EDISON

China Water Affairs Group

Market to enable further growth

Annual business review

Utilities

We believe China Water Affairs Group's (CWA) strong financial position (net debt/equity FY18 c 70%) and impressive track record of generating returns for shareholders should enable it to exploit the favourable market conditions and allow for a continuation of its strong growth profile. Following the recent acquisition of 29.5% of Kangda International, CWA's market valuation appears undemanding compared to its peers despite its track record of delivering attractive returns for its shareholders.

Year end	Revenue (HK$m)	PBT* (HK$m)	EPS* (c)	DPS (c)	P/E (x)	Yield (%)
03/17	5,708	1,963	55.4	20.0	14.7	2.5
03/18	7,580	2,462	71.8	23.0	11.4	2.8
03/19e	8,693	2,873	83.2	30.0	9.8	3.7
03/20e	10,107	3,504	101.0	35.0	8.1	4.3

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments.

Strong track record and outlook

CWA's record of generating growth for its shareholders is impressive, with a CAGR in EPS and DPS of 30% and 36%, respectively in the period 2013–18. H119 results were broadly in line with our projections for FY19 and we expect CWA to achieve further strong growth in the period 2018–21 (CAGR for EPS of c 17% and DPS c 20%) through a mixture of volume increases, tariff increases and acquisitions. CWA plans, in due course, to separately list the Environmental Protection business, which could also create value for shareholders in the medium term.

Acquisition of Kangda International

The recent acquisition of 29.5% Kangda International Environmental Group (KIEG) for HK$1.2bn underlines CWA's desire to expand in its core Chinese water market and crucially will help strengthen its position in the expanding waste water sector. The business was acquired at a c 15% discount to book value and, despite a c 60% premium to the market price prior to the announcement, a relatively modest P/E of 13.5x (historic earnings). As well as strategic benefits generated by the acquisition, CWA believes it can, over time, enhance earnings and reduce KIEG's high level of indebtedness. The short-term financial impact of the acquisition (from FY20) is likely to be modest, with a contribution equivalent to c 3% of PBT.

Valuation: Rating discount to peers

Applying peer group average multiples would indicate a valuation of c HK$11.4 per share (up HK$0.9 per share since we last published in December 2018), for CWA, c HK$3 per share above the current share price. At HK$8.2 per share, CWA trades on a PEG ratio of only 0.6x versus 1.6x for its peers. Applying an undemanding PEG ratio of 1.0x would indicate a valuation of HK$13.0 per share. Our DCF points to a valuation of HK$11.9 per share.

16 April 2019

Price	**HK$8.15**
Market cap	**HK$13,113m**

Net debt (HK$m) at 31 March 2018	7,801
Shares in issue	1,608.9m
Free float	48%
Code	855
Primary exchange	HK
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	(6.5)	(2.3)	2.4
Rel (local)	(9.0)	(12.0)	5.8
52-week high/low		HK$10.52	HK$6.98

Business description

China Water Affairs is a pioneer in the privatisation of water supply assets in China. The company seeks to create growth via volume/price increases and acquisitions. It is a constituent of the FTSA Environmental Opportunities Asia Pacific Index.

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FY19 results	June 2019

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Edison profile page

China Water Affairs is a research client of Edison Investment Research Limited

Investment summary

Company description: Water utility with Chinese focus

CWA is a one-stop provider of water services, with operations encompassing the supply of raw and tap water, sewage treatment, network construction and maintenance and water resource management. Founded in 2003 and headquartered in Hong Kong, CWA supplies water to over 60 cities in the People's Republic of China (PRC) (under the transfer–own–operate model) and runs sewage treatment projects (under 25-year franchise agreements – build, operate, transfer (BOT)) spread across a number of provinces and regions. CWA also operates a number of other smaller businesses, including property development. The property business develops and sells land banks accumulated during the past 15 years. Proceeds are used for the development of the core water business. CWA seeks to grow its business both organically, via expansion of the network and tariff increases, and through the acquisition of existing assets.

Valuation: Significant discount to its peers

Our analysis of peer group multiples provides an average valuation of HK$11.4/share for CWA. Our DCF valuation gives a slightly higher valuation of HK$11.9/share. At the current share price of c HK$8.2 CWA trades on a PEG multiple of just 0.6x which compares to a peer group average of 1.6x. At HK$11.5/share the PEG multiple would increase to 0.9x. A share price of HK$13/share would be required to give a PEG ratio of 1.0x.

Financials: Strong growth predicted

- Revenue growth: we forecast revenue growth of 14.7% in FY19, 16.3% in FY20 and 14.4% in FY21. Our revenue projections compare to a CAGR of 27% in revenue for the period 2013–18.
- Balance sheet: we expect net debt to equity to remain in the 65–70% range as CWA pursues a more aggressive acquisition policy.
- EPS and DPS: our forecasts show CAGR in EPS and DPS for the period FY18–21 of 17.4% and 20.3% respectively. Our DPS forecasts leave dividend cover at c 2.9x in FY21.

Sensitivities: Political, Regulatory and Acquisitive

- **Acquisition:**, CWA's growth has been, in part, achieved through acquisitions. We expect this acquisitive trend to continue, influencing profitability.
- **Political:** the Chinese government's support for the privatisation of water assets has facilitated CWA's growth in recent years. We expect this governmental support to continue but a reversal of this policy would harm CWA's growth prospects.
- **Local government:** as CWA operates most of its projects jointly with local governments a breakdown in relations with the local authority could jeopardise returns.
- **Regulatory issues:** reductions in allowed returns could pose a threat to profitability. Currently CWA is allowed to earn between 8% and 12%.

