

Brazilian Water & Sewage Sector - Is a Revolution Coming?

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Is a Revolution Coming?

Financial predicament of Brazilian states creates an opportunity

Most Brazilian states control water and sewage utilities. There are some exceptions, notably in Tocantins (whose state-owned company was privatized) and in Mato Grosso (whose state-owned company was liquidated in 2000). The private sector is still very shy in the segment, operating a fraction of the system (less than 10%). Not coincidentally, service penetration is still low (50% of Brazil's population doesn't have sewage services). At the current pace of investments, services will only be universalized in 2074!

18 companies included in government's privatization plan

18 state-owned companies are listed in the federal government's privatization program. Eight of them are in more advanced stages: Caema (Maranhão), Caerd (Rondônia), Caesa (Amapá), Casal (Alagoas), Cedae (Rio de Janeiro), Compesa (Pernambuco), Cosanpa (Pará) and Deso (Sergipe).

BNDES to play a major role in establishing the privatization model

Regulation and excessive state participation mainly explain why Brazil has such poor penetration and service quality versus developed nations. The BNDES has a massive responsibility to design the best regulatory framework for the to-be-privatized water and sewage companies. Replicating the power utility model is, in our view, the best option, as the benefits of a solid federal regulator would be shared with the selling states (by maximizing their achieved valuations), with the population (given the clear incentive to invest in the proposed model) and with asset buyers (due to the lower risk of such a model). So, everyone stands to gain.

Cedae to be sold for R\$10bn? Compesa to be sold for R\$6.6bn?

In an ROA-based model, and assuming a RAB/PP&E of 1.5x, the fair valuation of some of these assets could be much higher than state governments imagine. Cedae, for instance, could be worth as much as R\$10bn, and Compesa may be worth up to R\$6.6bn. States should also fight for solid regulation, a scenario in which they would be clear winners.

Talking About a Revolution in the Water & Sewage Sector?

As is common knowledge, the delicate fiscal conditions of many Brazilian states have led to a healthy debate on the theme of privatization. According to BNDES, 18 states are in talks with the bank with an eye to selling their water and sewage companies to the private sector.

Eight states are in more advanced stages. The companies and states in question are: Caema (Maranhão), Caerd (Rondônia), Caesa (Amapá), Casal (Alagoas), Cedae (Rio), Compesa (Pernambuco), Cosanpa (Pará) and Deso (Sergipe).

Better regulation is the most delicate topic for the states that have already decided to privatize their assets. If the to-be-sold water and sewage companies were to have a tariff regulation anchored on a federal regulator that copies Aneel's model, some assets might be sold at much more than what we read in the papers.

If properly regulated, Cedae could be worth some R\$10bn (instead of R\$3.5bn) for Rio. Compesa could be worth as much as R\$6.6bn, and Cosanpa could be worth up to R\$1.6bn. The benefits of replicating power utility regulations for the to-be-sold water companies are unquestionable...

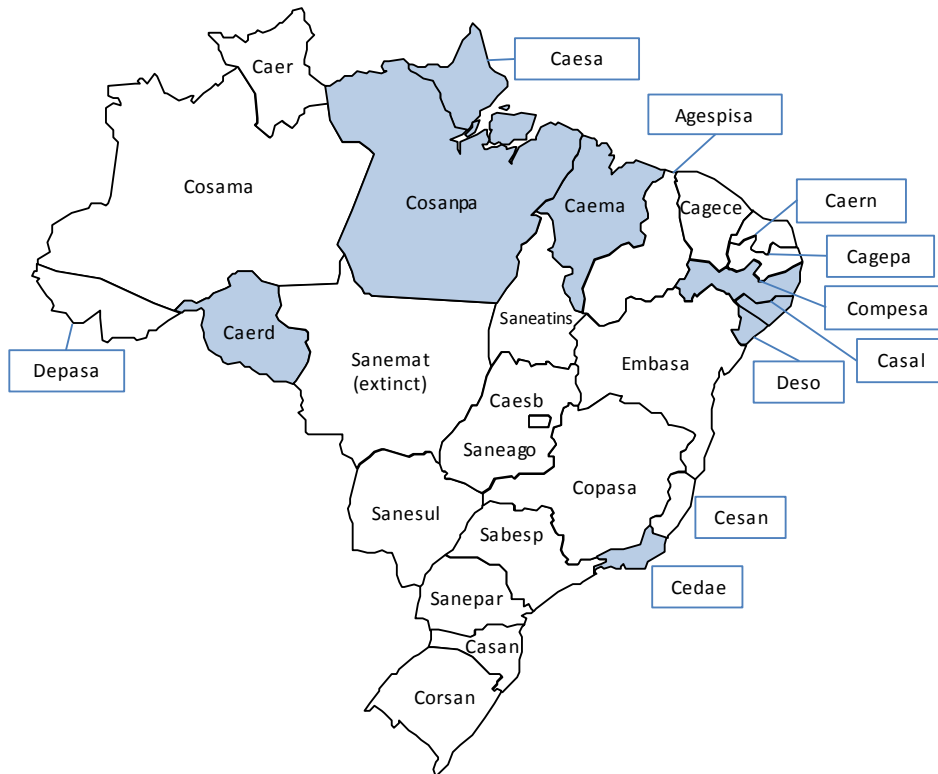
Our goal in this report is to present details of all the state-owned water and sewage utilities, to run sensitivity analyses of how much they could be worth (if privatized and if the regulation is properly run) and to discuss the (clear) need to attract private-sector money in order to ensure that everyone in Brazil has access to water and sanitation services. We also ran a valuation exercise for states that aren't (currently) considering privatization.

The benefits of proper regulation go beyond the potential sale process for states, and include maximizing investments post-privatization and the possibility of attracting capital from players already operating in the power utility segment. If regulation is solid, opex synergies of operating power and water distribution in the same region are huge!

State governments and the BNDES thus have an opportunity to cause a revolution in Brazil's water and sewage sector.

The Players

Figure 1: Biggest water & sewage companies per state (blue states = utility up for sale)



Source: Companies' websites

We have seen plenty of news on the number of states in talks with the BNDES to privatize their sanitation companies (15-18 states according to the bank).

The list of 18 states reads as follows: Acre, Alagoas, Amapá, Amazonas, Bahia, Ceará, Maranhão, Pará, Paraíba, Paraná, Pernambuco, Piauí, Rio de Janeiro, Rio Grande do Norte, Rondônia, Santa Catarina, Sergipe e Tocantins (this state's largest company is already privately-managed).

