

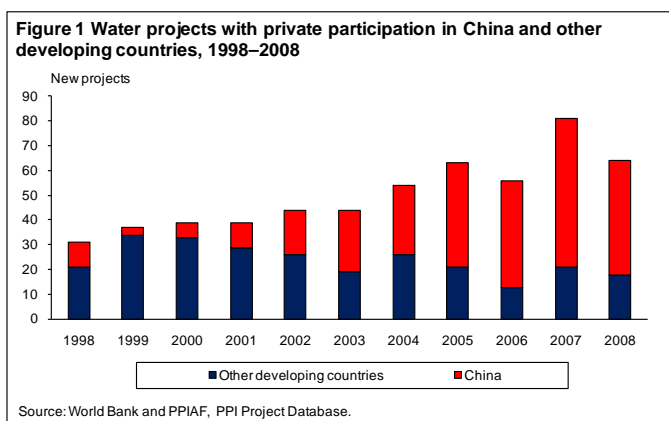
PRIVATE PARTICIPATION IN INFRASTRUCTURE DATABASE

Did You Know?

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More than half the private water projects implemented in the past decade were in China

China accounts for more than half the water projects with private participation implemented in low- and middle-income countries in 1998–2008 (figure 1). Of the total of 552 projects, China implemented 291, representing more than US\$8.6 billion in investment commitments (hereafter, *investment*). China's predominance in private water projects has increased in recent years: the country accounts for more than 70% of those established in developing countries in 2006–08.

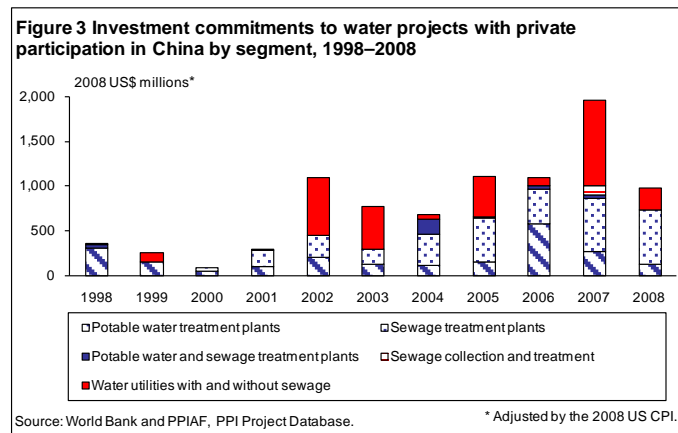
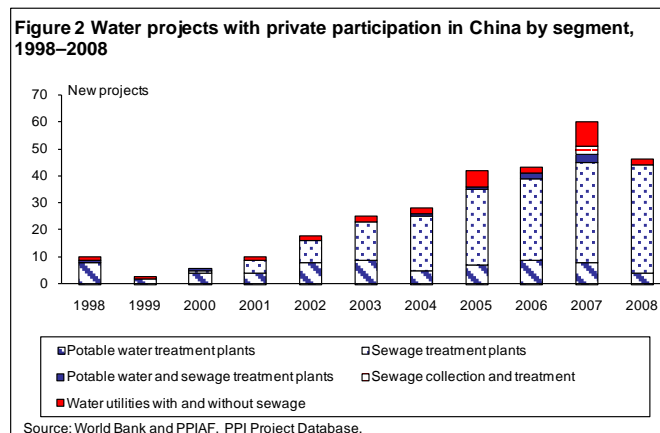


More than 60% of the private water projects in China are for sewage treatment plants: 183 of the 291 reaching closure in 1998–2008 (figure 2). Among the rest, most are for potable water treatment plants (68) and water utilities (28). But water utility projects attracted most of the investment, US\$3.2 billion (figure 3). Sewage treatment plants account for US\$3.0 billion, and potable water treatment plants for US\$2.2 billion.