Exhibit 1: Changes to our CWA forecasts

	PBT (HK$m)			EPS (HK cents)			DPS (HK cents)		
	Old	New	% chg.	Old	New	% chg.	Old	New	% chg.
2019e	2,873	2,873	0.0	83.2	83.2	0.0	30.0	30.0	0.0
2020e	3,415	3,504	2.6	98.4	101.0	2.6	35.0	35.0	0.0

Source: Edison Investment Research

Established track record and growth opportunities

The Chinese water and waste water market require continuing significant investment to improve quality and resource availability. With a successful track record of delivering growth for shareholders, a strong financial position and wide ranging operational and geographical experience, we believe CWA is well placed to capitalise on this investment opportunity and expand the scale of its business.

Demonstrable track record of growth

Underpinned by favourable trends in the Chinese water market, CWA has delivered rapid growth for shareholders, with a CAGR in EPS of 30% and DPS 36% (2013–18). Exhibit 2 shows five-year CAGR for some of CWA's principal benchmarks.

Exhibit 2: CAGR achieved in key benchmarks 2013–18

		2013	2014	2015	2016	2017	2018	CAGR 2013-18
Revenue	HK$m	2,251	2,747	3,622	4,740	5,708	7,580	27%
EPS	HK cents	19.9	20.5	25.2	40.3	56.7	72.6	30%
DPS	HK cents	5.0	5.0	7.0	8.0	20.0	23.0	36%
Cover	(x)	4.0	4.1	3.6	5.0	2.8	3.2	-4%

Source: China Water Affairs, Edison Investment Research

Continuing focus on the Chinese water market

CWA's strategy is to continue to pursue growth opportunities in its core business which is focused on the Chinese water market. CWA is vertically integrated across the value chain and this includes City Water Supply, Connection, Water Supply Construction and Environmental Protection. Currently, CWA supplies c 22 million people in 60 cities and 13 provinces and three municipal cities of China. CWA has c 4.4 million users with a total daily supply capacity of 14.6m m^3. The importance of the core water business can be seen from the significant contribution it makes to the overall mix of revenue and operating profit (Exhibit 3).

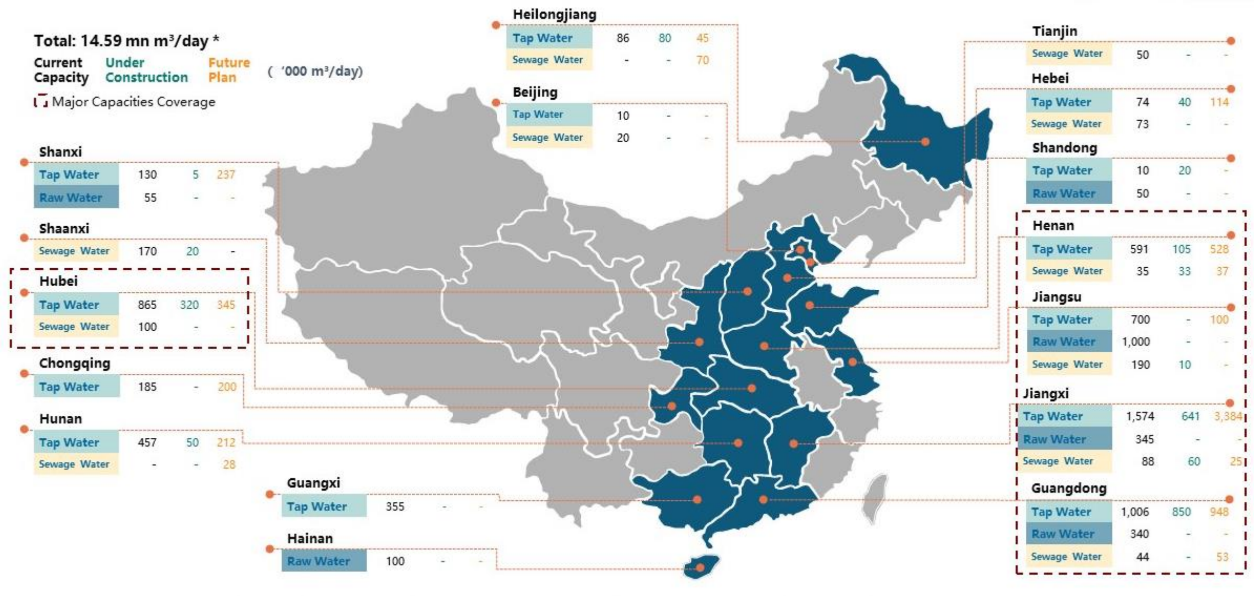
Growth will be achieved by expanding existing capacity and volumes, from efficiency improvements and by the pursuit of tariff increases and acquisitions. CWA has spoken of increasing the pace of acquisitions and recently announced the acquisition of Kangda International (we analyse this acquisition in more detail later in this report). Growth will be funded by a combination of balance sheet resources (FY18 gearing 70%), CWA's existing multi-channel funding programme and disposals from the non-core property business. CWA will continue to pursue opportunities in both its core water supply business and the rapidly growing Environmental Protection business (Kangda International's principal business is waste water). In due course CWA aims to separately list this business. CWA will also seek to grow its Direct Drinking Water business and expand its provision of value-added services such as metering and pipeline maintenance.

Exhibit 3: CWA segmental revenues and profits, FY17 and FY18

	2017		2018	
	Revenue	Profit	Revenue	Profit
City Water Supply	4,960,825	1,846,595	6,204,059	2,401,861
Sewage Treatment	552,940	207,760	813,636	270,955
Property Development	22,033	315,991	478,659	88,859
Other	172,097	-27,076	83,822	-7,780
Total	**5,707,895**	**2,343,270**	**7,580,176**	**2,753,895**

Source: China Water Affairs. Note: Total segmental profits do not correspond to operating profits as they do not include unallocated corporate income and expense, options expenses, gains on disposals and fair value gains taken through the P&L.