Officially, 8 states are in more advanced talks. The companies and states in question are: Caema (Maranhão), Caerd (Rondônia), Caesa (Amapá), Casal (Alagoas), Cedae (Rio), Compesa (Pernambuco), Cosanpa (Pará) and Deso (Sergipe).

The aim of the table below is to present the current status (based on local newswires) of all the companies. In a later section, we present more details on each of the state-owned companies.

Table 1: Current status of the largest companies in the sector

Company	State	Some discussion		Comment
		with BNDES	Current Status	
Agespisa	Piauí	yes	Included in PPI's privatization program	Extinct. Now Instituto de Águas do Piauí. Capital of the state recently privatized (to Aegea) - Auction in 2H18
Caema	Maranhão	yes	Included in PPI's privatization program	Auction in 1H18
Caer	Roraima		Not for sale	
Caerd	Rondônia	yes	Included in PPI's privatization program	Auction in 1H18
Caern	Rio Grande do Norte	yes	Included in PPI's privatization program	Auction in 1H18
Caesa	Amapá	yes	Included in PPI's privatization program	Auction in 1H18
Caesb	Brasília		Not for sale	
Cagece	Ceará	yes	Included in PPI's privatization program	Auction in 1H18
Cagepa	Paraíba	yes	Included in PPI's privatization program	Auction in 1H18
Casal	Alagoas	yes	Included in PPI's privatization program	Auction in 1H18
Casan	Santa Catarina	yes	Included in PPI's privatization program	Auction in 1H18
Cedae	Rio de Janeiro	yes	Included in PPI's privatization program	Asset used as collateral for the federal governments financial aid - Auction in 1H18
Cesan	Espírito Santo		Not for sale	
Compesa	Pernambuco	yes	Included in PPI's privatization program	Auction in 1H18
Copasa	Minas Gerais		Not for sale	Distressed state
Corsan	Rio Grande do Sul		Not for sale	Distressed state
Cosama	Amazonas	yes	Included in PPI's privatization program	Auction in 2H18
Cosanpa	Pará	yes	Included in PPI's privatization program	Auction in 1H18
Depasa	Acre	yes	Included in PPI's privatization program	Not a company. It is a state department - Auction in 1H18
Deso	Sergipe	yes	Included in PPI's privatization program	Auction in 1H18
Embasa	Bahia	yes	Included in PPI's privatization program	Auction in 2H18
Sabesp	São Paulo		Not for sale	
Saneago	Goiás		Not for sale	
Saneatins	Tocantins	yes	Included in PPI's privatization program	Private (Odebrecht Ambiental). Areas in the State not covered by the company included in the PPI - Auction in 2H18
Sanemat	Mato Grosso		Company was extinct (2000)	Each municipality chooses who attends the service
Sanepar	Paraná	yes	Included in PPI's privatization program	Auction in 2H18
Sanesul	Mato Grosso do Sul		Not for sale	

Source: Local newswire

How much could the states raise in a privatization process?

Regulated industries are worth as much as the regulatory framework allows them to be worth. The proper regulatory model (in our view the power sector has a model that represents the ideal system) knows how to balance the interest of consumers and of the service providers.

In this section we are presenting the potential value of the state-owned water & sewage companies in a privatization process, assuming a decent regulatory framework is built.

The sensitivity valuation table presented below considers the following:

- (1) It considers that the states' tariff regulations are anchored on a federal regulator that replicates Aneel's approach to tariffs (ROA-based model).
- (2) Shows two distinct scenarios, where the Regulatory Asset Bases are worth, in the low case, 1.0x PP&E (intangible and fixed assets) and, in the high case, 1.5x PP&E. For all the exercises, we used the 2015 financial statements.
- (3) The net liabilities include much more than just the financial liabilities. We are including pension liabilities, all sorts of delayed payments (taxes, suppliers, electricity) and on-balance sheet provisions (minus judicial deposits).

- (4) The EV/RAB multiple set for all companies is 1.0x.
- (5) The following companies were not included in the table below: (i) Agespisa (Piauí), which is now an Institute; (ii) Caesa (Amapá), since there are no financial statements available on the Internet (we did send an e-mail to the state's transparency portal requesting said information); (iii) Depasa (Acre), which is not a company (it is a state department) and, as such (similar to Piauí) doesn't have available numbers; (iv) Saneatins (Tocantins, which is controlled by Brookfield, formerly Odebrecht Ambiental); and (v) Sanemat (Mato Grosso), a company liquidated in 2000, when all the water and sewage concessions/programs were transferred back to the municipalities.
- (6) Copasa, Sanepar and Sabesp are using our end-2016 forecasts. For them, we are using our best estimates for RAB (instead of two scenarios).

Table 2: Potential Equity Value (at 1x EV/RAB and in two scenarios; (i) 1.0x RAB/PP&E and (ii) 1.5x RAB/PP&E)

Company	State	RAB / PP&E		Liabilities	Equity Value (1x EV/RAB)	
		1.0x	1.5x		Low	High
Caema	Maranhão	R\$ 1,150	R\$ 1,725	R\$ 840	R\$ 310	R\$ 885
Caer	Roraima	R\$ 64	R\$ 96	R\$ 139	-R\$ 75	-R\$ 43
Caerd	Rondônia	R\$ 173	R\$ 259	R\$ 696	-R\$ 523	-R\$ 437
Caern	Rio Grande do Norte	R\$ 861	R\$ 1,291	R\$ 130	R\$ 730	R\$ 1,161
Caesb	Brasília	R\$ 2,053	R\$ 3,080	R\$ 1,118	R\$ 935	R\$ 1,961
Cagece	Ceará	R\$ 3,037	R\$ 4,555	R\$ 703	R\$ 2,334	R\$ 3,852
Cagepa	Paraíba	R\$ 835	R\$ 1,252	R\$ 218	R\$ 617	R\$ 1,034
Casal	Alagoas	R\$ 221	R\$ 331	R\$ 553	-R\$ 332	-R\$ 222
Casan	Santa Catarina	R\$ 2,100	R\$ 3,149	R\$ 805	R\$ 1,295	R\$ 2,345
Cedae	Rio de Janeiro	R\$ 10,205	R\$ 15,307	R\$ 5,107	R\$ 5,098	R\$ 10,200
Cesan	Espirito Santo	R\$ 2,170	R\$ 3,254	R\$ 240	R\$ 1,930	R\$ 3,015
Compesa	Pernambuco	R\$ 4,719	R\$ 7,078	R\$ 460	R\$ 4,258	R\$ 6,618
Copasa (2016)	Minas Gerais		R\$ 12,707	R\$ 2,920		R\$ 9,787
Corsan	Rio Grande do Sul	R\$ 2,616	R\$ 3,924	R\$ 1,615	R\$ 1,001	R\$ 2,309
Cosama	Amazonas	R\$ 12	R\$ 18	R\$ 0	R\$ 12	R\$ 18
Cosanpa	Pará	R\$ 1,351	R\$ 2,027	R\$ 402	R\$ 950	R\$ 1,625
Deso	Sergipe	R\$ 1,336	R\$ 2,004	R\$ 180	R\$ 1,156	R\$ 1,824
Embasa	Bahia	R\$ 4,611	R\$ 6,917	R\$ 808	R\$ 3,803	R\$ 6,109
Sabesp (2016)	São Paulo		R\$ 39,568	R\$ 12,776		R\$ 26,792
Saneago	Goiás	R\$ 3,225	R\$ 4,837	R\$ 1,570	R\$ 1,655	R\$ 3,267
Sanepar (2016)	Paraná		R\$ 13,500	R\$ 3,223		R\$ 10,277
Sanesul	Mato Grosso do Sul	R\$ 509	R\$ 764	R\$ 151	R\$ 358	R\$ 613