The predominance of sewage treatment plants among private water projects in China reflects the national government's priority on increasing the treatment of urban wastewater. A recent World Bank study on urban water utilities in China concludes that the proliferation of private treatment plants has been facilitated by the attractiveness of this type of project for both private investors and municipal utilities. According to the study, "treatment services are well-defined and the conditions and terms of payment, including price, can be determined up-front to assess whether a project is feasible. The private company does not have to take the commercial risk involved with low tariffs, but rather will be paid by the municipal utility for services the company provides. The municipal utility or government does not have to finance the construction of the treatment plant, [and using] a private participation arrangement insulates wastewater treatment from wastewater collection, which is often still managed as a public works program rather than a utility service. Many municipal governments also [prefer] to have a private company responsible for wastewater treatment rather than [rely on] an often inefficient and technically weak drainage department."¹

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¹ Greg J. Browder, Shiqing Xie, Mingyuan Fan, Lixin Gu, David Ehrhardt, and Yoonhee Kim, *Stepping Up: Improving the Performance of China's Urban Water Utilities* (Washington, DC: World Bank, 2007), 120-121 pp.



Greenfield projects—build-operate-transfer (BOT) and build-own-operate (BOO) contracts—and concessions are the most prevalent forms of private participation in water in China (table 1). Greenfield projects accounted for the largest share of water projects and were primarily for treatment plants (179), though a few were for water utility projects (4). Concessions were mainly for treatment plants (69) but also for water utility projects (22). Concessions accounted for the largest share of investment, with 48% of the total (table 2). Concession contracts for treatment plants accounted for about US\$1.6 billion, and those for water utilities for about US\$2.6 billion. Greenfield treatment plant projects attracted US\$3.3 billion.

Table 1 Water projects with private participation in China by type of contract, 1998–2008

Year of financial closure	Treatment plants					Utilities				
	Concession	Divestiture	Greenfield project	Management or lease	Total	Concession	Divestiture	Greenfield project	Management or lease	Total
1998	6	0	3	0	9	0	0	1	0	1
1999	0	0	2	0	2	0	1	0	0	1
2000	4	0	2	0	6	0	0	0	0	0
2001	2	0	6	1	9	0	0	0	1	1
2002	7	1	8	0	16	2	0	0	0	2
2003	4	1	18	0	23	2	0	0	0	2
2004	11	0	15	0	26	2	0	0	0	2
2005	8	0	26	2	36	6	0	0	0	6
2006	10	0	29	2	41	1	0	0	1	2
2007	10	3	34	1	48	8	1	3	0	12
2008	7	1	36	0	44	1	1	0	0	2
Total	69	6	179	6	260	22	3	4	2	31

Source: World Bank and PPIAF, PPI Project Database.

Table 2 Investment commitments to water projects with private participation in China by type of contract, 1998–2008
(2008 US\$ millions)

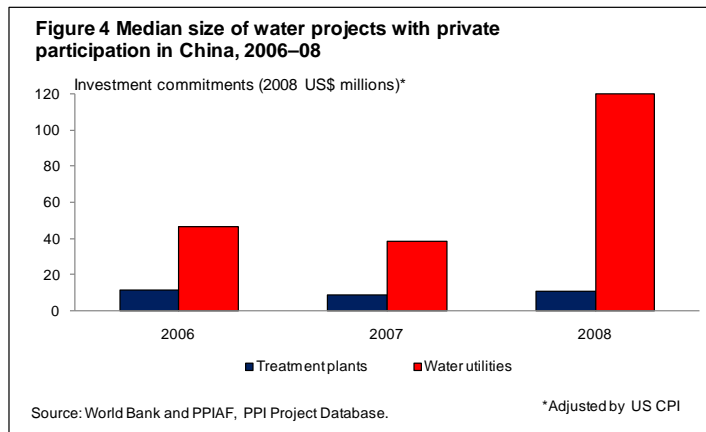
Year of financial closure	Treatment plants					Utilities				
	Concession	Divestiture	Greenfield project	Management or lease	Total	Concession	Divestiture	Greenfield project	Management or lease	Total
1998	152	0	190	0	342	0	0	14	0	14
1999	0	0	153	0	153	0	108	0	0	108
2000	50	0	40	0	90	0	0	0	0	0
2001	58	0	218	0	276	0	0	0	16	16
2002	226	2	215	0	442	647	0	0	0	647
2003	73	50	168	0	291	477	0	0	0	477
2004	300	0	326	0	626	56	0	0	0	56
2005	195	0	431	22	647	454	0	0	0	454
2006	115	0	422	460	997	13	0	0	80	93
2007	300	50	551	0	901	929	32	98	0	1,058
2008	89	61	584	0	734	11	229	0	0	240
Total	1,559	163	3,297	482	5,501	2,587	368	112	96	3,164

Source: World Bank and PPIAF, PPI Project Database.

