Daiwa Capital Markets

Company

Utilities / China
13 June 2014

The 10-second briefing

CT Environmental Group

1363 HK

Target (HKD): **7.00 → 9.00**
Upside: **58.7%**
12 Jun price (HKD): **5.67**

Top pick in China utilities space

- Recent acquisitions of sludge and industrial wastewater treatment facilities should drive 45% 2013-16E net profit CAGR
- Pipeline of 400ktpd of new industrial wastewater treatment projects; capex should be supported by its CNY2bn loan facility
- Like ENN in gas sector, CTE is driving consolidation of sludge and industrial wastewater treatment industry; reaffirm Buy

1 Buy (unchanged)
2 Outperform
3 Hold
4 Underperform
5 Sell

How do we justify our view?

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■ What's new

CT Environmental Group (CTE) spent more than CNY900m on acquisitions over March-May 2014. We forecast these acquisitions, along with its 2014-16 pipeline of about 400ktpd of new industrial wastewater treatment (WWT) projects, to drive a 45% net profit CAGR for 2013-16 (previously a 40% CAGR for 2012-15).

■ What's the impact

Aggressive acquisitions should drive industry consolidation. CTE has recently acquired industrial WWT, sludge and industrial solid waste treatment facilities in Guangdong. Notably, its newly acquired Qingyuan Lvyou sludge treatment plant has boosted its total sludge treatment capacity from 150ktpa at end-2013 to 700ktpa, and we forecast this business to contribute 17% to 2016 gross profit.

Strong industrial WWT project pipeline. CTE's recent acquisition of the Shunde plant and stake increase from 46% to 95% in the Yinglong plant, have lifted its consolidated WWT capacity by 310ktpd. As such, we forecast CTE's consolidated WWT capacity to rise by 180% to 880ktpd in 2016E (vs. 315ktpd in 2013). We raise our 2014-15E EPS by 7-16% to reflect the acquisitions, and see their positive earnings impact continuing in 2016.

Equity-dilution risk looks low. We forecast CTE's 2014 net-debt-to-equity ratio to climb to 105% post acquisitions, exceeding the comfortable gearing level of 80-100%. Still, management has emphasised that its capex should be well funded by the CNY2bn loan facility from ICBC, thus it sees no immediate equity-financing needs. However, it does not rule out the possibility of issuing new shares for future acquisitions.

■ What we recommend

We raise our DCF-based 6-month target price to HKD9 (from HKD7), reflecting our earnings increases and 8.6% WACC (lowered from 8.9%). CTE is now our top China utilities pick and we reaffirm our Buy (1) rating. Our new target price implies a 0.5x PEG on our 2013-16E EPS growth, more attractive than China peers' 1.0-1.1x. The main risk would be greater-than-expected competition from major municipal players, foreign enterprises, and new entrants.

■ How we differ

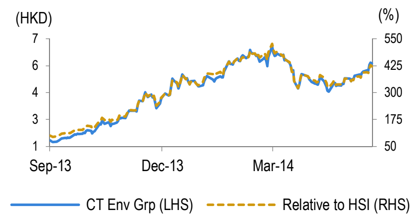
Our 2014-16E EPS are 6-22% above consensus as we have fully factored in the recent acquisitions.

Forecast revisions (%)

Year to 31 Dec	14E	15E	16E
Revenue change	29.5	23.0	n.a.
Net profit change	15.8	7.2	n.a.
Core EPS (FD) change	15.8	7.2	n.a.

Source: Daiwa forecasts

Share price performance



12-month range	1.25-6.59
Market cap (USDbn)	1.01
3m avg daily turnover (USDm)	8.17
Shares outstanding (m)	1,382
Major shareholder	Mr. Tsui Cham To (63.5%)

Financial summary (HKD)

Year to 31 Dec	14E	15E	16E
Revenue (m)	939	1,259	1,706
Operating profit (m)	529	698	930
Net profit (m)	386	494	685
Core EPS (fully-diluted)	0.279	0.358	0.495
EPS change (%)	39.9	28.1	38.6
Daiwa vs Cons. EPS (%)	16.8	5.5	22.3
PER (x)	20.3	15.9	11.4
Dividend yield (%)	1.0	1.3	1.7
DPS	0.056	0.072	0.099
PBR (x)	5.5	4.3	3.3
EV/EBITDA (x)	17.7	13.3	9.9
ROE (%)	30.1	30.3	32.6

Source: FactSet, Daiwa forecasts

See important disclosures, including any required research certifications, beginning on page 25

1 Buy (unchanged)
2 Outperform
3 Hold
4 Underperform
5 Sell

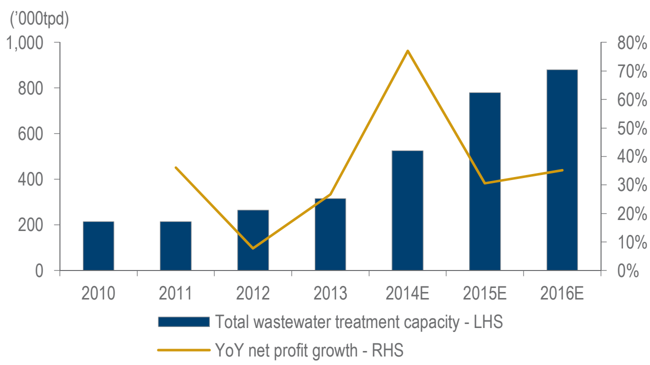
How do we justify our view?

- Growth outlook
- Valuation
- Earnings revisions

Growth outlook

We forecast CTE's net profit to rise at robust CAGR of 45% over 2013-16 (formerly a 40% CAGR for 2013-15E). This is driven by our forecasts for the company's consolidated WWT capacity to increase at a 41% CAGR over the period, and the 5-fold increase in its sludge treatment capacity from c.150ktpa at the end of 2013 to c.700ktpa, on the back of its recently acquired 555ktpa of sludge treatment capacity in Qingyuan Lvyou.

CTE: WWT capacity and group net profit growth



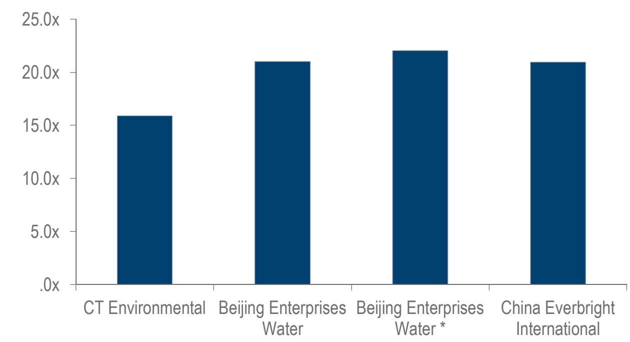
Source: Company, Daiwa forecasts

Valuation

CTE is trading at a 16x PER for 2015E (on our revised EPS forecast), which is at about a 25% discount to the average multiple of its China peers in the WWT and solid waste treatment businesses (on Bloomberg EPS forecasts). We believe CTE merits a rerating, as we forecast it to generate a superior 30% ROE for 2015 (peers: 17% on average). This is because most of CTE's earnings are cash-based given most its industrial WWT projects are operated under a build-own-operate (BOO) model.

As for the build-operate-transfer (BOT) model adopted by peer Beijing Enterprises Water (BEW) (not rated), part of the earnings are construction revenue, which are non-cash items under IFRIC 12 accounting norms.

CTE and China peers: PER comparison (2015E)



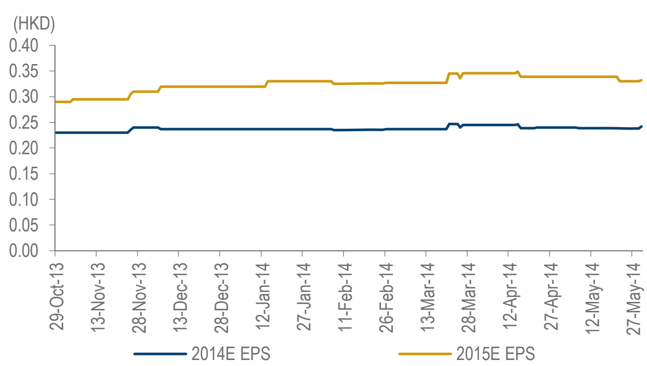
Source: Bloomberg forecasts for BEW and CEI, Daiwa forecasts for CTE
Note: BEW - we have stripped out the non-cash earnings from its BOT construction revenue in our 2015E PER calculation; share prices as of 12 June 2014*

Earnings revisions

The Bloomberg consensus 2014-15 EPS forecasts for CTE have risen slightly since the company was listed on 25 September 2013.

We believe the consensus forecasts do not yet factor in CTE's recent acquisitions exceeding CNY900m of the 60ktpd Shunde industrial WWT plant, the 555ktpa sludge treatment facility in Qingyuan, and stake increase from 49% to 95% in its 250ktpd Yinglong industrial WWT plant Phases 1 and 2.