Source: BTG Pactual, companies' 2015 financial statements

The per share exercises for the three listed entities point to the following valuations: (a) Copasa (R\$77); (b) Sabesp (R\$39); (c) Sanepar (R\$20). We rate all three names a Buy. In Sabesp's exercise, we do not consider any retroactive investments not included in the 1st rate review cycle (R\$6bn as of 2013, according to the company).

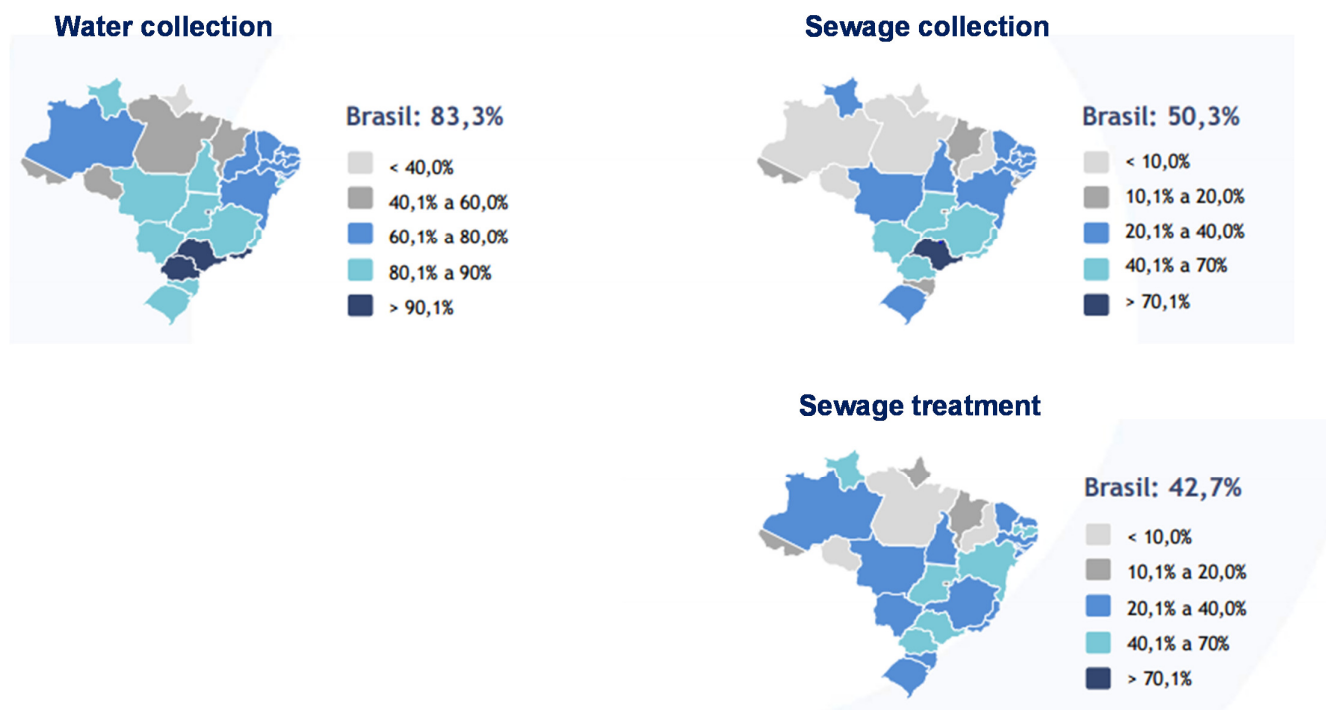
Three states have no Equity Value in the 1x EV/RAB scenario, Caer (Roraima), Caerd (Rondônia), and Casal (Alagoas), and would need to re-structure the balance

sheets of their companies, in our view, before any sale. Caerd and Casal are up for sale, according to local newswires.

Regulatory challenges and poor coverage

It is no coincidence that Brazil has poor water and sewage coverage. According to the 2015 SNIS, Brazilian water penetration is only 83.3%, while sewage penetration is only 50.3% (of which, only 42.7% is actually treated). Yes, the sewage of 1 in every 2 Brazilians isn't collected!

Figure 2: Brazil's water and sewage coverage



Source: SNIS 2015

Table 3: Service penetration in Brazil

Brazil	2007	2008	2009	2010	2011	2012	2013	2014	2015
Water	80.9%	81.2%	81.7%	81.1%	82.4%	82.7%	82.5%	83.0%	83.3%
Sewage	42.0%	43.2%	44.5%	46.2%	48.1%	48.3%	48.6%	49.8%	50.3%

Source: SNIS

In the last eight years, sewage penetration rose only 830bps. At the current pace, 100% service penetration would only be achieved in 2074. Clearly, the sector needs to improve its regulation and attract private investments to speed up the coverage ratios.