Note: Values adjusted by the 2008 US consumer price index (CPI).

Most of the projects have been implemented in large, developed cities with populations of more than 2 million and GDP per capita exceeding US\$3,000.² Not surprisingly, the capacity of private water projects in China adds up to a rather large total. The 260 treatment plant projects implemented in 1998–2008 have a total capacity of more than 34.4 million cubic meters a day (17.4 million for sewage, 13.2 million for potable water, and 3.8 million for potable water and sewage). Of the 31 water utility projects, 21 serve at least 24.6 million people, 5 have a total capacity of more than 2.4 million cubic meters a day, and 1 represents 550,000 connections.

Nevertheless, private water projects in China are typically small when measured by investment. In 2008 the median size was US\$11.04 million, and the average size, US\$21.17 million. Water utility projects are usually larger than treatment plant projects (figure 4).



Most private water projects in China are implemented through a municipal joint venture involving a local municipal utility and a private company. For those implemented in 1998–2008, this private company was Chinese in more than half the cases (179 projects; table 3).³ Other sponsors were mainly from Singapore (42 projects), France (36), the United States (30), Malaysia (25), and Germany (11). The five main foreign sponsors were Veolia Environnement (19 projects), Suez (16), Golden State Environment (14), Asia Environment Holdings (10), and Asia Water Technology (8). The participation of local sponsors is promoted by the legal framework. Since 2002 national laws have allowed foreign companies to invest in urban water distribution and wastewater collection systems as long as they do so through a joint venture with a Chinese partner holding a majority share.⁴

The landscape of sponsors in Chinese water projects is diversified. The most active sponsors account for only 16 or fewer water or sewage treatment plant projects (table 4) or fewer than 7 water utility projects (table 5).

² Browder and others, *Stepping Up*.

³ The PPI Project Database does not include Chinese state-owned provincial companies operating in provinces outside their initial jurisdiction. These provincial companies have been very active in the Chinese water market.

⁴ Browder and others, *Stepping Up*.

Table 3 Sponsors' home countries ranked by number of water projects in China, 1998–2008

Rank	Home country	Water projects		
		Total	Treatment plants	Water utilities
1	China	179	165	14
2	Singapore	42	39	3
3	France	36	25	11
4	United States	30	28	2
5	Malaysia	25	21	4
6	Germany	11	10	1
7	Spain	3	3	0
8	Canada	2	2	0
9	Australia	1	1	0
9	Japan	1	1	0
9	Korea, Rep. of	1	1	0
9	Saudi Arabia	1	1	0

Source: World Bank and PPIAF, PPI Project Database.

Note: A sponsor is included in the database once it has at least a 15% stake in the project company. There can therefore be more than one sponsor per project.

Table 4 Top 20 sponsors by number of treatment plant projects in China, 1998–2008

Rank	Sponsor	Home country	Treatment plant projects
1	Beijing Sound Environment Industry Group	China	16
2	Chongqing Kangda Environmental Protection Co. Ltd.	China	13
3	Golden State Environment	United States	13
4	Anhui Guozhen Environmental Protection Science & Technology Co. Ltd.	China	12
5	Suez	France	12
6	Veolia Environnement	France	12
7	Beijing Herocan Environmental Engineering Tech Co. Ltd.	China	11
8	Bio-Treat Technology Ltd.	China	11
9	NWS Holdings Limited	China	11
10	Asia Environment Holdings Ltd.	Singapore	10
11	Dalian Dongda Environmental Engineering Co. Ltd.	China	10
12	China Water Group Inc.	China	7
13	Hyflux	Singapore	7
14	China Water Affairs Group Ltd.	China	6
15	Hans Technologies	United States	6
16	RWE	Germany	6
17	Sime Darby Bhd	Malaysia	6
18	Sinomem Technology Ltd.	Singapore	6
19	Asia Water Technology	Singapore	5
20	InterChina Holdings	China	5

Source: World Bank and PPIAF, PPI Project Database.

Table 5 Top 5 sponsors by number of water utility projects in China, 1998–2008

Rank	Sponsor	Home country	Water utility projects
1	Veolia Environnement	France	7
2	China Water Affairs Group Ltd.	China	4
3	NWS Holdings Limited	China	4
4	Suez	France	4
5	Salcon Bhd	Malaysia	3

Source: World Bank and PPIAF, PPI Project Database.