CTE: consensus EPS forecast revisions (2014-15E)



Source: Bloomberg

Financial summary

Key assumptions

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Year-end WWT capacity (ktpd)	n.a.	215	215	265	315	525	780	880
WWT plant utilization rate (%)	n.a.	57	95	81	87	82	73	94
WWT services tariff (CNY/tonne)	n.a.	4.1	3.8	3.6	3.4	3.3	3.8	3.8
Sludge capacity (tonne/day)	n.a.	n.a.	n.a.	n.a.	400	2,100	2,100	2,100
Total sludge treatment fee and resales ASP (CNY/tonne)	n.a.	n.a.	n.a.	n.a.	230	700	720	740

Profit and loss (HKDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Wastewater treatment under BOT	n.a.	153	130	40	60	135	97	129
Wastewater treatment under BOO	n.a.	172	256	243	267	454	704	1,023
Other Revenue	n.a.	37	76	101	156	350	457	553
Total Revenue	**n.a.**	**361**	**462**	**384**	**483**	**939**	**1,259**	**1,706**
Other income	n.a.	15	4	0	20	0	0	0
COGS	n.a.	(174)	(195)	(131)	(179)	(357)	(491)	(682)
SG&A	n.a.	(31)	(40)	(22)	(42)	(53)	(70)	(94)
Other op.expenses	n.a.	(2)	(1)	(3)	(1)	0	0	0
Operating profit	**n.a.**	**169**	**230**	**227**	**282**	**529**	**698**	**930**
Net-interest inc./(exp.)	n.a.	(18)	(26)	(37)	(32)	(68)	(95)	(95)
Assoc/forex/extraord./others	n.a.	0	0	23	23	10	0	0
Pre-tax profit	**n.a.**	**151**	**204**	**213**	**272**	**470**	**603**	**835**
Tax	n.a.	(25)	(38)	(36)	(49)	(84)	(108)	(150)
Min. int./pref. div./others	n.a.	(5)	(1)	(0)	(0)	(0)	(0)	(0)
Net profit (reported)	**n.a.**	**121**	**165**	**177**	**223**	**386**	**494**	**685**
Net profit (adjusted)	**n.a.**	**121**	**165**	**177**	**223**	**386**	**494**	**685**
EPS (reported)(HKD)	**n.a.**	**0.119**	**0.161**	**0.174**	**0.199**	**0.279**	**0.358**	**0.495**
EPS (adjusted)(HKD)	**n.a.**	**0.119**	**0.161**	**0.174**	**0.199**	**0.279**	**0.358**	**0.495**
EPS (adjusted fully-diluted)(HKD)	**n.a.**	**0.119**	**0.161**	**0.174**	**0.199**	**0.279**	**0.358**	**0.495**
DPS (HKD)	**n.a.**	**0.000**	**0.000**	**0.000**	**0.037**	**0.056**	**0.072**	**0.099**
EBIT	**n.a.**	**169**	**230**	**227**	**282**	**529**	**698**	**930**
EBITDA	**n.a.**	**169**	**230**	**227**	**282**	**529**	**698**	**930**

Cash flow (HKDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Profit before tax	n.a.	151	204	213	272	470	603	835
Depreciation and amortisation	n.a.	9	13	17	22	40	155	171
Tax paid	n.a.	(25)	(38)	(36)	(49)	(84)	(108)	(150)
Change in working capital	n.a.	(271)	256	(148)	19	(68)	(91)	(71)
Other operational CF items	n.a.	146	(312)	233	(142)	(10)	(0)	0
Cash flow from operations	**n.a.**	**10**	**123**	**279**	**122**	**348**	**558**	**786**
Capex	n.a.	(14)	(111)	(61)	(221)	(480)	(390)	(550)
Net (acquisitions)/disposals	n.a.	(0)	0	0	(41)	(1,196)	0	0
Other investing CF items	n.a.	(87)	103	(330)	55	0	0	0
Cash flow from investing	**n.a.**	**(101)**	**(8)**	**(392)**	**(207)**	**(1,676)**	**(390)**	**(550)**
Change in debt	n.a.	(99)	(658)	(328)	(56)	(1,210)	0	0
Net share issues/(repurchases)	n.a.	0	0	0	478	0	0	0
Dividends paid	n.a.	0	0	0	0	(77)	(99)	(137)
Other financing CF items	n.a.	142	579	399	43	2,420	0	0
Cash flow from financing	**n.a.**	**43**	**(79)**	**71**	**464**	**1,133**	**(99)**	**(137)**
Forex effect/others	n.a.	0	0	0	0	0	0	0
Change in cash	**n.a.**	**(48)**	**35**	**(41)**	**379**	**(195)**	**69**	**99**
Free cash flow	n.a.	(4)	11	217	(99)	(132)	168	236

Source: FactSet, Daiwa forecasts

Financial summary continued …

Balance sheet (HKDm)

As at 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash & short-term investment	n.a.	16	52	10	446	251	320	419
Inventory	n.a.	0	1	1	1	1	2	3
Accounts receivable	n.a.	390	148	264	281	401	620	836
Other current assets	n.a.	13	21	21	22	22	22	22
Total current assets	**n.a.**	**419**	**222**	**296**	**750**	**675**	**964**	**1,279**
Fixed assets	n.a.	117	223	265	512	2,151	2,391	2,773
Goodwill & intangibles	n.a.	9	9	9	50	47	44	41
Other non-current assets	n.a.	170	430	571	580	595	633	621
Total assets	**n.a.**	**715**	**884**	**1,141**	**1,892**	**3,468**	**4,031**	**4,715**
Short-term debt	n.a.	18	68	82	52	52	52	52
Accounts payable	n.a.	119	134	101	138	190	318	464
Other current liabilities	n.a.	11	10	13	18	18	18	18
Total current liabilities	**n.a.**	**147**	**212**	**196**	**208**	**260**	**388**	**534**
Long-term debt	n.a.	302	417	517	501	1,710	1,710	1,710
Other non-current liabilities	n.a.	12	32	36	55	61	100	89
Total liabilities	**n.a.**	**460**	**660**	**750**	**763**	**2,031**	**2,198**	**2,334**
Share capital	n.a.	0	0	0	138	138	138	138
Reserves/R.E./others	n.a.	247	214	390	987	1,296	1,691	2,239
Shareholders' equity	**n.a.**	**247**	**215**	**390**	**1,126**	**1,434**	**1,829**	**2,377**
Minority interests	n.a.	8	9	1	3	3	4	4
Total equity & liabilities	**n.a.**	**715**	**884**	**1,141**	**1,892**	**3,468**	**4,031**	**4,715**
EV	n.a.	8,146	8,278	8,426	7,933	9,338	9,269	9,171
Net debt/(cash)	**n.a.**	**303**	**432**	**589**	**107**	**1,511**	**1,442**	**1,343**
BVPS (HKD)	**n.a.**	**0.243**	**0.211**	**0.383**	**0.814**	**1.038**	**1.324**	**1.720**

Key ratios (%)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales (YoY)	n.a.	n.a.	27.9	(17.0)	25.9	94.4	34.1	35.5
EBITDA (YoY)	n.a.	n.a.	36.2	(1.2)	23.9	87.7	31.9	33.3
Operating profit (YoY)	n.a.	n.a.	36.2	(1.2)	23.9	87.7	31.9	33.3
Net profit (YoY)	n.a.	n.a.	36.1	7.7	25.6	73.3	28.1	38.6
Core EPS (fully-diluted) (YoY)	n.a.	n.a.	36.1	7.7	14.7	39.9	28.1	38.6
Gross-profit margin	n.a.	51.7	57.7	65.8	63.0	62.0	61.0	60.0
EBITDA margin	n.a.	46.7	49.8	59.2	58.3	56.3	55.4	54.5
Operating-profit margin	n.a.	46.7	49.8	59.2	58.3	56.3	55.4	54.5
Net profit margin	n.a.	33.4	35.6	46.2	46.1	41.1	39.2	40.1
ROAE	n.a.	97.7	71.2	58.6	29.4	30.1	30.3	32.6
ROAA	n.a.	33.8	20.6	17.5	14.7	14.4	13.2	15.7
ROCE	n.a.	58.8	35.9	26.7	21.1	21.7	20.5	24.0
ROIC	n.a.	25.3	30.7	23.1	20.8	20.7	18.4	21.8
Net debt to equity	n.a.	122.4	201.6	150.8	9.5	105.4	78.8	56.5
Effective tax rate	n.a.	16.5	18.9	16.9	18.1	17.9	17.9	17.9
Accounts receivable (days)	n.a.	196.8	212.5	196.0	205.7	132.5	147.9	155.7
Current ratio (x)	n.a.	2.8	1.0	1.5	3.6	2.6	2.5	2.4
Net interest cover (x)	n.a.	9.6	8.7	6.1	8.7	7.7	7.3	9.8
Net dividend payout	n.a.	0.0	0.0	0.0	18.6	20.0	20.0	20.0
Free cash flow yield	n.a.	n.a.	0.1	2.8	n.a.	n.a.	2.1	3.0

Source: FactSet, Daiwa forecasts

Company profile

CT Environmental (CTE) provides integrated wastewater treatment services for industrial and municipal sewage. Its consolidated treatment capacity totalled 315ktpd in 2013. Unlike with its peer, Beijing Enterprises Water, CTE mainly pursues a build-operate-own (BOO) model, and its facilities currently serve the textile, dyeing and paper industries.

Strong consolidator in industrial WWT and sludge treatment

CTE is becoming a major consolidator of China's industrial WWT and sludge treatment, a highly lucrative sub-segment of the China water utilities sector, which we expect to see multi-year earnings growth.

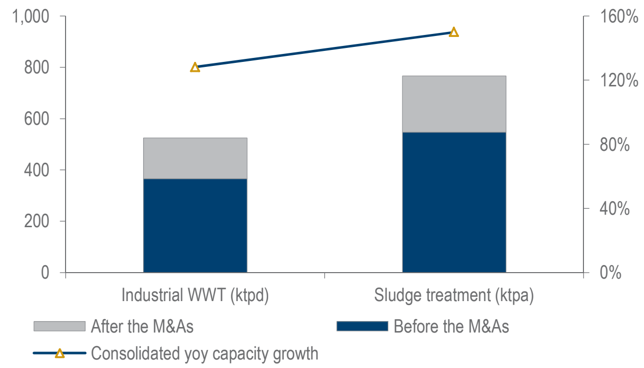
Recent acquisitions have enlarged its scale of operations

Since we initiated coverage of CTE (*Initiation: another ENN story in the making*), published on 14 February 2014), the company has spent over CNY900m on 3 acquisitions (over March-May) to enlarge its consolidated WWT capacity from 315ktpd at end-2013 to 475ktpd upon completion, and its consolidated sludge treatment capacity from c.150ktpa to c.700ktpa. In the meantime, CTE has also added 820ktpa of industrial solid waste treatment capacity, annual manufacturing capacity for 165m 'green' (ie, environmentally-friendly) bricks, a landfill and other sludge recycle facilities, such as fertilizer and bio-fuels.