Table 4: Service penetration per state (2015)

State	Water	Sewage
São Paulo	96%	88%
Brasília	99%	85%
Minas Gerais	83%	69%
Paraná	93%	66%
Rio de Janeiro	92%	65%
Goiás	88%	48%
Espírito Santo	82%	47%
Mato Grosso do Sul	86%	43%
Roraima	80%	38%
Bahia	79%	35%
Paraíba	75%	34%
Rio Grande do Sul	87%	29%
Mato Grosso	88%	26%
Ceará	64%	25%
Rio Grande do Norte	80%	23%
Tocantins	83%	22%
Alagoas	76%	21%
Pernambuco	76%	21%
Santa Catarina	87%	19%
Sergipe	84%	18%
Acre	47%	13%
Maranhão	56%	12%
Piauí	77%	10%
Amazonas	76%	8%
Pará	47%	5%
Rondônia	44%	4%
Amapá	34%	4%

Source: SNIS (2015). In bold the three states with listed entities

With the exception of Brasília (country's highest GDP per capita, and a state operated by a company that has already faced rate reviews), the top 3 service penetration rates are – not coincidentally – of states whose companies received massive capital injections from the private sector. We ranked states by the level of sewage collection penetration considering all municipalities.

The different regulatory models and the challenges ahead

A. The Rate Review model (at a state level)

There are already two states running a ROA-based model (the power utility model; the one we defend should be replicated in water and sewage to speed up investments).

The problem here is that the rate reviews are run on a regional level (São Paulo and Brasília already underwent the process; while Paraná and Minas Gerais are working towards their 1st rate cycle).

The problem with regional regulation is the conflict of interest generated by the fact that local tariffs are set by local governments. The best model is one in which tariffs are regulated by a third party, which neither benefits nor suffers from the political implications of raising (or cutting) tariffs much more than inflation (when needed).

In the past two years, power utility tariffs soared. There was some political noise when this was happening, but Aneel did what had to be done. As a result, power distribution players feel comfortable investing as much as needed, since they know these efforts will be duly 'recognized'.

B. The “Toll Road” model (the AEGEA case)

The best model (from the standpoint of the service provider) for the water sector seems to be the “toll road” one. In this model, a municipality privatizes water and sewage services, setting coverage goals for (usually) 30 years, and the winner of the concession sale is the company that agrees to charge the lowest tariff.

From Year 0 to Year 30, tariffs are adjusted by inflation (with no rate reviews) and the service provider runs the volume risk (and the risk of volatility in required returns).

This has been the model mostly used in past privatizations, notably Teresina (recently sold), the Western Zone of the city of Rio de Janeiro, many cities in Mato Grosso and Mato Grosso do Sul.

For the consumer, this isn't necessarily the best model, as the service provider needs to consider many additional risks (of not having a rate review) when setting the target tariff in the privatization auction. It is reasonable to assume that the required returns for such a model are bigger than the required returns to invest in power distribution. As such, tariffs tend to be higher to compensate for the risks of the model.

C. The “no model”

This is the biggest existing model in Brazil, and the responsible for very poor coverage. With tariffs not linked to the Regulatory Asset Bases (a.k.a. investments), companies have no power to invest. Without this link, companies have no (economic) incentive to: (a) connect poor people to the network; (b) add services to customers; (c) better treat the water delivered and the sewage collected (if any).

Water and Sewage is just another infrastructure business. To be successful and highly penetrated, like power utilities and telecom services, it needs to replicate what works, notably: (i) opening up to the private sector; (ii) building a tariff model that either runs ROA-based models (the ideal situation) or “Toll Road” models, as described above.

The “no” model just perpetuates the (huge) sanitation problems we still have in 2017!

A brief description of two large private players

There are two large private players operating in the sector.

AEGEA: Aegea is controlled by Equipav (71%), GIC (19%), IFC (10%). The company operates in 48 municipalities, in the following states: Santa Catarina (4), São Paulo (3), Rio de Janeiro (3), Espírito Santo (2), Mato Grosso do Sul (1), Mato Grosso (24), Rondônia (2), Pará (2), Maranhão (1), Piauí (1).

AEGEA holds 18% (private) market share in the segment, serving 1.5mn clients. As of June 2016, LTM EBITDA was R\$507mn.

Odebrecht Ambiental: Brookfield acquired 70% of the company in October last year for R\$2.8bn. The company operates in 12 different states: São Paulo (6 concessions, 1 PPP and 1 water collecting system), Santa Catarina (1 concession), Rio Grande do Sul (1), Rio de Janeiro (3), Espírito Santo (1), Bahia (1 PPP), Pernambuco (2), Tocantins (78 municipalities through Saneatins), Pará (6 cities, 5 of which are served by Saneatins), Goiás (4), Minas Gerais (1 PPP), Maranhão (2).

In 2015, reported EBITDA of the company (which includes more services than the ones listed above) reached R\$812mn. Water & sewage represented 56% of revenues, while utilities represented 36% and residuals 8%.

A snapshot of all the state-owned companies

In this section, we show the situation of each state-owned company. As previously described, eight are in early stages of their privatization process, while a total of 18 states are in talks with BNDES. Fixed assets (PP&E) include intangible assets (given IFRS accounting rules). Net debt includes all sorts of liabilities (described). For what we refer to as 'calculated net debt', we are adding the net debt and provisions columns. Capex is the one presented in companies' cashflow statements.

Below we present the situation by state and in alphabetic order.

