Prevention and Control	2003
Law on the Environmental Impact Assessment	2002
Law on the Promotion of Clean Production	2002
Law on the Administration of Sea Areas	2001
Law on Desert Prevention and Transformation	2001
Law on Conserving Energy	1997
Law on Prevention and Control of Pollution from Environmental Noise	1996
Law on the Prevention and Control of Environmental Pollution by Solid Waste	1995
Law on the Prevention and Control of Atmospheric Pollution	1995
Law on Water and Soil Conservation	1991
Basic law: PRC Environmental Protection Law	1989
Law on the Protection of Wildlife	1988
Water Law	1988
Land Administration Law	1986
Mineral Resources Law	1986
Fisheries Law	1986
Forestry Law	1985
Grassland Law	1985
Law on Prevention and Control of Water Pollution	1984
Marine Environment Protection Law	1982