Exhibit 4: CWA's geographical coverage, November 2018



* Current capacity around 8.70mn m³/day, capacity-under-construction around 2.19mn m³/day, and future expansion plan around 3.70mn m³/day as at 21 November, 2018

Source: China Water Affairs

We will examine each business in more detail in later sections of this report but first we outline the market dynamics and the significant opportunities available in the Chinese water market.

Chinese water and waste water market

The UN classifies China as one of the 13 countries in the world with a water shortage and figures produced by the Chinese National Bureau of Statistics calculated that China's per capita freshwater resources of 2,355m^3 (in 2016) were approximately one third of the global average. Increasing demand from rapid economic growth and urbanisation is only likely to make matters worse in the absence of policy action. The 2030 Water Resource Group projects that in a 'business as usual' scenario, the supply of water will be 199bn m^3 short by 2030.

The scarcity of water resources does not however tell the whole story. China also suffers from significant regional disparity of resources, with relatively abundant supplies in the south, but severe shortages in northern and some eastern areas. According to CWA, more than 400 of 660 Chinese cities suffer from water shortage. The situation is compounded by the low cost of water. Tariffs are currently set at a low level compared to other major industrialised nations with only India's tariffs below those of China. The average cost is c 1% of disposable income compared to a global average of between 3% and 5%. The relative cheapness of water does not encourage efficiency in the use of what is, in China, a scarce resource and current consumption is c 5.5x the global average when calculated on a unit/GDP.

As a result of the discharge of untreated or under-treated waste water back in to the water course, the quality of much of the water is also poor. In part, this can be attributed to the low penetration of urban and rural wastewater treatment plants in China. According to the National Development and Reform Commission (NDRC), in 2015 over 30% of China's seven major river systems fell below the expected standard (that is below grade III – ie non-drinkable). As a result of the poor quality of drinking water China is currently a significant consumer of bottled water.

Government initiatives provide framework for growth

The Chinese government has brought forward a number of policy initiatives and interventions to rectify the availability and quality issues.

The regional imbalances are to be addressed by the South-to-North Water Diversion Project, which, when operational, will be capable of transferring up to 44.8bn m^3 of water annually from the south to the north via three routes. The project is scheduled for completion by 2050.

The PRC's 13th Five Year Plan (2016–2020) for the Construction of Urban Wastewater Treatment and Recycling Facilities envisages total government expenditure of RMB560bn, 30% higher than in the 12th Five Year Plan. Government expenditure is only expected to account for a small proportion of overall expenditure; local government and private funding sources will contribute the rest. Much of the expenditure will be focused on the installation of new sewage pipelines and new sewage treatment plants, but the intention is also to upgrade existing plants and pipes. Under the Five Year Plan, urban sewage treatment capacity is targeted to reach 201m m^3/day, an increase of c 40m m^3/day.

The Water Pollution Prevention and Control Action Plan of 2015, known as the 'Water 10 Plan', established 10 general water resource and quality measures (over 200 specific actions). Among the most important objectives are: to reduce the pollution of major rivers so that by 2020 70% of water in each of the seven key rivers will reach at least grade III; 93% of urban drinking water to be above grade III; the elimination of grade V+ water in the Yangtze and Pearl river deltas. The Plan establishes stricter environmental supervision and imposes more stringent control on polluters. It also targets water usage, with an ambition of ensuring consumption remains below 670bn m^3.

CWA's business model and operations

CWA is vertically integrated across the value chain, from raw water through to city water distribution and sewage treatment (including the development of water resources, pipelines, water treatment and sewage treatment plants and tariff collection from end users). Revenue is volume related with a minimum volume guarantee in waste water but not in tap water. Each project has a separate price adjustment mechanism.

In the water market CWA has been a pioneer of the PPP Transfer Own Operate (TOO) business model in China. The model involves CWA co-owning projects with local governments via a project company and revenue is collected directly from the end-user, providing a stable recurring cash flow (CWA customarily owns c 60% of the project company, with the local authority taking c 40%). The water tariff is regulated and based on a ROE of between 8–12% (post-tax) allowing for a gross profit margin of between 30–50% (including the connection fee). Sewage and raw water allows for the same level of returns and a slightly higher gross profit margin of between 35–60%. In the sewage business, revenues are collected from the local authority and not directly from the consumer.

The project company is responsible for financing, constructing, operating and managing the project. The project company owns and operates independently from CWA or the local authority. In the water business, the concessions usually last between 30 and 50 years – at the end of the concession period the company can renew the concession (it has priority) or sell back the asset to the government at market value. In sewage treatment, assets are returned to the government at the end of the concession period (25 years). In addition, the local government will often provide grants, subsidies or low interest loans to the project company. CWA's operations also provide the opportunity for add on services such as pipeline maintenance and water meter installation.

The majority of CWA's operations remain located in the east and south of China as can be seen from Exhibit 4. The operations are spread over 13 provinces and CWA serves 60 cities (mostly small to medium-sized (tier III or IV) with a population of 22m (4.4m connected users). Total current operational capacity now stands at 8.70m m^3/day with raw (21%) and tap (71%) water accounting for the majority of the capacity (7.9m m^3/day). Sewage accounts for the remaining capacity (9%).