Table 5: Financial snapshot of state-owned companies

Company	State	2015 Financials							2015 Financials
		Fixed Assets (net)	Net Debt	Provisions	Sh's Equity	Revenues	EBITDA	Earnings	Capex
Depasa	Acre	-	-	-	-	-	-	-	-
Casal	Alagoas	R\$ 221	R\$ 454	R\$ 99	-R\$ 562	R\$ 307	R\$ 45	-R\$ 24	R\$ 15
Caesa	Amapá	-	-	-	-	-	-	-	-
Cosama	Amazonas	R\$ 12	R\$ 0	-	R\$ 17	R\$ 27	-R\$ 5	-R\$ 7	R\$ 1
Embasa	Bahia	R\$ 4,611	R\$ 636	R\$ 172	R\$ 5,184	R\$ 2,596	R\$ 433	R\$ 59	R\$ 367
Caesb	Brasília	R\$ 2,053	R\$ 869	R\$ 250	R\$ 1,204	R\$ 1,527	R\$ 208	R\$ 10	R\$ 53
Cagece	Ceará	R\$ 3,037	R\$ 526	R\$ 177	R\$ 2,244	R\$ 942	R\$ 19	-R\$ 129	R\$ 214
Cesan	Espírito Santo	R\$ 2,170	R\$ 195	R\$ 45	R\$ 2,062	R\$ 638	R\$ 146	R\$ 65	R\$ 173
Saneago	Goiás	R\$ 3,225	R\$ 1,500	R\$ 70	R\$ 2,336	R\$ 1,735	R\$ 250	-R\$ 235	R\$ 293
Caema	Maranhão	R\$ 1,150	R\$ 732	R\$ 109	R\$ 646	R\$ 438	R\$ 36	-R\$ 13	R\$ 84
Sanemat	Mato Grosso	-	-	-	-	-	-	-	-
Sanesul	Mato Grosso do Sul	R\$ 509	R\$ 112	R\$ 39	R\$ 531	R\$ 346	R\$ 89	R\$ 52	R\$ 64
Copasa	Minas Gerais	R\$ 8,166	R\$ 3,040	R\$ 199	R\$ 5,647	R\$ 3,144	R\$ 859	-R\$ 12	R\$ 579
Cosanpa	Pará	R\$ 1,351	R\$ 347	R\$ 55	R\$ 871	R\$ 181	-R\$ 121	-R\$ 231	R\$ 72
Cagepa	Paraíba	R\$ 835	R\$ 214	R\$ 4	R\$ 654	R\$ 525	R\$ 27	-R\$ 30	R\$ 34
Sanepar	Paraná	R\$ 6,934	R\$ 2,876	R\$ 466	R\$ 4,180	R\$ 2,971	R\$ 895	R\$ 438	R\$ 797
Compesa	Pernambuco	R\$ 4,719	R\$ 419	R\$ 41	R\$ 4,166	R\$ 1,590	R\$ 217	R\$ 114	R\$ 281
Agespisa	Piauí	-	-	-	-	-	-	-	-
Cedae	Rio de Janeiro	R\$ 10,205	R\$ 2,933	R\$ 2,174	R\$ 5,693	R\$ 4,057	R\$ 887	R\$ 249	R\$ 41
Caern	Rio Grande do Norte	R\$ 861	R\$ 100	R\$ 30	R\$ 695	R\$ 481	R\$ 47	-R\$ 7	R\$ 105
Corsan	Rio Grande do Sul	R\$ 2,616	R\$ 1,185	R\$ 430	R\$ 1,676	R\$ 2,080	R\$ 322	R\$ 164	R\$ 276
Caerd	Rondônia	R\$ 173	R\$ 275	R\$ 421	-R\$ 554	R\$ 113	-R\$ 53	-R\$ 47	R\$ 4
Caer	Roraima	R\$ 64	R\$ 139	R\$ 0	R\$ 86	R\$ 58	-R\$ 12	-R\$ 34	R\$ 4
Casan	Santa Catarina	R\$ 2,100	R\$ 756	R\$ 48	R\$ 1,279	R\$ 797	R\$ 176	R\$ 11	R\$ 304
Sabesp	São Paulo	R\$ 28,924	R\$ 13,442	R\$ 1,082	R\$ 13,717	R\$ 11,712	R\$ 4,115	R\$ 536	R\$ 2,462
Deso	Sergipe	R\$ 1,336	R\$ 115	R\$ 65	R\$ 1,204	R\$ 403	R\$ 59	R\$ 0	R\$ 137
Saneatins	Tocantins	-	-	-	-	-	-	-	-

Source: BTG Pactual, companies' financial statements

Acre (Depasa)

Depasa was included in PPI's privatization program. Depasa is not a company (it is a state department) and, as such, doesn't have to release public information.

Alagoas (Casal)

Casal is listed for sale. According to its 2015 financial statements (in which the auditors made several comments), the company's Fixed PP&E adds up to R\$221mn. This compares to net debt (calculated as described above) of R\$553mn (including

provisions), making the sale a tough one if the balance sheet situation doesn't improve.

Roughly R\$150mn of what we considered net debt lies with the local power distributor (Ceal, controlled by Eletrobras), R\$134mn is pension fund-related, and R\$121mn is tax-related. Due to high leverage, annual capex was only R\$15mn.

Amapá (Caesa)

The asset is listed for sale. It doesn't have electronic financial statements available. We did look in the state's official journal (*Diário Oficial do Estado*) and it says the results can be found in the company's headquarters. We've sent a request to the state's transparency portal to access the numbers, but we haven't yet received an answer.

Amazonas (Cosama)

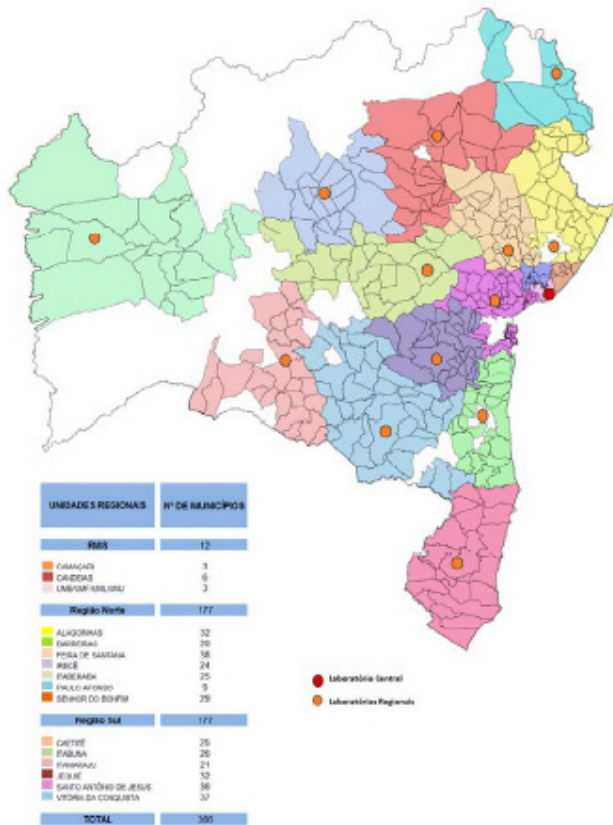
Cosama is a small company, only serving 12 municipalities. Sewage penetration in the state is only 8%, while water penetration is 76%.

Bahia (Embasa)

Embasa is a big, solid company. With 1.46x net debt/EBITDA in 2015, it was able to invest (as per its cashflow statement) R\$367mn. The company serves 366 municipalities (out of 417 in the state) and is regulated by state agency Agersa.

Service penetration is improving, despite remaining at very low levels. The asset is not listed for sale. Embasa's sewage connections reached 1.08mn in 2015 (up from 682k in 2010), while water connections jumped to 3.3mn (up from 2.7mn in 2010).