We believe these acquisitions will be value-accretive for CTE, as they were acquired at valuations that we consider attractive, with 2 of them conducted at more than a 40% discount to CTE's trading PER for 2013 (except the Qingyuan sludge treatment deal which was based on 2014 guaranteed profit), on the dates the deals were announced (as the following table shows).

For the Yinglong project, although the acquisition valuation appears fair, the acquisition includes the project's phase 2 expansion, which is due to be commissioned in 2015, with no further capex to be incurred. As a result, the acquisition valuation for the Yinglong project does not include any earnings from phase 2.

■ **CTE: capacity expansion of industrial WWT and sludge treatment post its 3 major M&A transactions**



Source: Company, Daiwa

■ **CTE: major acquisitions since March 2014**

Date of confirmation	Location	Asset	Capacity	Stake acquired	Total consideration (CNYm)	Consideration - cash portion (CNYm)	Target PER of project	CTE's 2013 PER at time announced	Discount to CTE's PER
21-Mar-2014	Shunde, Guangdong	Industrial WWT plant for textile industry	60ktpd	100%	115	115	10.5x (2013)	19.5x	46%
2-May-2014	Qingyuan, Guangdong	Sludge treatment	555ktpa	100%	525	125	8.3x (2014E guaranteed profit)	15.4x	46%
		Solid waste treatment	820ktpa						
		Environmentally-friendly bricks	165m pieces per annum						
19-May-2014	Yinglong plant - Zengcheng, Guangdong	Industrial WWT plant for textile industry	100ktpd (phase 1 in operation)	49%, raising total stake to 95%	294	196	15.3x (2013) Note 1	14.9x	-2%
			150ktpd (phase 2 under construction)						
				Total	934	436			

Source: Company, Daiwa
Note 1: Yinglong phase 2 (150ktpd) will be commissioned in 2015, and hence the earnings base could be increased by 150% in the long term

Deal No.1: Shunde Industrial WWT plant

On 21 March this year, CTE announced the acquisition of a 60ktpd industrial WWT facility in an industrial base in Junan County, Shunde District, for a consideration of CNY115m, which we estimate equates to a 10.5x PER for 2013.

The Shunde facility mainly serves the low-end textile industry with a chemical oxygen demand (COD) level at 600 for the discharged wastewater. Given the COD level is much lower than that for its flagship project, Xinzhou, at 3,000, the average tariff for Shunde is currently set at CNY1.5/tonne, much lower than Xinzhou's of CNY5.5/tonne. According to management, CTE is applying for the treatment tariff to be raised to CNY2.0/tonne.

The current EBIT margin of this project is 50% (CTE: 58.5% in 2013) with a utilisation rate of 67%; we estimate the EBIT of this facility is CNY10.95m. If the tariff hike is successful and the plant can achieve close to 100% utilisation, the annualised net profit could increase from CNY10.95m to about CNY24m.

By way of background, in 2012, CTE acquired a 46% stake in the 100ktpd Yinglong Industrial WWT plant. CTE took 2 years to turn this project around, with utilisation improving from 73% in 2012 to 94% in December 2013. In our view, CTE's operational track record should enable it to maximise the profit of the Shunde project over the next 2-3 years.

Deal No.2: stake increase in Yinglong WWT plant

On 19 May this year, CTE announced plans to acquire an additional 49% stake in the Yinglong Industrial WWT plant, which effectively increased its shareholding from 46% to 95%. The total consideration was CNY294m (CNY196m cash portion and CNY98m debt portion), equivalent to a 15.4x 2013 PER (CTE's end-2013 PER: 22x), and a 1.7x 2013 PBR (CTE's 2013 PBR: 5.9x).

The Yinglong Industrial WWT plant (current capacity of 100ktpd) mainly serves textile customers, with a treatment tariff of CNY4.1/tonne. CTE acquired a 46% stake in 2012 from a state-owned-enterprise, and after assuming operations, increased the plant's utilisation rate from 73% in 2012 to 95% in 2013.

The Yinglong Phase 2 project (planned capacity of 150ktpd) is under construction currently and management expects it to be commissioned by 1H15. The phase 2 expansion capex was secured with CNY200m of project financing. By 1H15, Yinglong's total capacity should reach 250ktpd, representing about 30% of CTE's total capacity of 800ktpd likely by then.

■ CTE: Yinglong WWT plant

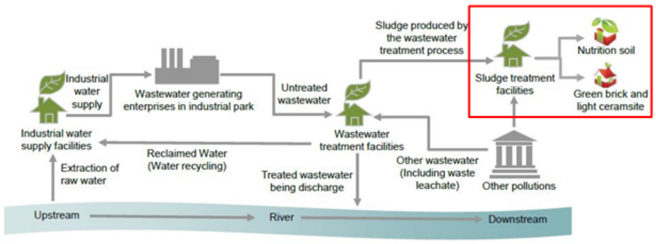
Source: Company

Deal No.3: Qingyuan sludge and solid waste treatment plant

On 2 May this year, CTE confirmed the acquisition of a sludge and solid waste treatment facility in Qingyuan (清遠綠由), in Guangdong Province, for a consideration of CNY125m in cash. The total consideration was CNY525m, given the targeted company had CNY400m of debt. As there was a guaranteed net profit offered by the seller, at HKD80m for 2014, HKD100m for 2015 and HKD120m for 2016, the acquisition price amounts to about a 8.3x 2014E PER. Thus, this acquisition looks value-accretive for CTE given that CTE trades currently at a much higher 20x PER for 2014E based on our EPS forecast.

CTE now has about c.700ktpa of sludge treatment capacity following its recent acquisition, and we forecast its sludge treatment business to contribute about 25% of CTE's annual net profit for 2016. The Qingyan plant will be one of the company's key assets, helping CTE execute its strategy of vertical integration of its WWT business with its sludge treatment services.

■ **CTE: integrated industrial WWT and sludge treatment business model**



Source: Company

The Qingyuan facility is mainly engaged in the treatment of municipal sludge, industrial sludge, and industrial solid waste, such as scrap ceramics, ceramic polished slag, metal smelting slag, fly ash, construction waste etc. Management expects the project to ultimately produce 165m pieces of green bricks per year. The ASP on such bricks is currently around CNY0.45/brick, which indicates HKD95m of annual revenue under full utilisation.

The facility also has a 555ktpa sludge treatment capacity and 820ktpa industrial solid waste treatment capacity. According to management, the sludge treatment tariff will range from CNY350-400/tonne, implying HKD250-285m of annual revenue under full utilisation.

Assuming a gross-profit margin of 60%, the acquired assets could contribute a maximum of HKD220m of gross profit per year from sludge treatment and green bricks production alone, on our estimates. The Qingyuan plant also has a facility to produce nutritional soil (fertilizer), bio-fuel and solid waste landfill.

■ **CTE: green bricks**

Source: Company

The acquired facility only earned a net profit of CNY12m (or HKD15m) in 2013, due to the very low sludge treatment utilisation rate, at about 20%, without the sale of green bricks. According to CTE's management, the Qingyuan facility's owner has pledged to improve utilisation to achieve a guaranteed net profit of HKD80m, HKD100m and HKD120m for 2014, 2015 and 2016, respectively, with any shortfall to be compensated by Qingyuan facility owner, at a limit of CNY100m (or HKD126m).

In order to ensure smooth daily operation, CTE will sign employment contracts of more than 3 years with the current staff of the Qingyuan facility. The Qingyuan facility owner also guarantees any future M&A to be executed at a more than 20% ROI, with any return shortfall compensated in cash at 10x the shortfall amount.

According to management, the CNY400m debt currently incurred on Qingyan's books carries a 7-12% annual interest rate. Therefore, CTE is in the process of refinancing part of the debt (60% of its total debt) at a lower interest rate.

Highlights of Qingyuan Lvyou sludge and solid WWT site visit

We forecast the Qingyuan Lvyou facility to contribute a significant CNY56m of net profit for CTE for 2014 (21% of our total net profit forecast), assuming a 6% finance cost for the CNY125m cash consideration of the acquisition. To gauge more whether our forecasts were feasible and to conduct some of our own due diligence, we visited the Qingyuan Lvyou sludge and solid waste treatment plant at the end of May this year.

The plant is divided into 4 major parts – a sludge-reduction and stabilisation plant, plants for the production of green bricks, solid waste landfill, and other small facilities, such as a 500tpd WWT one for the leachate (landfill residue) treatment and sludge treatment for nutritional soil and bio-fuel, etc.

Sludge-reduction and stabilisation plant

This facility can currently treat 300ktpa of sludge (which contains 80% water), with an ultimate annual capacity of 555ktpa. During the treatment process, the water content of the sludge is reduced from 80% to 55%, and is then ready either to be dumped into the landfill, or used in recycled products, such as green bricks and ceramsite, etc.

According to CTE's management, the sludge treatment tariff ranges from CNY350-400/tonne, which would represent HKD250-285m of annual revenue under a full utilisation rate.