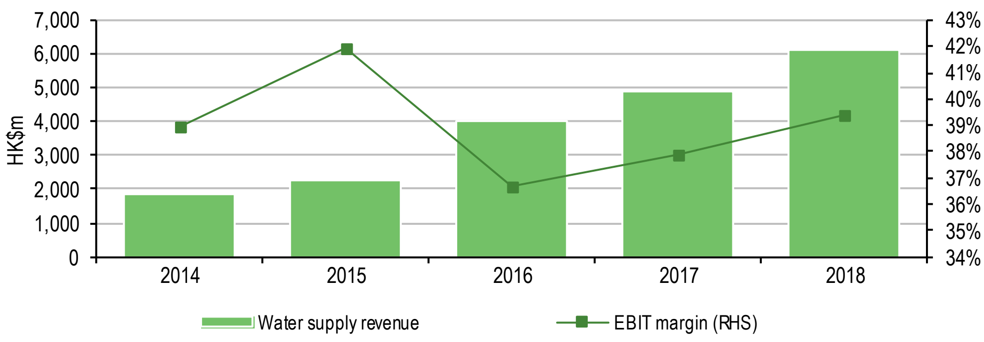
CWA's competitive advantage lies in its strong established track record, its experience at project execution, negotiation of exclusive concession rights and its low-cost financing.

CWA's water business

As we have shown, over 90% of CWA's capacity relates to the provision of tap water and raw water and with a regulated tariff based on a ROE of between 8–12% (post-tax) allowing for a theoretical gross profit margin of 30–50% (CWA's 15-18 average 39%). The City Water business includes the urban water plants distribution pipes end user tariff and collection and the provision of high-pressure pumps. The raw water business involves the development of water resources and pipelines.

This business, which is stable and relatively immune from economic cycles, has operated as CWA's chief engine of growth. The performance of the water business over the last five years can be seen in Exhibit 5. Growth has been secured via acquisitions, volume and tariff increases and cost reductions.

Exhibit 5: CWA growth in revenue and operating margins 2014–18



Source: China Water Affairs

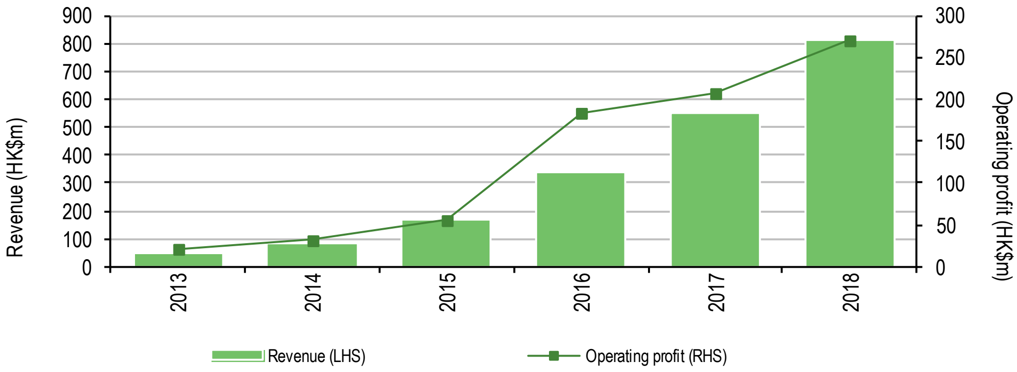
Focus on CWA's environmental protection operations

The Environmental Protection business includes, amongst other areas, sewage treatment drainage operation and construction services. As we have already noted, China has long discharged untreated or under-treated water into the water course and this has had a serious effect on water quality. Historically, China was under-provided with sewage treatment works. As late as 2015, only c 10% of Chinese villages had access to wastewater treatment facilities. This lack of municipal sewage works is significant as approximately two thirds of waste water discharged in China arises from municipal sources. The Water 10 Plan, brought forward in 2015, was designed to tackle these issues. Although Chinese law requires water discharged by either households or industry to be treated before being returned to the water course, often this does not occur as penalties or fines have not been levied at sufficiently high rates to make the installation of sewage treatment plants financially attractive. The absence of stringent financial penalties for pollution has also led to the under-utilisation of many existing wastewater treatment plant, forcing them to operate at a loss.

Upgrading sewage treatment facilities is one of the key points in the Water 10 Plan and, as we have seen, by the end of 2020 the urban water sewage treatment capacity is targeted to reach 201m m^3/day with a total market opportunity RMB60–120bn. CWA only started its operations in the sewage sector in 2012. Since this date the scale of the business has grown more rapidly than the bigger water business and now operates in 11 regions with an operational capacity of c 800m m^3/day. Since 2013 CWA has achieved a CAGR of 74% in revenue and 66% in operating profits (2013–18). Margins have fluctuated (average 40% 2013–18), but in FY18 they were 37%.

CWA's experience in the provision of water services, its vertically integrated business model and its contact with municipal governments place it in a strong position to exploit the opportunities for growth available in the wastewater treatment market. Ultimately, probably in 2020, CWA will look to separately list its environmental protection business.

Exhibit 6: Sewage business evolution of revenues and operating profits



Source: China Water Affairs

Acquisition of Kangda International Environmental Group

On 3 April, after market close, CWA announced that it had entered into an acquisition agreement with Kangda Holdings and Mr Zhao (sole owner of Kangda Holdings) to acquire 29.5% of Kangda International Environmental Group (Stock Code: 06136) for HK$1.2bn in cash (c US$150m), implicitly valuing the entire business at c HK$4.1bn (US$150m) (CWA's current market cap is HK$13.1bn). Post the deal CWA will become the largest single shareholder of Kangda International (Kangda Holdings' share will fall to 26.76%) and will take control of the board (four executive appointments). The company will be accounted for by CWA as an equity investment.

The acquisition of Kangda International is in line with CWA's stated strategy of growth, in part at least, through acquisition. Kangda will add over 107 projects to CWA's current project list and expand capacity (water and waste water) by 4.3m tonnes/day (CWA's current capacity is 14.6m tonnes/day). The majority of Kangda's capacity is focused on wastewater treatment services (c 4m tonnes/day) an area in which CWA has been expanding rapidly in recent years. Waste water businesses enjoy the same level of allowed return as tap water (post tax 8–12%) but assets return to the government at the end of the 25-year contracts. Waste water projects collect revenues from the local authority rather than directly from customers, as in the tap water business. The collection of revenues from the local municipality can slow the receipt of cash but unlike water projects, waste water projects benefit from an immediate assumed utilisation rate of 60% for the purpose of calculating revenues. Water projects are based on the slower actual build-up of utilisation rates.