Figure 3: Embasa's areas of operation



Source: Company

Brasília (Caesb)

Although not listed for sale, Caesb is one of the most mature sector companies and, as such, could have great value if sold. Its 2nd rate review was slated for June 2016.

Operating 5.169km of network and 17 sewage treatment stations, as of 2015 it had fixed PP&E of R\$2bn and high service penetration vis-à-vis national standards.

On the negative side, as of 2015 the company's net debt / EBITDA was above 5x, which forced it to invest only R\$53mn (or a fraction of existing PP&E). In a sale (as per our exercise above), Caesb could be worth R\$1.0-2.0bn for the state, providing sorely needed cash for the state's coffers.

Ceará (Cagece)

Operating in 151 municipalities in the state (out of 184), the company serves 5.4mn (water) and 2.2mn (sewage) households. It has lengthy concession contracts, including Fortaleza, which expires by 2033. In a sale, the asset could also achieve an interesting valuation. The state is currently facing a massive drought.

Espírito Santo (Cesan)

Cesan operates in 52 municipalities, out of the state's 78, including the biggest cities. It has long-term concessions with expiry dates such as 2055 (Vila Velha and Vitória) and 2043 (Serra). With relatively low leverage and a high R\$2.2bn PP&E, a privatization valuation could range between R\$1.9-3.0bn.

Goiás (Saneago)

Saneago operates 158 concessions and 27 programs. Goiânia (capital city) is under a concession that expires in 2023. 40 contracts (adding up to only 3% of revenues) have expired and were not yet renewed. The company has large scale (R\$3.2bn PP&E) and leverage (our calculated net debt / EBITDA is higher than 6x).

Maranhão (Caema)

The state has one of the poorest coverage ratios, according to SNIC (56% for water and 12% for sewage) and Caema is one of the companies listed for sale. The company has the (aggressive) goal of achieving 70% sewage coverage (in the municipalities it operates) by 2018. To do so, it raised R\$337mn from the PAC I and PAC II programs.

Caema operates in 138 municipalities, 90 of which signed contracts in the past (43 expiring in 2017). The existing concession contracts already determine that the municipality has to pay for the non-depreciated assets if the concession isn't renewed - which is a good reason to believe most of the 43 contracts should be renewed!

We calculate Caema's net debt (including provisions) at R\$840mn, which is many times its R\$36mn EBITDA. The biggest debt component is the R\$463mn related to the *Dívida Ativa*, basically delayed tax payments. Another R\$265mn are PAC-related financing.

The good news is that the PP&E is larger than the liabilities, at R\$1.15bn. With proper regulation, the state might raise as much as R\$885mn from the asset sale.

Mato Grosso (Sanemat)

Sanemat was liquidated in 2000 and all the operations were returned to the municipalities. Many of the municipalities opted to privatize their operations. Aegea, for instance, operates 24 cities in the state. The capital city of the state is operated by Sanecap (a company controlled by the city hall).

Mato Grosso do Sul (Sanesul)

Sanesul operates in 68 municipalities, not including the state's capital (which is operated by Odebrecht Ambiental). 63% of the municipalities in which the company operates have signed concession contracts with the company. Sanesul has a pretty solid balance sheet, with calculated net debt / EBITDA ratio below 2.0x.

Minas Gerais (Copasa)

Copasa is currently rated a Buy on the back of a positive 1st rate review expectation. Our RAB forecast is of R\$12.7bn. At 1x EV/RAB (which is not how we base our target), this would be a R\$79/share stock.

As of 2015, Copasa operated water services in 634 municipalities and sewage in 294.

Pará (Cosanpa)

Cosanpa operates 55 municipalities, has decent scale (R\$1.35bn PP&E), but has posted very poor results, including a negative R\$121mn EBITDA in 2015. Calculated net debt is massively influenced by R\$279mn in delayed taxes. Considering the scale of its asset base, the company could be worth north of R\$1bn.

Listed for sale.

Paraíba (Cagepa)

Operates 195 municipalities and 24 districts. Also has small margins (5% EBITDA in 2015), but has decent scale (PP&E at R\$835mn). Net Debt / PP&E is quite low and asset could achieve a decent valuation.

Paraná (Sanepar)

Sanepar is also rated a Buy on the back of a positive 1st rate review expectation. Given our R\$13.5bn RAB expectation, at 1x EV/RAB the stock would be worth R\$21/share. The regulator has been claiming that Sanepar will be its own opex benchmark. If we were to consider that to be a perpetual situation (a bullish perspective, no doubt), the implied DCF-valuation could point to a multiple higher than 1x.

Sanepar operates in 345 municipalities in Paraná and 1 in Santa Catarina.

Pernambuco (Compesa)

Compesa is also listed for sale. Scale-wise, this is a very interesting story, with PP&E of R\$4.7bn (as of 2015). Calculated net debt of R\$460mn compares to R\$217mn EBITDA. The company has been investing at a good speed (R\$281mn in 2015), but if privately-managed and with a stronger balance sheet and margins, capex could be even higher.

In our valuation sensitivity, Compesa could be worth around R\$4.3-6.6bn.

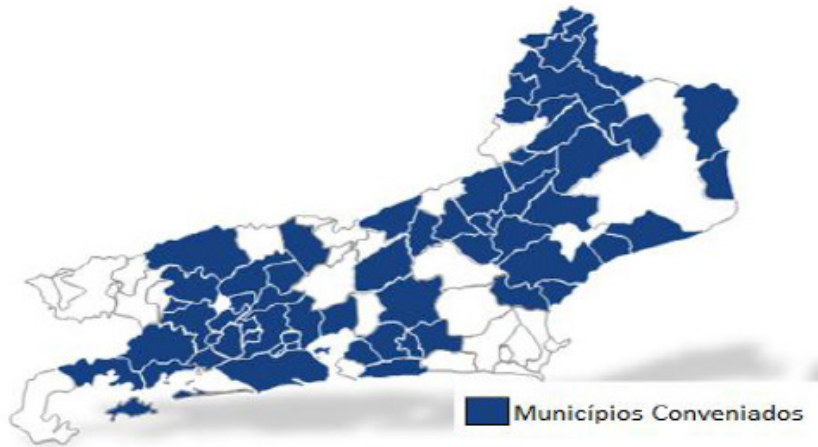
Piauí (Agespisa)

Agespisa doesn't have updated financial statements. The company is in a very troubled financial situation and the state created an institute (*Instituto das Águas do Piauí*), to replace Agespisa and also to attract private investments to the sector in the state. The operations in the capital city (Teresina) were recently privatized to Aegea.