■ **Qingyuan Lvyou: raw sludge**

Source: Daiwa

■ **Qingyuan Lvyou: treated sludge (from municipal wastewater)**

Source: Daiwa

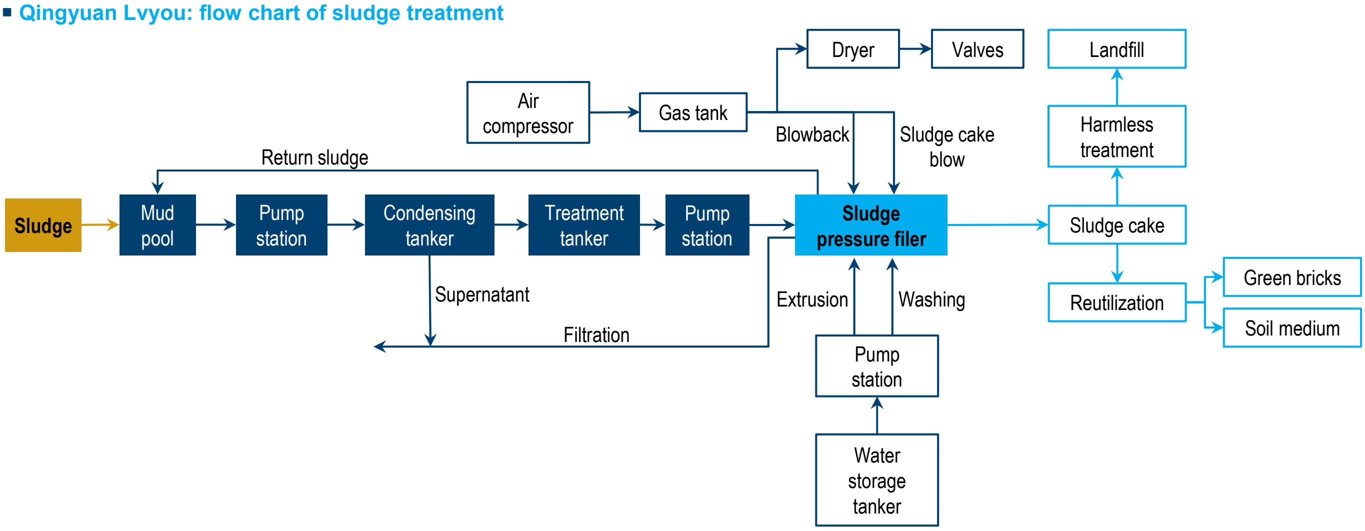
■ **Qingyuan Lvyou: treated sludge (from industrial wastewater)**

Source: Daiwa

■ **Qingqyuan Lvyou: sludge-reduction and stabilisation plant**

Source: Company

■ **Qingyuan Lvyou: flow chart of sludge treatment**



Source: Company

Green bricks manufacturing plant

The green bricks manufacturing facility currently produces annually about 120m green bricks made from treated sludge, with an ultimate annual capacity at 165m bricks per annum. According to management, the current utilisation rate is 60%, and it expects this to ramp up to 80% (to 165m bricks) by 2016.

According to management, the ASP for environmentally-friendly green bricks is around CNY0.45/brick currently, which represents HKD95m in annual revenue under full utilization.

■ CTE: green (ie, environmentally-friendly) bricks

Source: Company

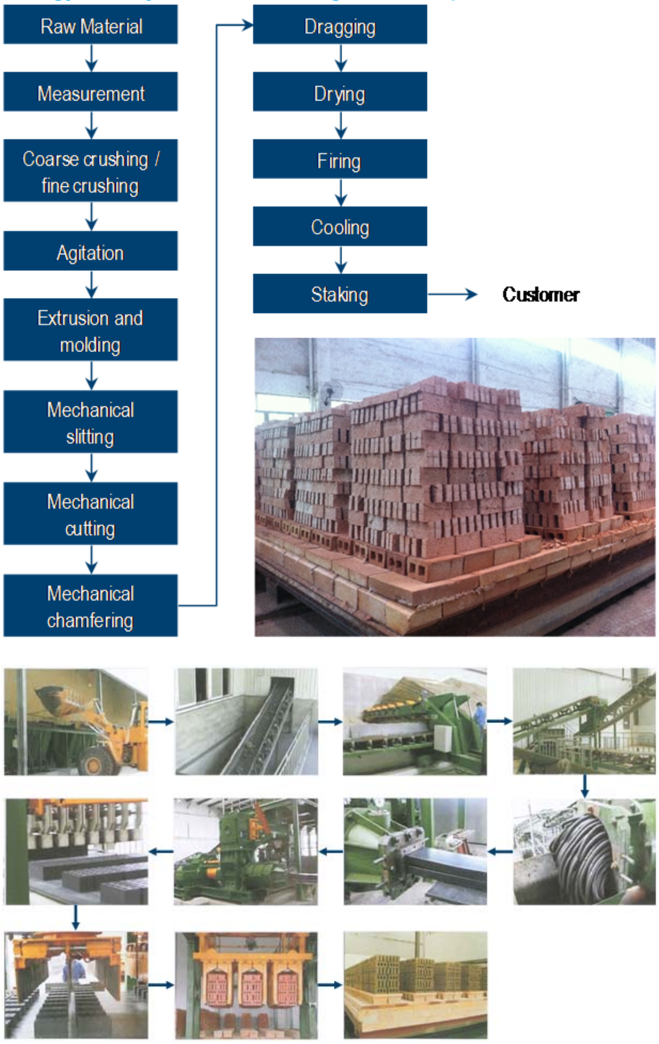
■ Qingyuan Lvyou: treated sludge as raw material for manufacturing green bricks

Source: Daiwa

■ Qingyuan Lvyou: example of a green brick produced

Source: Daiwa

■ Qingyuan Lvyou: flow chart of green brick production



Source: Company

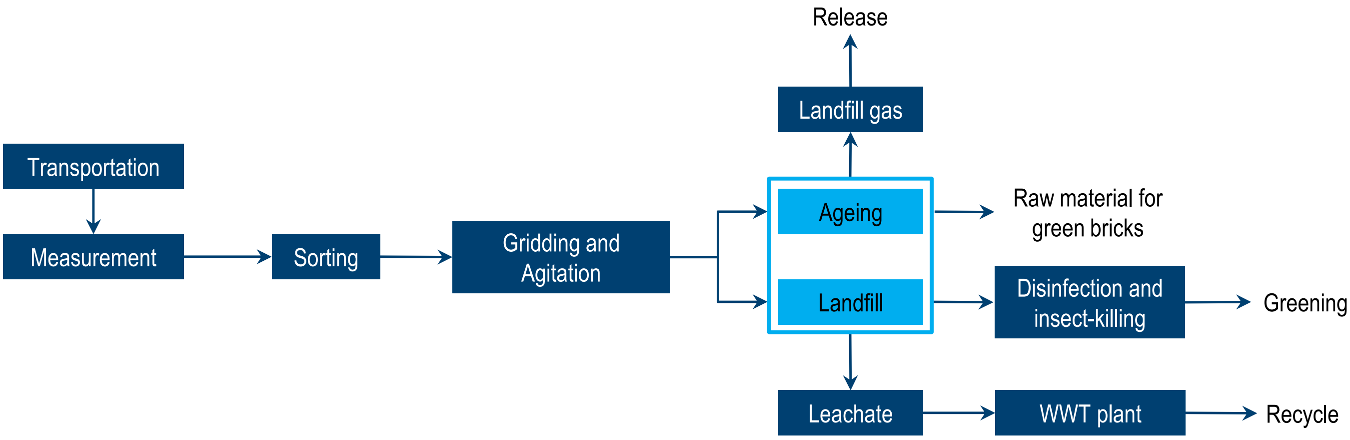
Solid waste landfill

The landfill can currently treat 100,000 cubic metres of solid waste per annum. Its approved capacity is 2m cubic metres with an ultimate capacity of 6-10m cubic metres. In 2014, management targets to treat 10,000 tonnes of solid waste, at an ASP of around CNY600/tonne, contributing around CNY6m in revenue. Its design capacity is 100,000tpa, and therefore this landfill could contribute CNY60m revenue per year in the long term, based on our estimates.

■ Qingyuan Lvyou: landfill

Source: Daiwa

■ Qingyuan Lvyou: flow chart of solid waste landfill



Source: Company

Other assets

Qingyuan Lvyou also has sludge-to-biofuel and sludge-to-nutrition soil (fertilizer) assets, and a 500tpd WWT facility to treat sludge water and leachate (landfill residue) internally.

Recent sludge treatment contract from Shenzhen

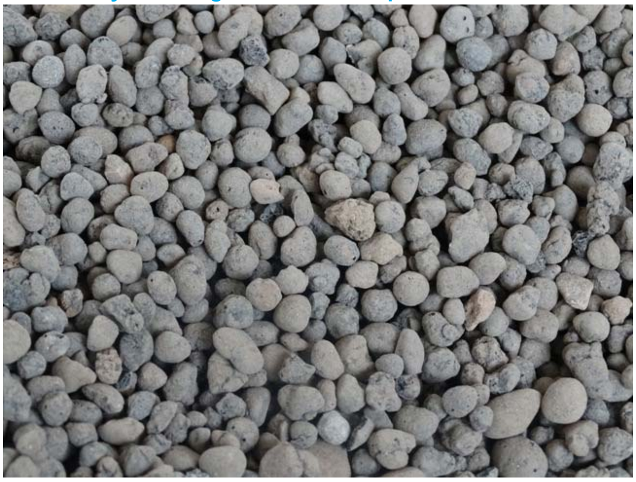
In April this year, CTE announced that it had been awarded by the Shenzhen Municipal Water Affairs Bureau a contract for sludge transportation and treatment services.

The sludge treatment contract was agreed at CNY397/tonne covering a period from 20 April 2014 to 31 December 2016, and is expected to reach a maximum treatment volume of 500 tonnes/day (50% of the total sludge treatment volume in Shenzhen), contributing around CNY72.5m to revenue for CTE per year.