CWA has stated that it believes that the acquisition will help expand its geographical reach within China and in areas where there is geographical overlap, help develop water supply-drainage integration and urban-rural water supply integration. As well as the strategic benefits, CWA believes it should be capable of delivering operational efficiency improvements, although it has not quantified the scale of the potential benefits. In particular, CWA has indicated that it will seek to introduce operational efficiencies, reduce KIEG's gearing (in FY18 KIEG was 187% versus CWA 70%) interest and tax charge (KIEG 32% versus CWA 28%).

The acquisition price of HK$2/share represents a significant discount (c 15%) to KIEG's last disclosed book value of c HK$2.35/share (CWA's current share price stands at approximately 1.7x book value). The premium of c 50% to the market closing price immediately prior to the announcement, in our view, in part reflects the weakness of KIEG's share price in recent years due to concerns regarding the high level of gearing carried by the business and the limited liquidity in the shares. The acquisition price equates to approximately 13.1x trailing 12-month earnings (CWA's peer group stands at c 18–19x, while CWA is trading at approximately 11.4x historic earnings).

While, as can be seen from Exhibit 7, KIEG has been consistently profitable, it carries a significant level of debt which has been rising over the last five years due to successive periods of negative operating cash flow, depressed by significant ongoing negative working capital movements relating to local government waste water projects. As a consequence of the rising indebtedness, the interest charge has also been increasing (up 3.7x over the period), reducing returns on assets and equity (CWA FY18 return on assets 6.5%, return on equity 17.8%).The key to improving returns for Kangda, and enhancing the value of CWA's investment, will be to improve working capital movements and engineer a reduction in Kangda's debt. As part of its strategy for improving the financial performance of Kangda, CWA plans to limit additional exposure to local government waste water projects (Kangda currently has six) with their negative cash flow characteristics. We also understand that the majority of capex relating to the upgrade to existing waste water plants is complete, which should lead to a reduction in ongoing capex (Kangda five-year average c RMB573m). Of course, as an associate investment, KIEG's net debt, of c RMB8bn, will not be consolidated into CWA's balance sheet.

Exhibit 7: Kangda International – evolution of key operating metrics

		2013	2014	2015	2016	2017	2018	CAGR 13–18
Revenue	RMBm	1,339.7	1,812.8	1,836.5	1,926.5	2,523.9	3,021.3	17.7%
Operating profit	RMBm	445.4	595.1	678.7	680.1	845.4	962.2	16.7%
Operating margin	%	33.2%	32.8%	37.0%	35.3%	33.5%	31.8%	N/A
Net income	RMBm	231.6	294.8	324.9	334.6	414.4	303.4	5.5%
Net margin	%	17.3%	16.3%	17.7%	17.4%	16.4%	10.0%	N/A
Return on assets	%	5.4%	4.8%	3.9%	3.4%	3.2%	2.0%	N/A
Return on equity	%	18.9%	14.1%	10.8%	9.9%	11.0%	7.5%	N/A
Short-term debt	RMBm	-785.0	-1,746.0	-1,579.0	-2,660.0	-3,906.0	-3,683.0	36.2%
Long-term debt	RMBm	-1,802.0	-1,811.0	-3,197.0	-3,108.0	-4,538.0	-5,553.0	25.2%
Total debt	RMBm	-2,587.0	-3,557.0	-4,776.0	-5,768.0	-8,444.0	-9,236.0	29.0%
Cash +ST Inv.	RMBm	276.0	747.0	1,292.0	834.0	1,690.0	976.0	28.7%
Net debt	RMBm	-2,311.0	-2,810.0	-3,484.0	-4,934.0	-6,754.0	-8,260.0	29.0%
Equity	RMBm	1,340.0	2,843.0	3,200.0	3,547.0	4,003.0	4,115.0	25.2%
Operating cash flow	RMBm	-205.8	-634.4	-30.0	-199.6	-812.7	N/A	N/A
Debt/equity	%	-193%	-125%	-149%	-163%	-211%	-224%	N/A
Net debt/equity	%	-172%	-99%	-109%	-139%	-169%	-201%	N/A

Source: Refinitiv

We have updated our forecasts to reflect the acquisition cost of KIEG in FY20 and increased our associate contribution line from that date. To provide some context, the acquisition, at HK$1.2bn, is the most significant so far made by CWA but compares to our annual forecasts for capex of c HK$2.1bn. In FY18 (year end 31 December) KIEG reported net profit for the year of c RMB309.9m, equivalent to c HK$362.6m (using an RMB/HK$ exchange rate of 1.17), or c HK$107m based on CWA's holding of 29.5%. For the purposes of forecasting we have used market consensus projections for KIEG. The financing cost of the acquisition is based on our assumed rate for CWA as a whole of 7.7%. In the short term we expect the acquisition will have only a modest impact on profitability, but will act as a strategically important platform for CWA's expansion in the waste water and environmental protection business.

Direct drinking water

Another area in which CWA is looking to expand the scope of its operations is in the Direct Drinking Water business. Conventional tap water is not considered suitable for drinking by many due to contamination from aging pipelines (amongst other factors) and as a result many Chinese buy bottled water (China is the largest consumer of bottled water in the world and consumption has been growing rapidly as a result of consumer concerns over the quality of tap water). CWA's business model is to build an advanced water treatment facility in close proximity to the end-user taking tap water and treating to a sufficiently high standard to permit consumption. The water will then be supplied to the end-user, such as hospitals or business districts, via a dedicated pipeline. The provision of direct drinking water is unregulated and according to CWA, is likely to be a much higher margin business than the provision of conventional tap water (to some extent the main competition is bottled water). At present this business remains in its infancy and is unlikely to have a significant effect on the P&L for at least two to three years.