Rio de Janeiro (Cedae)

Cedae operates water in 64 municipalities and sewage in 32. Rio de Janeiro's capital represents 77% of the company's revenues.

Figure 4: Ceda's operations in blue



Source: Ceda

The average concession contract of the company is 30 years, while the contract with the city of Rio is 50 years (signed in 2007). The state's regulatory agency is called Agernesa, but the company has never faced a rate review process.

Ceda and the state of Rio have an agreement whereby the state runs most of the investments and then transfers the assets to the company (which pays for the investments by issuing their own shares to the state). Naturally, this investment procedure would have to change after a sale.

The procedure also makes clear that the benefits for the state in a sale are not only restricted to the sale itself, but also to saving treasury money from investing in the segment.

We flag Ceda's balance sheet. It has R\$9.8bn of non-payable receivables more than 180 days due.

Calculated net debt of R\$5.1bn includes: (a) R\$2.2bn of booked provisions; and (b) R\$1.85bn pension deficit. This compares to EBITDA of R\$887mn. The reported capex (in the cashflow statement) of only R\$41mn reflects the aforementioned investment procedure.

Talking about scale, Ceda has a R\$10.2bn PP&E. With the proper regulation designed by BNDES, the company could be worth considerably more than the R\$3.5bn mentioned in the papers. Our valuation ranges from R\$5.1-10.2bn (scenarios described above).

Rio Grande do Norte (Caern)

The auditors of the company's balance sheet raised many flags, including internal controls related to the PP&E. Caern operates 158 municipalities, including the largest ones in the state. Natal represents 43% of revenues and operates under a concession contract that expires in 2027. Mossoró, the second largest, expires by 2025. Some contracts expired at the end of 2015.

Rio Grande do Sul (Corsan)

Corsan operates in 216 municipalities and has decent scale (R\$2.6bn PP&E). The asset is not listed for sale, but should be considered. The state could raise something around the R\$1-2.3bn valuation range. The company's balance sheet is very stretched.

Rondônia (Caerd)

Caerd, also listed for sale, but has many issues to tackle: (a) its calculated net debt is R\$696mn, which includes some R\$400mn of net provisions and R\$287mn of non-payables to Eletrobras' local power distribution concession; (b) the calculated net debt is several times its PP&E (R\$173mn); and (c) the auditors raised innumerable flags in the 2015 financial statements.

Roraima (Caer)

Caer is not listed for sale. Calculated net debt is also larger than the PP&E.

Santa Catarina (Casan)

Casan operates 67% of the state's cities (196). Control is held by the state (64.2%), SC Par (a state entity) with 18%, Celesc (15.4%) and Codec (2.3%). It also has very decent scale and a very geared balance sheet.

São Paulo (Sabesp)

As of 2015, Sabesp operated water and sewage services in 365 municipalities. It has 8.4mn water connections (up from 7.4mn in 2011) and 6.8mn sewage connections (up from 5.9mn in 2011). The company serves 25.5mn clients with water services and 22.7mn with sewage.

The company had its 1st rate review in 2014, after a delay. The end result was a disappointment compared to the preliminary figures suggested by the regulator. RAB ended up R\$6bn lower than originally expected, while regulatory expenses were adjusted downwards. The company has also been paying a contribution to São Paulo city hall since 2010, but has never passed this tax through to tariffs.

Sabesp is currently in its 2nd rate review process. The benefit of having had the 1st already is that expectations are anchored on the variables set in the 1st cycle, making it a less volatile story when compared to Copasa and Sanepar.

The company is fighting for all the retroactive improvements in RAB and opex, given the results of the 1st cycle. We don't consider these in our model. We have a Buy rating, despite not expecting any retroactive adjustment.

Sergipe (Deso)

Deso operates in 71 municipalities. 16 contracts expired at the end of 2015. The reported PP&E in 2015 was R\$1.3bn, which compares to a calculated net debt of R\$180mn. Our valuation sensitivity points to a sale value of R\$1.2-1.8bn.

Tocantins (Saneatins)

Privately-managed Saneatins was split from Saneago in 1989 (when the state of Tocantins was created). The company is controlled by Brookfield (which owns 70% of Odebrecht Ambiental). It operates 47 municipalities in Tocantins and five in the state of Pará.

The privatization of Saneatins massively increased the penetration of water services. In 1995, when the state ran the company, service penetration was 39%, versus 83% in 2015. Sewage penetration in the state remains very low at 22%.