CTE's management guides for a 60% gross-profit margin from this contract, based on its estimate of a maximum gross profit of CNY43.5m. Such a gross profit contribution does not take into account the additional earnings from the treated sludge – ceramite.

Management explained that the sludge received from Shenzhen has a water content of about 40%, and therefore will occupy a maximum of 300 tonnes/day of capacity. Given that the sludge from Shenzhen will be treated by the Heyuan plant, management believes a capacity upgrade is necessary as the plant currently can only treat about 170 tonnes/day.

■ CTE's Heyuan sludge treatment end product – ceramite



Source: Company

Update on operations

WWT project pipeline

At the end of May 2014 (ie, including its latest acquisitions), CTE operated 6 WWT plants, 1 water supply plant, and 3 sludge treatment plants. These facilities had a total consolidated capacity of 475ktpa for industrial WWT, 150ktpa of industrial water supply capacity, and c.700ktpa of sludge treatment capacity.

Based on its announced new capacity pipeline, we forecast CTE's consolidated WWT capacity to reach 1,080ktpa by 2018, with an additional 50ktpa of industrial water supply capacity. There would be upside to these forecasts if CTE were to announce additional industrial WWT projects.

■ CTE: announced WWT project pipeline

(Unit: ktpd)	Project model	Location	Industry	Stake	Investment (CNYm)	2010	2011	2012	2013	2014E	2015E	2016E	2017E	2018E
Total capacity						**215**	**215**	**365**	**415**	**525**	**780**	**880**	**1,030**	**1,080**
Consolidated capacity						**215**	**215**	**265**	**315**	**525**	**780**	**880**	**1,030**	**1,080**
Guangzhou Xinzhou I&II	BOO	Zengcheng, GD	Textile	100%	140.0	100	100	100	100	100	100	100	100	100
Longmen XilinI&II	BOT	Huizhou, GD	Municipal	100%	17.4	20	20	20	20	20	20	20	20	20
Yonghe Haitao I	BOT	Zengcheng, GD	Municipal & commercial laundry and textile	99%	59.6	50	50	50	50	50	50	50	50	50
Yonghe Haitao II	BOT	Zengcheng, GD	Municipal & commercial laundry and textile	99%	65.4			50	50	50	50	50	50	50
Yonghe Haitao III	BOO	Zengcheng, GD	Municipal & commercial laundry and textile	99%	158.6				50	50	50	50	50	50
Huaihua Tianyuan I	BOT	Huihua, Hunan	Municipal, pulp & paper, F&B	100%	64.2	45	45	45	45	45	45	45	45	45
Huaihua Tianyuan II	BOT	Huihua, Hunan	Municipal, pulp & paper, F&B	100%	54.0						55	55	55	55
Sichuan Gangyuan	BOO	Guangyuan, Sichuan	Textile	99%	200.0					50	50	50	50	50
Qingyuan Jingu I	BOO	Qingyuan, GD	Industrial and municipal	n.a.	89.7							50	50	50
Qingyuan Jingu II	BOO	Qingyuan, GD	Industrial and municipal	n.a.	n.a.								50	50
Guangfozhao	BOO	Huaiji, GD	Industrial	n.a.	125.0						50	50	50	50
Yinglong I (associate)	BOO	Zhencheng, GD	Textile	95%	173.8			100	100	100	100	100	100	100
Yinglong II (associate)	BOO	Zhencheng, GD	Textile	95%	260.6						150	150	150	150
Shunde	BOO	Shunde, GD	Textile	100%	115.0					60	60	60	60	60
Additional projects	BOO											50	150	200
-Guangdong												50	100	150
-Ex. Guangdong												-	50	50

Source: Company, Daiwa

Note: BOO = build own operate, BOT = build operate transfer, F&B – food and beverages

Utilisation

In 2013, all CTE's industrial WWT plants achieved utilisation rates of above 90%. According to the company's management, CTE's centralised industrial WWT plants typically achieve close to 100% utilisation because the company tends to roll out its capacity in phases. For example, although the recently announced Guangfozhao industrial WWT plant will have a total capacity of 200ktpd, CTE intends to complete phase 1 (capacity of 50ktpd) by 2015, and roll out the remaining capacity only after phase 1 has reached full utilisation.

■ CTE: utilisation of its WWT projects

	2010	2011	2012	2013	2014E	2015E	2016E	2017E	2018E
Guangzhou Xinzhou I & II	79%	94%	98%	100%	100%	100%	100%	100%	100%
Longmen Xilin I & II	92%	97%	98%	99%	100%	100%	100%	100%	100%
Yonghe Haitao I	26%	100%	100%	100%	100%	100%	100%	100%	100%
Yonghe Haitao II			48%	100%	100%	100%	100%	100%	100%
Yonghe Haitao III				30%	53%	75%	100%	100%	100%
Huaihua Tianyuan I	29%	89%	53%	90%	90%	100%	100%	100%	100%
Huaihua Tianyuan II						33%	100%	100%	100%
Sichuan Gangyuan					25%	75%	100%	100%	100%
Qingyuan Jingu I							100%	100%	100%
Qingyuan Jingu II							25%	100%	100%
Guangfozhao						50%	100%	100%	100%
Yinglong I			73%	94%	99%	100%	100%	100%	100%
Yinglong II						25%	80%	90%	100%
Shunde					53%	75%	100%	100%	100%
Additional projects							50%	75%	100%

Source: Company, Daiwa

Tariffs

For centralised industrial WWT projects, the municipal government typically sets a recommended ceiling price, and CTE and the factories then negotiate a final price. Since WWT tends to account for less than 5% of factories' COGS, the company can raise tariffs should its WWT costs increase. CTE's industrial WWT tariffs have remained broadly unchanged since 2010, with the exception of the tariffs for the Xinzhou plant, which has a different mix of sewage than the other plants. We expect the WWT tariff to increase slightly over the next few years.

CTE: treatment fee/tariff of its WWT projects

Unit: CNY/tonne	Project model	Industry	2010	2011	2012	2013	2014E	2015E	2016E	2017E	2018E
Average			**4.1**	**3.8**	**3.6**	**3.4**	**3.2**	**3.8**	**3.8**	**3.7**	**3.7**
Guangzhou Xinzhou I&II	BOO	Textile	5.1	5.8	5.2	5.3	5.4	5.5	5.6	5.7	5.8
Longmen Xilin I&II	BOT	Municipal	0.9	0.9	0.9	0.9	0.9	1.0	1.1	1.1	1.2
Yonghe Haitao I	BOT	Municipal & commercial laundry and textile	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.0	1.1
Yonghe Haitao II	BOT	Municipal & commercial laundry and textile			0.8	0.8	0.9	0.9	1.0	1.0	1.1
Yonghe Haitao III	BOO	Municipal & commercial laundry and textile				3.5	3.6	3.7	3.8	3.8	3.9
Huaihua Tianyuan I	BOT	Municipal, pulp & paper, F&B	0.9	0.9	1.0	1.3	1.5	1.6	1.7	1.7	1.8
Huaihua Tianyuan II	BOT	Municipal, pulp & paper, F&B						1.6	1.7	1.7	1.8
Sichuan Gangyuan	BOO	Textile						3.0	3.2	3.3	3.3
Qingyuan Jingu I	BOO	Industrial and municipal						2.0	2.1	2.1	2.2
Qingyuan Jingu II	BOO	Industrial and municipal							2.1	2.1	2.2
Guangfozhao	BOO	Industrial						2.0	2.2	2.3	2.4
Yinglong I (Associate)	BOO	Textile			4.0	4.0	4.1	4.1	4.2	4.2	4.3
Yinglong I (Associate)	BOO	Textile			4.0	4.0	4.1	4.1	4.2	4.2	4.3
Shunde	BOO	Textile					1.5	2.0	2.1	2.2	2.3
Additional projects	BOO								2.0	2.1	2.2

Source: Company, Daiwa

Earnings drivers for 2014-16

We raise our net profit forecasts for CTE by 16% for 2014 and 7% for 2015, due primarily to its latest acquisitions, and expect these acquisitions to drive robust net profit growth for the company over 2014-16.

For 2013-16, we now forecast a 45% CAGR (previously a 40% CAGR for 2012-15) in CTE's net profit, and a 36% CAGR in its EPS, underpinned by a 41% increase in its industrial WWT capacity and an additional 555ktpa of sludge treatment capacity (2013: c.150ktpa). In our forecasts, we assume CTE maintains a gross-profit margin of about 60% over our forecast horizon given its stable tariffs and cost structure, and as CTE has no plans for further BOT projects, for which the gross-profit margin on construction revenue recognised under IFRIC is only a mid-teen percentage.

We highlight the following factors as key earnings growth drivers for the company over 2014-16:

(1) The newly commissioned Yonghe Haitao phase 3 (capacity of 50ktpd), Yinglong Phase 2 (150ktpd), Suichuan Gangyuan (50ktpd), Huaihua Tianyuan phase 2 (55ktpd), Qingyuan Jingu Phase 1 (50ktpd) and Guangfozhao (50ktpd) WWT plant.

(2) The newly acquired Shunde WWT plant (60ktpd), stake increase in the Yinglong WWT plant (phase 1: 100ktpd, phase 2: 150ktpd) and newly acquired Qingyuan Lvyou sludge and solid waste treatment plant.

(3) Improving utilisation rates for the Huaihua Tianyuan Phase 1 WWT plant, Yonghe Haitao Phase 3 WWT plant, Shunde WWT plant, Xinzhou industrial water supply plant, and Qingyuan Lvyou sludge and solid waste treatment plant.