In accordance with its ambitions to develop the drinking water business, CWA recently established a joint venture company in the PRC with Toray, Orix China and Silver Dragon. The JV will be engaged in research and development, production and the sale of equipment related to direct drinking water, amongst other services.

Other growth areas

Beyond the pursuit of growth in Environmental Protection Services and direct drinking water, CWA has identified additional areas of growth:

- **Pipeline maintenance:** although the pipeline remains part of CWA's asset base in the tap water business, some local governments are in the process of sub-contracting the operation and maintenance of their existing drainage pipeline. CWA has won an operation and maintenance contract in Pingshan (a district in Shenzhen) and is seeking to replicate this model in other cities.
- **Metering direct drinking water:** in many areas in China, the provision of water to individual consumers is on an unmetered basis and usage is charged on the basis of consumption of an entire area or block. However, government initiatives to promote water conservation encourage customers to fit meters and CWA has established a meter installation business in an attempt to capitalise on this opportunity.

Financing and disposals

CWA retains a strong balance sheet (FY18 gearing 70%) and possesses a number of funding channels including Bank of China (RMB1.7bn credit facility), Asian Development Bank (US$700m long-term loans), ANZ (US$500m long-term syndication loan) which should enable it to exploit the growth opportunities that we have identified in the market. In addition, the disposal of non-core assets is a key part of CWA's strategy as it helps to fund the acquisition/expansion of water assets. In FY18 CWA disposed of assets worth HK$833m.

Management

The Board of CWA consists of 12 directors, eight of whom are non-executive. Of the eight non-executive directors, four are considered independent. The four executive directors of the company, headed by Executive Chairman Mr Duan Chuan Laing, remained unchanged during the year and possess significant experience in the water industry.

Executive Chairman Mr Duan Chuan Liang: Mr Duan worked in the Ministry of Water Resources of the PRC for more than 10 years, before founding the Silver Dragon Group in the 1990s. Mr Duan has over 30 years' experience of the water industry and he has a bachelor's degree in water conservation and hydro power from North China College of Water Conservation and Hydro Power. Mr Duan joined CWA in 2003 and is also is the chairman and non-executive director of China City Infrastructure Group. Mr Duan retains 29% of the shares of CWA.

Executive Director Ms Ding Bin: Ms Ding Bin graduated from Zhengzhou University of Technology in finance and computer management and has over 10 years of experience in financial management and tax planning. Ms Ding Bin is a certified public accountant in the PRC and she joined CWA in 2007.

Executive Director Ms Liu Yu Jie: Ms Liu Yu Jie has been working in Hong Kong, Singapore and the PRC for over 20 years in total. She graduated from the University of International Business and Economics in Beijing and is also the executive director of New Universe Environmental Group. Ms Liu Yu Jie joined CWA in 2014.

Executive Director Mr Li Zhong: graduating from St Mary's University of Canada with a master's degree in business administration, Mr Li Zhong is a member of the Standing Committee of the Shenzhen Municipal Committee of the Chinese People's Political Consultative Conference, as well as being the director of Shenzhen Bus Group and the honorary chairman of the Hong Kong Volunteers Association. He has served in large state-owned enterprises and US-based corporations for over 20 years. Mr Li Zhong joined CWA in 2015.

Sensitivities

Financial sensitivities: reducing our margin assumptions by 1% for each year 2019–21 inclusive, would lower our EPS forecasts by 3% in FY19, 2.8% in FY20 and 3.0% in FY21.

Acquisition: as we have seen, CWA is an acquisitive company, so there is some risk that it might overpay for an asset. The scale of this risk however is diminished by the portfolio nature of CWA's asset base.

Political: the Chinese government has long been supportive of the privatisation of water assets policy that has allowed CWA to grow. A reversal of this policy, although unlikely in our view, could significantly reduce CWA's growth prospects. CWA is also beholden to the government for the various permits necessary to operate its business. Failure of the government to renew these permits would represent a significant negative outcome for CWA.

Local government: CWA operates its projects jointly with local government, which retains the right to terminate concessions. Local governments often offer support to CWA in the forms of grants, subsidies and low interest rate loans. A breakdown of relations with the local government could pose a threat to a specific project. Once again, the risk is mitigated by the portfolio mix of CWA's assets.

Regulation: CWA is allowed to earn returns of between 8% and 12%. Adjustments to tariffs and returns could reduce the profitability of CWA's water projects.

Valuation

Our approach to providing an indicative valuation for CWA remains unchanged and we continue to reference peer valuation multiples and a DCF. The peer group for our comparative valuation analysis also remains unaltered and includes a range of Chinese and international water companies. Once again, we have tabulated the P/E, EV/EBITDA, yield and P/B multiples for two forecast years to obtain sector averages (Exhibit 8). Applying the average peer group multiple would indicate a valuation for CWA of HK$11.4 share. We also believe that it is worth considering PEG multiples for a company like CWA that has grown rapidly in recent years. Our PEG analysis shows CWA is currently trading on a multiple of c 0.6x compared to peer group averages of c 1.6x. Applying a PEG ratio of 1.0x would yield an indicative HK$13 per share.

We have updated our DCF valuation. We now assume constant long-term capex of HK$2,500m, a base case long term EBIT growth of 15% (13–18 average 26.5%) a 2% terminal growth rate and we apply a discount rate of 8%. The higher assumed capex outweighs the impact of using a slightly higher EBIT growth projection (15% versus 14% previously) producing a base case valuation of HK$11.9/share. The sensitivity of the DCF to changes in the terminal growth projection discount rates are shown in Exhibit 9. In Exhibit 10 we show that reducing the assumption for long-term EBIT growth from 14% to 10% would reduce the valuation to HK$10.9/share. Conversely, a long-term EBIT growth rate of 20% would increase the valuation to HK$17.9/share.