Cost structure

According to CTE's management, raw materials (chemicals) account for 45% of the COGS for a typical BOO industrial WWT project, electricity for 25%, and other expenses, such as labour and depreciation, for the remainder. In the event of a hike in power tariffs or material costs, CTE could face delays in cost pass-through, even though its agreements with customers include provision for cost pass-through followed by government approval. CTE has maintained a gross profit margin of around 60% for its industrial WWT plants since it commenced operations.

Balance sheet stretched but manageable on CNY2bn loan facility support

After CTE's IPO in September 2013, its net debt/equity ratio fell from 151% at the end of 2012 to 9.5% at the end of 2013. We forecast its end-2014 gearing to rise to 105%, on the company's CNY900m recent acquisitions of a number of industrial WWT plants, sludge and solid waste treatment assets and capex of about CNY480m that we forecast for the new industrial WWT projects now in its pipeline.

We believe CTE has exceeded its comfortable gearing level of 80-100%. However, management commented that all capex is financed for each project, which is well supported by the CNY2bn loan facility granted by ICBC at an interest rate of 6% per year. As such, management sees no imminent need to raise capital from the equity market.

We forecast CTE's annual capex to range from HKD390-550m per year over 2015-16, excluding the newly announced CNY150m sludge and solid waste project in Longmen County.

■ **CTE: capex, gearing, and cash flow before financing**

	2010	2011	2012	2013	2014E	2015E	2016E
Capex (HKDm)	14	111	61	221	480	390	550
Net debt /equity ratio	122.4%	201.6%	150.8%	9.5%	105.4%	78.8%	56.5%
Cash flow before debt financing (HKDm)	(108)	(115)	(156)	435	(1,381)	120	105

Source: Company, Daiwa forecasts
Note: CTE raised HKD457m from its IPO in September 2013

Valuation and rating

Considering the predictable long-term cash flow associated with our WWT volume and sludge treatment volume forecasts, we value CTE using a DCF methodology. We assume a WACC of 8.6% (previously: 8.9%) and an unchanged terminal growth rate of 2%. The change in our WACC assumption is because we have raised the debt portion of the company's capital structure from 35% to 45%, as CTE is gearing up its balance sheet on the back of its recent M&A activity.

Our DCF-based valuation yields a fair value of HKD9/share, representing our new 6-month target price (raised from HKD7). Our new target price is equivalent to a 2016E PER of 18x (using our revised 2016 EPS forecast), in line with peers BEW and China Everbright International (CEI) (Not rated), at their current share prices and based on the Bloomberg consensus EPS forecasts.

We believe CTE should trade on a par with BEW in terms of PER, given our view that industrial WWT (CTE's business focus) has a better operating model than municipal WWT (BEW's business focus). Compared with municipal WWT, industrial WWT has a higher gross-profit margin, shorter cash-conversion cycle, and a lower proportion of non-cash earnings. In addition, CTE has expanded its high-return sludge-treatment operation business – a business on which BEW does not focus. Still, we do not consider that it warrants a PER premium to BEW at this point given it is a smaller company with a much shorter operating track record.

Our DCF fair value for CTE incorporates only secured projects; further project additions or acquisitions could present additional upside to our estimated value. Our DCF fair value does not factor in the recently announced CNY150m sludge and solid waste project in Longmen County, due to a lack of available details on the project and its schedule at present.

We reiterate our Buy (1) rating on CTE, backed by our increased 35% EPS CAGR forecast for 2013-16 together with the fact that most of its earnings are cash-based, which means they are less distorted.

CTE: DCF valuation

(CNYm)		2014E	2015E	2016E	2017E	2018E
Year		0	1	2	3	4
Net income		386	494	685	817	922
Interest x (1-tax)		56	78	78	78	78
Depreciation		40	155	171	198	215
Change in working capital		(68)	(91)	(71)	(53)	(14)
Capex		(1,676)	(390)	(550)	(435)	0
FCF		**(1,261)**	**246**	**313**	**605**	**1,200**
Discount factor (base 2014E)		1.00	0.92	0.85	0.78	0.72
PV cash flow (base 2014E)		**(1,261)**	**226**	**266**	**473**	**864**
Terminal growth rate	2.0%					
Sum PV cash flow (to 2018E)	568					
PV of Terminal Value (from 2019E)	13,427					
Minus net debt on balance sheet	(1,511)					
Equity value (CNY)	12,483					
NPV/share (HKD)	**9.00**					
Valuation assumptions						
China risk-free rate						4.0%
Market risk premium						10.0%
Beta						0.85
Cost of equity						12.5%
Year n-1 debt/capitalisation						45.0%
Pre-tax cost of debt						5.0%
After-tax cost of debt						3.8%
WACC						**8.6%**

Source: Daiwa estimates and forecasts

CTE: DCF sensitivity to WACC and terminal growth rate (HKD)

		WACC				
		7.0%	8.0%	8.6%	10.0%	11.0%
Terminal growth rate	3.0%	16.4	12.5	10.9	9.9	8.0
	2.5%	14.5	11.2	9.9	9.0	7.4
	2.0%	12.9	10.2	**9.0**	8.3	6.8
	1.5%	11.6	9.3	8.3	7.6	6.3
	1.0%	10.5	8.5	7.7	7.1	5.9

Source: Daiwa estimates

China Water Sector: peer comparison

Company	Ticker	Market cap (USDm)	Main water business	PER (x) 2015E	PBR (x) 2015E	ROE 2015E	EPS CAGR (%) 2013-16E
CT Environmental	1363 HK	1,011	Industrial WWT	15.9	4.3	30.3	35.4
Beijing Enterprises Water	371 HK	5,650	Municipal WWT	21.1	2.8	13.5	27.2
Guangdong Investment	270 HK	7,285	Municipal water supply	14.0	1.8	12.7	10.7
Sound Global	967 HK	1,372	Wastewater EPC	11.8	1.8	16.4	25.5
China Water Affairs	855 HK	500	Municipal water supply	10.6	n.a.	n.a.	n.a.
Tianjin Capital	1065 HK	1,605	Municipal WWT	16.0	1.2	n.a.	13.2

Source: Bloomberg, Daiwa forecasts
Note: All company forecasts, except those for CTE, are extracted from Bloomberg; share prices as of 12 June 2014; the table excludes CEI, which is focused more on the waste-to-energy business

Risks

In addition to potential fierce competition from the existing major municipal WWT players, foreign enterprises, and potential new players, which we see as the main risk to our view, there are other risks for CTE.

Utilisation rates depend on the economic cycle

Although the major industrial parks served by CTE in Guangdong are mature, the company's utilisation rate was slightly affected by the 2008-09 global financial crisis, as the 2010 utilisation rate of its Xinzhou industrial WWT plant dropped to 80% from about 100% for 2010. We believe the industrial WWT business is not as defensive as the municipal WWT business due to the lack of fixed off-take agreements. However, the utilisation rate for CTE's industrial WWT business during the recent financial crises, from 2008-10, was comparable to that of the major municipal WWT plants of BEW at 80%.

In our sensitivity analysis, we estimate that every 5% fall in CTE's industrial WWT utilisation rate leads to a 2.1% drop in 2014E earnings and 1.4% drop in NAV.

Customer migration

Given that labour and operating costs have been increasing in Guangdong recently, some factories could move to inland provinces or even countries in Southeast Asia. The loss of any major customers could lead to the utilisation rate of an industrial WWT project falling sharply.

However, CTE is diversifying its customer base to mitigate the risk of this happening. For example, the revenue contribution from the company's largest customer declined from 22.9% of total revenue for 2011 to 10.6% for 4M13. The company's geographic diversification strategy depends on the regulations and government support in each province.

Changes to regulations and discharge requirements

CTE might need to invest more in upgrading its facilities should the government tighten discharge standards. We believe this would not be a problem for the company, as the discharge level of the Xinzhou project is less than 50mg/l of COD, which is much lower than the requirement for Guangdong of 90mg/l (national: 100mg/l).

Delay in passing on costs

According to management, the COGS for a typical BOO industrial WWT project breaks down as 45% on raw materials (chemicals), 25% on electricity, and 30% on other expenses, such as labour and depreciation. Should there be increases in power tariffs and material costs, there could be a delay in CTE passing on cost rises, as these have to be agreed by customers and approved by the government.

In our sensitivity analysis, we estimate that every 5% drop in CTE's unit-dollar profit for its industrial WWT business leads to a 3.2% fall in 2014E earnings and a 3.4% decline in NAV.

Execution risks

Management may not be able to complete the planned new industrial WWT capacity as scheduled, especially for new industries outside CTE's familiar segments, which are textiles and paper-making. In addition, solid-waste and sludge treatment projects require government treatment and resale-of-end-product permits, for which the approval process can take a long time. As such, unexpected project delays are possible.

In our sensitivity analysis, we estimate that every 50tpd drop in CTE's new sludge-treatment capacity results in a 0.3% fall of 2014E earnings and a 0.4% decline in NAV.

Appendix 1: sludge treatment – why it is attractive?

Apart from WWT, in 2013 CTE also expanded into third-party sludge treatment services after obtaining government permission for the Yonghe Haitao project with 145ktpa capacity at a treatment fee of CNY230/ tonne. Recently, the company also acquired the biggest sludge treatment facility in Guangdong – Qingyuan Lvyou – which has 555ktpa of sludge treatment capacity.

What is sludge?

Sludge is a by-product resulting from WWT and contains a large amount of nitrogen, phosphorous, potassium and organic ingredients, as well as toxic and harmful components, such as dioxins and heavy metals. China's government estimates the country's sludge volume will increase from 28.5m tonnes in 2010 to 37.5m tonnes by 2015. Sludge can lead to secondary pollution if not properly treated given it is highly perishable as it contains 80% water, and 20% pathogenic and toxic substances.

■ Sludge: a harmful by-product of WWT plants

Source: Daiwa

Two sources of income – sludge treatment revenue and end-product resale revenue

We believe sludge treatment is a lucrative business for CTE given it earns 2 streams of income from sludge-treatment fees and resale fees for end products. In terms of resale fees, the company is planning to sell bio-organic fertilisers, an end-product of sludge treatment, from the Yonghe Haitao project, which would enable it to earn CNY450/tonne in addition to the CNY230/tonne it can earn in treatment fees, after it is granted a fertiliser-supply licence, likely by 3Q14.

The recently acquired Qingyuan Lvyou project would produce 165m pieces of green bricks per year as a major by-product from the 555ktpa of sludge treatment capacity. CTE will collect CNY0.45 for each of such brick in addition to the CNY350-400/ tonne sludge treatment fee.

In our view, CTE could become a major player in sludge treatment given that most of its peers, such as BEW, do not have plans to expand into third-party sludge treatment services. CTE is currently the biggest third-party sludge treatment operator in Guangdong, and owns 50% of the sludge treatment volume for the Shenzhen Municipal Water Affairs Bureau.

■ Treated sludge: organic substances can be used as fertiliser or low calorific fuel

Source: Daiwa

■ Various end product of treated sludge

Source: Company

■ CTE: sludge business revenue and gross profit forecasts

		2013	2014E	2015E	2016E	2017E	2018E
Year end capacity - ton/day	a	400	2,100	2,100	2,100	2,300	2,500
Year end capacity - kt/annum		146	767	767	767	840	913
- by-product: fertilizer (ton/day)	b	400	600	600	600	800	1,000
- by-product: green brick (mn per annum)	c		165	165	165	165	165
Utilization rate	d	35%	40%	55%	70%	85%	100%
Total treatment volume - ton/day	e = a x d	140	840	1,155	1,470	1,955	2,500
Total treatment volume - ton/day (end product is fertilizer)	f = b x d	140	240	330	420	680	1,000
Waste-water to sludge ratio	g	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007
Equivalent to waste-water volume (ktpd)	h = e / g	200	1,200	1,650	2,100	2,793	3,571
Commercial sludge to raw sludge ratio	i	0.7	0.7	0.7	0.7	0.7	0.7
Total commercial sludge volume - ton/day	j = f x i	98	168	231	294	476	700
Sludge treatment fee (CNY/ton)	k	230	300	310	320	330	340
Selling of commercial sludge (CNY/ton)	l		400	410	420	430	440
Selling of green brick (CNY/piece)	m		0.45	0.45	0.45	0.45	0.45
Total revenue (HKD m)	**n = o + p + q**	**15**	**155**	**219**	**286**	**388**	**507**
Treatment fee	o = e x k x 365	15	118	167	220	301	397
Selling of commercial sludge	p = j x l x 365		8	11	14	24	36
Selling of green brick	q = c x d x m		30	41	52	63	74
GPM	*r*	*40%*	*50%*	*60%*	*60%*	*60%*	*60%*
GP of sludge business	**s = n x r**	**6**	**78**	**132**	**172**	**233**	**304**
GP of CTE	**t**	**304**	**582**	**768**	**1,024**	**1,201**	**1,341**
GP proportion	*u = s / t*	*2%*	*13%*	*17%*	*17%*	*19%*	*23%*

Source: Company, Daiwa forecast

Lucrative market growth opportunity

In the past, sludge was usually untreated and buried underground directly, given that only 30% of WWT plants in China, in 2010, could properly compress, stabilise and dehydrate sludge. However, such a practice causes serious secondary soil pollution.

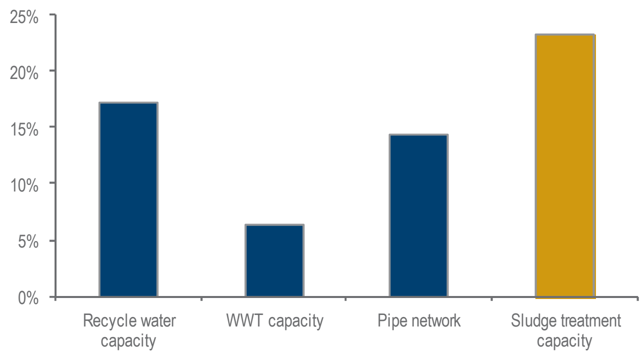
In 2010, the sludge-treatment rate in China was only 25%, but the China Environmental Bureau targets to spend CNY34.7bn to raise the treatment ratio to 70% (an additional 25.9mtpd of wet sludge, or additional 5.18mtpd of dry sludge) by 2015, which implies a high 23% 2010-15E CAGR for the sludge treatment market in China, higher than that for other infrastructure at 6-17%.

■ China: 12th FYP for sewage and sludge treatment

	Unit		11th FYP 2006-10	12th FYP 2011-15	Average annual growth rate 12th FYP over 11th FYP
Sewage discharge volume	btpa		38.0	50.0	5.6%
Sewage daily treatment capacity	mtpd		124.8	208.1	10.8%
Sewage treatment rate		Cities	77.5%	85.0%	7.5ppt
		- 36 key cities	NA	100.0%	NA
		- Prefecture-level cities	NA	85.0%	NA
		- County-level cities	NA	70.0%	NA
		- Counties	60.1%	70.0%	9.9ppt
Recycle water daily treatment capacity	mtpd		12.1	38.9	26.3%
Recycle water utilisation rate			<10%	15%	>5ppt
Pipe network	m km		1.66	3.25	14.4%
Sludge volume	mtpa		28.5	37.5	5.6%
New sludge treatment capacity	mtpa	(80% water content)	NA	25.9	
New dry sludge treatment capacity	mtpa		NA	5.2	
Sludge treatment rate		**Cities**	**<25%**	**70.0%**	**>45ppt**
		- 36 key cities	**NA**	**80.0%**	**NA**
		- County-level cities	**NA**	**30.0%**	**NA**
		- Counties	**NA**	**30.0%**	**NA**

Source: 12th FYP on WWT by the State Council

■ China: capacity growth of major wastewater projects



	Unit	11th FYP 2006-10	12th FYP 2011-15	Average annual growth rate 12th FYP over 11th FYP
Recycle water capacity	ktpd	12,100	26,760	17.2%
WWT capacity	mtpd	125	170	6.4%
Pipe network	km	166,174	325,299	14.4%
Sludge treatment capacity	ktpd	2,790	7,970	23.4%

Source: 12th FYP on WWT by the State Council

Similar to the centralised WWT model adopted in industrial parks, CTE collects sludge from third parties, such as municipal WWT plants, and offers a one-stop sludge treatment service. Based on its existing Yonghe Haitao, Heyuan and Qingyuan Lvyou facilities, and assuming an additional 400tpd to be commissioned in 2014-15E, we estimate CTE would only account for a 30% share of the sludge treatment market in Guangdong by 2018E, under a full utilization scenario of this sludge treatment capacity. However, CTE could expand into other provinces if its existing businesses proved a success in the near future.

CTE: sludge treatment market share in Guangdong

		2013E	2014E	2015E	2016E	2017E	2018E
Daily sludge treated (tpd)		100	450	800	1,000	1,200	1,400
Equivalent to waste-water volume (ktpd)		143	643	1,143	1,429	1,714	2,000
Equivalent to waste-water volume (mtpa)	**aa**	**52**	**235**	**417**	**521**	**626**	**730**
Industrial wastewater treated in Guangdong (m tonnes)	ab	1,885	1,904	1,923	1,942	1,961	1,981
Ratio of municipal wastewater to industrial wastewater		120%	120%	120%	120%	120%	120%
Municipal wastewater treated in Guangdong (m tonnes)	ac	2,262	2,284	2,307	2,330	2,353	2,377
Total wastewater treated in Guangdong (m tonnes)	**ad = ab + ac**	**4,146**	**4,188**	**4,230**	**4,272**	**4,315**	**4,358**
CTE's market share of sludge treatment market in Guangdong	ae = aa / ad	1.8%	10.5%	14.2%	17.9%	23.6%	29.9%

Source: Company, Daiwa forecasts

According to the 12th FYP, the average annual growth rate of sludge treatment in Guangdong will be 30%, higher than national average of 23.4%. This implies Guangdong would increase its national sludge treatment share from 7.5% in 2010 to 9.7% in 2015E.

China: sludge treatment capacity growth during the 12th FYP

	2010		2015				Average annual growth rate
	Existing (ktpd)	Proportion in China	New added (ktpd)	Proportion	Total (ktpd)	Proportion in China	12th FYP over 11th FYP
Beijing	260	9.3%	226	4.4%	486	6.1%	13.3%
Tianjin	70	2.5%	120	2.3%	190	2.4%	22.1%
Hebei	165	5.9%	347	6.7%	512	6.4%	25.4%
Shanxi	60	2.2%	108	2.1%	168	2.1%	22.9%
Inner Mongolia	27	1.0%	113	2.2%	140	1.8%	39.0%
Liaoning	130	4.7%	163	3.1%	293	3.7%	17.6%
Jilin	50	1.8%	84	1.6%	134	1.7%	21.8%
Heilongjiang	70	2.5%	144	2.8%	214	2.7%	25.0%
Shanghai	60	2.2%	140	2.7%	200	2.5%	27.2%
Jiangsu	375	13.4%	502	9.7%	877	11.0%	18.5%
Zhejiang	207	7.4%	389	7.5%	596	7.5%	23.6%
Anhui	94	3.4%	142	2.7%	236	3.0%	20.2%
Fujian	70	2.5%	144	2.8%	214	2.7%	25.0%
Jiangxi	39	1.4%	94	1.8%	133	1.7%	27.8%
Shandong	275	9.9%	232	4.5%	507	6.4%	13.0%
Henan	160	5.7%	261	5.0%	421	5.3%	21.3%
Hubei	60	2.2%	157	3.0%	217	2.7%	29.3%
Hunan	50	1.8%	249	4.8%	299	3.8%	43.0%
Guangdong	208	7.5%	566	10.9%	774	9.7%	30.1%
Guangxi	40	1.4%	83	1.6%	123	1.5%	25.2%
Hainan	20	0.7%	45	0.9%	65	0.8%	26.6%
Chongqing	30	1.1%	55	1.1%	85	1.1%	23.2%
Sichuan	80	2.9%	169	3.3%	249	3.1%	25.5%
Guizhou	20	0.7%	78	1.5%	98	1.2%	37.4%
Yunnan	20	0.7%	64	1.2%	84	1.1%	33.2%
Tibet	-	0.0%	9	0.2%	9	0.1%	NA
Shaanxi	100	3.6%	198	3.8%	298	3.7%	24.4%
Gansu	20	0.7%	113	2.2%	133	1.7%	46.1%
Qinghai	-	0.0%	23	0.4%	23	0.3%	NA
Ningxia	20	0.7%	37	0.7%	57	0.7%	23.3%
Xinjiang	10	0.4%	125	2.4%	135	1.7%	68.3%
National	**2,790**		**5,180**		**7,970**		**23.4%**