Exhibit 8: CWA peer group valuation multiples

		Market cap	Price	P/E (x)			EV/EBITDA (x)		Yield (%)		P/B (x)		2-year	PEG
	Ticker	(local)	(local)	Hist	FY1	FY2	FY1	FY2	FY1	FY2	FY1	FY2	CAGR	ratio
Guangdong Investment	0270:HK	97,932	14.86	19.4	18.1	17.0	11.6	10.7	4.1	4.5	2.2	2.1	6.9%	2.8
Beijing Enterprises Water	0371:HK	48,052	4.81	10.2	8.9	7.8	11.1	9.8	4.1	4.8	1.5	1.4	14.6%	0.7
Ct Environmental Group	1363:HK	2,148	N/A	N/A	N/A	N/A	3.5	2.6	N/A	N/A	N/A	N/A	N/A	N/A
Tianjin Capital	1065:HK	12,182	2.91	8.3	7.5	N/A	11.5		2.7	N/A	0.8	N/A	N/A	N/A
Beijing Capital	600008.SS	24,845	4.37	30.2	31.1	26.2	15.5	13.8	1.8	2.0	1.6	1.6	7.2%	4.2
Beijing Originwater Tech	300070.SZ	31,033	9.85	22.9	12.4	10.3	9.5	7.8	0.7	0.7	1.4	1.2	49.2%	0.5
Chongqing Water Group	601158.SS	29,952	6.24	20.8	16.7	15.6	10.6	10.1	4.3	4.5	2.0	1.9	15.4%	1.4
Tus-Sound Enviro. Resources	000826.SZ	21,759	15.21	16.8	15.5	13.1	10.6	8.8	1.5	1.9	1.4	1.3	13.4%	1.2
Suez	SEVI.PA	7,568	12.22	26.0	19.5	18.2	6.6	6.5	5.3	5.3	1.2	1.2	19.8%	1.3
Veolia	VIE.PA	11,500	20.39	17.4	16.0	14.6	6.1	5.8	4.8	5.2	1.8	1.7	9.1%	1.9
United Utilities	UU.L	5,545	815.20	18.2	15.2	14.3	11.8	11.4	4.9	5.1	1.9	1.8	12.9%	1.4
Average				**19.0**	**16.1**	**15.2**	**9.8**	**8.7**	**3.4**	**3.8**	**1.6**	**1.6**	**16.5%**	**1.6**

Source: Edison Investment Research, Refinitiv. Note: Priced at 4 April 2019.

Exhibit 9: CWA DCF valuation sensitivity to discount rates and terminal growth rates

	0%	1%	2%
7.00%	10.5	12.6	15.6
8.00%	8.4	9.9	11.9
9.00%	6.8	7.9	9.4
10.00%	5.5	6.4	7.5
11.00%	4.5	5.2	6.0
12.00%	3.6	4.2	4.8
13.00%	2.9	3.3	3.9

Source: Edison Investment Research

Exhibit 10: CWA DCF valuation sensitivity to changes in long-term margin assumptions

Margin scenario	EBIT growth 2021–24e (%)	Valuation HK$/share
1	10%	8.6
2	12%	9.9
3	15%	11.9
4	18%	14.1
5	20%	15.6
6	22%	17.2

Source: Edison Investment Research

Financials

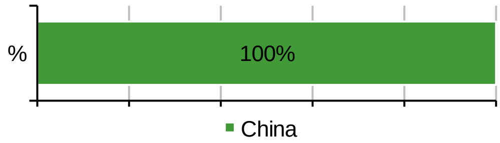
- **Revenue growth:** CWA has achieved compound growth in revenue of c 27% for the period FY13–18. For the period FY18 to FY21 we forecast CAGR in revenue of 15.1%. The water supply business remains the key component of revenue generation accounting for c 80% of revenue over the forecast period.
- **Operating margins:** we forecast operating margins for CWA of between 36–37% for the forecast period (FY13–18 range c 30–40%).
- **Associates:** we include the acquisition of Kangda International with effect from April 2019. We assume a FY20 contribution of HK$105m and a FY21 contribution of HK$117m. Our forecasts for FY19 remain unchanged.

- **Capex:** we have increased our forecast for capex to c HK$3,500m for FY20 and FY21. The HK$1.2bn purchase of 29.5% of KIEG is shown separately as an acquisition in FY20.
- **Tax rate:** we assume a tax rate of 28% for FY19, FY20 and FY21 (FY18 28%).
- **Minorities and EPS:** for FY19, FY20 and FY21 we forecast minority interest equivalent to c 35% of net income (FY18 35.3%).
- **DPS:** in FY18 CWA reported a DPS of HK$0.23 per share covered 3.1x by EPS. We forecast DPS growth of 30.4% in FY19, 16.7% in FY20 and 14% in FY21 leaving cover in the range of 2.8–2.9x.
- **Equity issue/repurchase:** we do not include any equity issues or share buybacks in our forecasts.