Source: 12th FYP on WWT by the State Council

Appendix 2: peer valuation comparison

■ Water utilities: valuation comparison

Company	Bloomberg code	Rating	Share price (local curr.)	Target price (local curr.)	Upside (%)	Market cap USDm	Daily trade vol. (3M) USDm	Free Float (%)	PER (x) 2014E	PER (x) 2015E	PER (x) 2016E	PBR (x) 2014E	PBR (x) 2015E	PBR (x) 2016E	ROE (%) 2014E	ROE (%) 2015E	ROE (%) 2016E	EPS CAGR (%) 13-16E
H-share listed China water utilities																		
CT Environmental*	1363 HK	Buy	5.7	9.0	58.7	1,011	15.0	36	20.3	15.9	11.4	5.5	4.3	3.3	30.1	30.3	32.6	35.4
Beijing Enterprises Water	371 HK	NR	5.1	n.a.	n.a.	5,650	16.7	39	26.4	21.1	17.6	3.0	2.8	2.5	12.0	13.5	14.7	27.2
China Everbright Int'l	257 HK	NR	10.5	n.a.	n.a.	6,073	19.0	60	26.5	20.8	17.6	3.1	2.8	2.5	12.4	14.2	15.2	23.2
Guangdong Investment	270 HK	NR	9.1	n.a.	n.a.	7,285	9.2	41	14.8	14.0	12.6	1.9	1.8	1.6	13.1	12.7	13.2	10.7
Sound Global	967 HK	NR	7.3	n.a.	n.a.	1,372	21.0	37	14.9	11.8	9.3	2.1	1.8	1.5	15.9	16.4	17.0	25.5
China Water Affairs	855 HK	NR	2.8	n.a.	n.a.	500	1.1	48	11.5	10.6	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tianjin Capital	1065 HK	NR	4.8	n.a.	n.a.	1,605	3.1	89	18.3	16.0	13.3	1.3	1.2	1.1	n.a.	n.a.	n.a.	13.2
Dongjiang Environmental	895 HK	NR	25.4	n.a.	n.a.	1,369	0.9	94	28.3	18.8	14.0	3.0	2.6	2.2	11.2	14.4	17.1	28.8
Simple average						**3,108**	**10.7**		**20.1**	**16.1**	**13.7**	**2.8**	**2.5**	**2.1**	**15.8**	**16.9**	**18.3**	**23.4**
Weighted average									**21.4**	**17.5**	**14.6**	**2.6**	**2.3**	**2.1**	**12.3**	**13.2**	**14.1**	**20.3**
A-share listed China water utilities																		
Chongqin Water	601158 CH	NR	5.0	n.a.	n.a.	3,890	5.4	11	11.5	10.9	n.a.	1.8	1.7	n.a.	15.0	14.4	n.a.	n.a.
Tianjin Capital	600874 CH	NR	8.0	n.a.	n.a.	1,605	8.0	31	44.2	44.2	39.8	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0
Beijing Capital	600008 CH	NR	6.2	n.a.	n.a.	2,194	9.3	39	20.3	16.0	n.a.	2.1	2.0	n.a.	10.4	11.6	n.a.	n.a.
Beijing Origin	300070 CH	NR	34.0	n.a.	n.a.	4,885	32.0	43	25.0	18.3	13.9	5.0	3.9	3.1	21.2	23.0	23.0	37.0
Shanghai Chengtou	600649 CH	NR	6.6	n.a.	n.a.	3,167	11.5	42	10.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Simple average						**3,148**	**13.2**		**22.2**	**22.4**	**26.9**	**2.9**	**2.5**	**3.1**	**15.5**	**16.3**	**23.0**	**18.5**
Weighted average									**20.0**	**15.1**	**8.4**	**2.3**	**1.9**	**1.0**	**11.7**	**12.3**	**7.1**	**11.5**
Regional water utilities																		
Hyflux	HYF SP	NR	1.2	n.a.	n.a.	786	0.6	67	42.3	26.3	19.8	1.4	1.3	1.7	5.3	5.3	n.a.	0.6
Kurita Water Industries	6370 JP	Neutral	2303.0	2,000	27.9	2,696	9.4	93	23.5	21.5	20.9	1.2	1.2	1.1	5.3	5.8	5.8	11.9
Manila Water	MWC PM	NR	25.5	n.a.	n.a.	1,171	1.5	58	9.6	9.4	9.2	1.6	1.4	1.2	17.0	15.3	14.2	3.5
Simple average						**1,551**	**3.9**		**25.2**	**19.1**	**16.6**	**1.4**	**1.3**	**1.4**	**9.2**	**8.8**	**10.0**	**5.3**
Weighted average									**23.2**	**19.3**	**17.7**	**1.3**	**1.3**	**1.3**	**8.2**	**8.1**	**6.9**	**7.9**

*Source: *Daiwa forecasts, Bloomberg consensus. Share price as of 12 June 2014*

■ Water utilities: valuation comparison

Company name	Bloomberg code	Rating	EV/EBITDA (x) 2014E	EV/EBITDA (x) 2015E	EV/EBITDA (x) 2016E	Net debt-to-equity (%) 2014E	Net debt-to-equity (%) 2015E	Net debt-to-equity (%) 2016E	EBITDA margin (%) 2014E	EBITDA margin (%) 2015E	EBITDA margin (%) 2016E	Net margin (%) 2014E	Net margin (%) 2015E	Net margin (%) 2016E
H-share listed China water utilities														
CT Environmental*	1363 HK	Buy	17.7	13.3	9.9	105%	79%	57%	56%	55%	55%	41%	39%	40%
Beijing Enterprises Water	371 HK	NR	26.5	19.1	15.2	137%	163%	185%	32%	34%	35%	18%	19%	20%
China Everbright Int'l	257 HK	NR	23.4	18.7	15.3	35%	56%	72%	38%	36%	41%	23%	22%	25%
Guangdong Investment	270 HK	NR	7.9	7.6	7.2	-15%	-22%	-31%	69%	66%	64%	43%	40%	39%
Sound Global	967 HK	NR	9.6	8.5	7.6	-6%	-17%	-16%	26%	26%	28%	13%	14%	16%
China Water Affairs	855 HK	NR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Tianjin Capital	1065 HK	NR	14.4	13.6	13.6	96%	94%	96%	56%	56%	53%	17%	18%	16%
Dongjiang Environmental	895 HK	NR	22.0	17.0	12.7	-25%	-21%	-23%	20%	20%	22%	14%	14%	16%
Simple average			**17.4**	**14.0**	**11.7**	**47%**	**47%**	**49%**	**42%**	**42%**	**42%**	**24%**	**24%**	**25%**
Weighted average			**17.5**	**14.0**	**11.8**	**44%**	**52%**	**58%**	**45%**	**44%**	**45%**	**26%**	**26%**	**26%**
A-share listed China water utilities														
Chongqin Water	601158 CH	NR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	49%	48%	47%
Tianjin Capital	600874 CH	NR	14.8	14.2	15.7	n.a.	n.a.	n.a.	52%	51%	46%	16%	16%	13%
Beijing Capital	600008 CH	NR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	15%	15%	n.a.
Beijing Origin	300070 CH	NR	40.7	28.5	20.7	-55%	-67%	-83%	30%	30%	29%	29%	28%	27%
Shanghai Chengtou	600649 CH	NR	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Simple average			**27.7**	**21.4**	**18.2**	**-55%**	**-67%**	**-83%**	**41%**	**40%**	**38%**	**27%**	**27%**	**29%**
Weighted average			**14.0**	**10.2**	**8.0**	**-17%**	**-20%**	**-25%**	**14%**	**14%**	**14%**	**25%**	**24%**	**21%**
Regional water utilities														
Hyflux	HYF SP	NR	13.6	14.5	12.6	98%	109%	121%	25%	22%	19%	8%	8%	7%
Kurita Water Industries	6370 JP	Neutral	6.2	5.6	5.3	n.a.	n.a.	n.a.	17%	18%	18%	6%	7%	7%
Manila Water	MWC PM	NR	6.4	6.0	5.3	77%	88%	115%	71%	71%	73%	34%	32%	30%
Simple average			**8.7**	**8.7**	**7.7**	**88%**	**98%**	**118%**	**38%**	**37%**	**37%**	**16%**	**15%**	**15%**
Weighted average			**7.8**	**7.6**	**7.0**	**22%**	**25%**	**27%**	**19%**	**19%**	**18%**	**6%**	**7%**	**7%**

*Source: Bloomberg, *Daiwa forecasts*

Note: Share prices as of 12 June 2014

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