Exhibit 11: Financial summary

HKDm	2017	2018	2019e	2020e	2021e
31-March	HKFRS	HKFRS	HKFRS	HKFRS	HKFRS
PROFIT & LOSS					
Water supply revenue	4,874	6,204	6,726	8,042	9,397
Sewage treatment	531	814	1627	1709	1794
Other segments	303	562	339	356	374
Revenue TOTAL	5,708	7,580	8,693	10,107	11,565
EBITDA	2,646	3,097	3,644	4,246	4,895
Operating Profit	2,271	2,691	3,149	3,687	4,263
Amortization	315	334	390	429	472
Depreciation	60	71	105	130	160
Net Interest expense	(251)	(289)	(340)	(363)	(435)
Profit Before Tax	1,963	2,462	2,873	3,504	4,030
Tax	(583)	(701)	(805)	(981)	(1,128)
Profit After Tax	1,379	1,762	2,069	2,523	2,902
Net profits contributable to shareholders	853	1,141	1,339	1,632	1,877
Average Number of Shares Outstanding (m)	1,505	1,571	1,609	1,609	1,609
EPS - fully diluted (HK c)	55.4	71.8	83.2	101.0	116.1
Dividend per share (c)	20.0	23.0	30.0	35.0	40.0
EBITDA Margin (%)	46.4	40.9	41.9	42.0	42.3
Operating Margin (%)	39.8	35.5	36.2	36.5	36.9
BALANCE SHEET					
Fixed Assets	15,689	19,581	21,461	25,524	28,349
Intangible Assets	10,316	13,499	15,609	18,680	21,708
Plant, property and equipment	1,127	1,695	1,690	1,660	1,600
Investment properties	1,173	909	705	546	424
Investment in associates	635	661	576	1,576	1,353
Other	2,438	2,817	2,882	3,062	3,264
Current Assets	9,942	9,008	9,391	9,391	9,966
Properties Under Development	690	1,370	1,370	1,370	1,370
Properties Held for Sale	289	597	550	550	550
Inventory	285	348	399	464	530
Trade and Bills Receivables	872	1,055	1,210	1,407	1,610
Due from Non-controlling Equity Holders of Subsidiaries	251	260	306	374	430
Due from Associates	409	563	563	563	563
Prepayments, Deposits and Other Receivables	1,743	1,293	1,483	1,724	1,973
Pledged Deposits	783	570	570	570	570
Deposits and cash	4,314	2,511	2,500	1,930	1,930
Other	307	440	440	440	440
Current Liabilities	7,393	8,649	8,358	9,434	9,622
Trade and Bills Payables	1,097	1,626	1,300	1,400	1,500
Accrued Liabilities, Deposits and Other Payables	2,102	2,306	2,601	3,051	3,472
Short-term Borrowings	3,206	3,450	3,001	3,214	2,619
Other	988	1,267	1,456	1,770	2,031
Long Term Liabilities	9,275	8,786	9,929	11,169	12,369
Long-term Borrowings	8,123	7,432	8,432	9,432	10,432
Other long term liabilities	1,152	1,354	1,497	1,737	1,937
Shareholders' Equity	8,963	11,154	12,566	14,312	16,324
	-	-	-	-	-
CASH FLOW					
Net Cash Flows from Operating Activities	1,452	1,632	2,584	3,682	3,981
Purchase of property, plant and equipment	(92)	(100)	(100)	(100)	(100)
Increase in concession rights for water supply and sewage processing	(1,808)	(2,500)	(2,500)	(3,500)	(3,500)
Acquisitions/disposals	(283)	0	0	(1,200)	0
Increase in prepayments and other receivables	(1,226)	0	0	0	0
Others	(134)	(171)	112	112	104
Net Cash Flows from Investing Activities	(3,543)	(2,771)	(2,488)	(4,688)	(3,496)
Dividends	(135)	(369)	(483)	(563)	(644)
Shares issue and/or options exercised	(38)	301	0	0	0
Other	245	(362)	(175)	(214)	(246)
Net Cash Flow	(2,020)	(1,569)	(562)	(1,783)	(405)
Opening net debt (CWA definition)	4,213	6,232	7,801	8,363	10,146
Closing net debt/(cash)	6,232	7,801	8,363	10,146	10,551
Net debt to equity ratio (CWA definition)	70%	70%	67%	71%	65%
	(6,232)	(7,801)	(8,363)	(10,146)	(10,551)

Source: Company accounts, Edison Investment Research

Contact details	Revenue by geography
China Water Affairs Group Suite 6408, 64/F, Central Plaza 18 Harbour Road Wanchai Hong Kong +852 3968 6666 www.chinawatergroup.com	

Management team

Executive Chairman: Mr Duan Chuan Liang	Executive Director: Ms Ding Bin
Mr Duan Chuan Liang worked for the Ministry of Water Resources in China for over 10 years. He serves as a director of numerous other enterprises in the PRC. He graduated from the North China College of Water Conservancy and Hydro Power with a bachelor's degree specialising in irrigation and water conservancy works.	Ms Ding Bin joined the group in 2007. She has over 10 years of experience in financial management and tax planning. She graduated from Zhengzhou University of Technology in finance and computing management. Ms Dong is a certified public accountant in the RPC and a member of the Chinese Institute of Certified Public Accountants. Ms Ding was the general manager's assistant and general manager of the finance department prior to her appointment as an executive director.
Executive Director: Ms Liu Yu Jie	**Executive Director: Mr Liu Zhong**
Ms Liu Yu Jie joined the group in 2014. She graduated from the University of International Business and Economics in Beijing and obtained an MBA. She has worked in Hong Kong, Singapore and the RPC.	Mr Li Zhong joined the group in 2015. He graduated from the Beijing University of Chemical Technology and from St Mary's University in Canada with an MBA in 1997. He holds registered engineer certifications from both mainland China and Canada and has served in large state-owned enterprises, US-based corporations and global enterprises fin mainland China and Hong Kong for over 20 years.

Principal shareholders (taken from Refintiv 4 April 2019)	(%)
Duan Chuan Liang	29.2%
Orix Corp	18.1%

Companies named in this report

Kangda International Environmental Company, Guandong Investment, Beijing Enterprises Water, Tianjin Capital, Beijing Capital Beijing Originwater tEch, Chongqing Water Group, Tus-Sound Enviro Resources, Suez, Veolia, United Utilities

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