Income Statement (R\$m)	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
Revenue	2,510	2,768	3,008	3,132	3,144	3,751	4,457	5,017
Operating expenses (ex deprn)	(1,434)	(1,601)	(1,831)	(2,014)	(2,285)	(2,272)	(2,607)	(2,962)
EBITDA (BTG Pactual)	1,075	1,168	1,176	1,118	859	1,478	1,850	2,055
Depreciation	(304)	(372)	(428)	(486)	(549)	(588)	(589)	(592)
Operating income (EBIT, BTG Pactual)	771	796	748	632	310	890	1,261	1,463
Other income & associates	(33)	(26)	(23)	(13)	4	(33)	(45)	(57)
Net Interest	(89)	(123)	(159)	(187)	(343)	(193)	(77)	5
Abnormal items (pre-tax)	0	0	0	0	0	0	0	0
Profit before tax	649	647	566	433	(29)	664	1,139	1,412
Tax	(178)	(160)	(146)	(114)	17	(188)	(356)	(442)
Profit after tax	470	487	420	318	(12)	477	783	970
Abnormal items (post-tax)	0	0	0	0	0	0	0	0
Minorities / pref dividends	0	0	0	0	0	0	0	0
Net Income (local GAAP)	470	487	420	318	(12)	477	783	970
Adjusted Net Income	470	487	420	318	(12)	477	783	970
Tax rate (%)	27	25	26	26	0	28	31	31
Per Share	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
EPS (local GAAP)	4.11	4.08	3.52	2.67	(0.10)	3.99	6.56	8.13
EPS (BTG Pactual)	4.11	4.08	3.52	2.67	(0.10)	3.99	6.56	8.13
Net DPS	1.34	1.34	1.17	0.87	0.00	1.21	2.30	2.85
BVPS	39.30	41.60	44.73	46.40	47.32	50.10	54.37	59.65
Cash Flow (R\$m)	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
Net Income	470	487	420	318	(12)	477	783	970
Depreciation	304	372	428	486	549	588	589	592
Net change in working capital	(49)	(62)	(142)	(17)	(40)	(145)	(148)	(70)
Other (operating)	33	168	(43)	55	213	(1)	0	0
Net cash from operations	760	965	663	842	710	919	1,223	1,492
Cash from investing activities	(810)	(731)	(912)	(863)	(579)	(524)	(600)	(630)
Cash from financing activities	216	(129)	(105)	90	(31)	(172)	(173)	(245)
Bal sheet chge in cash & equivalents	164	275	(256)	69	228	223	450	616
Balance Sheet (R\$m)	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
Cash and equivalents	242	517	260	329	557	780	1,231	1,847
Other current assets	573	704	819	841	923	1,037	1,218	1,303
Total current assets	815	1,220	1,080	1,170	1,480	1,818	2,448	3,150
Net tangible fixed assets	162	175	205	195	165	140	140	140
Net intangible fixed assets	6,016	6,400	6,901	7,559	7,983	7,894	7,905	7,943
Investments / other assets	1,282	1,197	1,270	1,230	1,310	1,276	1,276	1,276
Total assets	8,274	8,993	9,456	10,155	10,938	11,128	11,769	12,510
Trade payables & other ST liabilities	397	430	411	396	581	558	591	606
Short term debt	571	409	503	610	497	532	553	567
Total current liabilities	968	839	915	1,006	1,078	1,091	1,143	1,173
Long term debt	2,266	2,696	2,685	2,827	3,101	3,024	3,104	3,184
Other long term liabilities	538	494	520	785	1,112	1,035	1,035	1,035
Total liabilities	3,773	4,029	4,119	4,618	5,291	5,149	5,282	5,392
Equity & minority interests	4,502	4,964	5,337	5,537	5,647	5,979	6,487	7,118
Total liabilities & equities	8,274	8,993	9,456	10,155	10,938	11,128	11,769	12,510

Company Profile:

Copasa is a water and sewage utility company that serves 617 municipalities in the state of Minas Gerais, as of 2011. Copasa also sells water wholesale in a limited region in the state. Copasa's business includes planning, providing, and operating basic sanitation services throughout the territory of Minas Gerais.

Financial ratios	12/2014	12/2015	12/2016E	12/2017E	12/2018E
EBITDA margin	35.7%	27.3%	39.4%	41.5%	41.0%
Operating margin	20.2%	9.9%	23.7%	28.3%	29.2%
Net margin	10.2%	-0.4%	12.7%	17.6%	19.3%
RoE	5.9%	-0.2%	8.2%	12.6%	14.3%
RoIC	7.5%	3.6%	10.2%	14.3%	16.4%
EBITDA / net interest	6.0x	2.5x	7.7x	23.9x	-376.8x
Net debt / EBITDA	2.8x	3.5x	1.9x	1.3x	0.9x
Total debt / EBITDA	3.1x	4.2x	2.4x	2.0x	1.8x
Net debt / (net debt + equity)	36.0%	35.0%	31.7%	27.2%	21.1%

Source: Company reports and BTG Pactual estimates. Valuations: based on the last share price of that year(E) based on share price as of 07 March 2017

Income Statement (R\$m)	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
Revenue	1,742	2,123	2,370	2,617	2,971	3,425	3,905	4,466
Operating expenses (ex deprn)	(1,100)	(1,403)	(1,567)	(1,781)	(2,076)	(2,253)	(2,391)	(2,544)
EBITDA (BTG Pactual)	643	721	803	836	895	1,173	1,514	1,923
Depreciation	(148)	(149)	(160)	(175)	(195)	(211)	(212)	(229)
Operating income (EBIT, BTG Pactual)	495	572	643	661	700	962	1,302	1,694
Other income & associates	0	0	0	0	0	0	0	0
Net Interest	(127)	(127)	(98)	(110)	(159)	(178)	(154)	(149)
Abnormal items (pre-tax)	0	0	0	0	0	0	0	0
Profit before tax	368	445	544	551	540	784	1,148	1,545
Tax	(84)	(110)	(141)	(130)	(102)	(176)	(279)	(377)
Profit after tax	284	336	403	422	438	608	869	1,168
Abnormal items (post-tax)	0	0	0	0	0	0	0	0
Minorities / pref dividends	0	0	0	0	0	0	0	0
Net Income (local GAAP)	284	336	403	422	438	608	869	1,168
Adjusted Net Income	284	336	403	422	438	608	869	1,168
Tax rate (%)	23	25	26	24	19	22	24	24
Per Share	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
EPS (local GAAP)	0.60	0.70	0.85	0.88	0.92	1.21	1.72	2.32
EPS (BTG Pactual)	0.60	0.70	0.85	0.88	0.92	1.21	1.72	2.32
Net DPS	0.25	0.33	0.40	0.42	0.44	0.60	0.86	1.16
BVPS	4.85	5.10	7.48	7.98	8.77	8.91	9.77	10.93
Cash Flow (R\$m)	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
Net Income	284	336	403	422	438	608	869	1,168
Depreciation	148	149	160	175	195	211	212	229
Net change in working capital	(34)	(30)	(7)	(22)	(100)	90	(47)	(48)
Other (operating)	199	292	240	200	338	259	0	0
Net cash from operations	598	746	797	775	872	1,168	1,033	1,349
Cash from investing activities	(354)	(476)	(787)	(960)	(797)	(695)	(910)	(779)
Cash from financing activities	(199)	(190)	(82)	107	19	46	196	(434)
Bal sheet chge in cash & equivalents	44	79	(72)	(78)	95	519	319	136
Balance Sheet (R\$m)	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
Cash and equivalents	140	219	147	69	164	683	1,002	1,138
Other current assets	346	424	454	490	575	441	504	567
Total current assets	487	643	601	559	738	1,124	1,506	1,705
Net tangible fixed assets	4,579	4,760	5,094	5,527	6,892	7,303	8,001	8,551
Net intangible fixed assets	0	0	0	0	0	0	0	0
Investments / other assets	498	769	1,053	1,466	615	777	777	777
Total assets	5,564	6,172	6,748	7,552	8,245	9,204	10,284	11,033
Trade payables & other ST liabilities	356	417	380	464	511	679	825	990
Short term debt	215	187	164	301	231	423	423	423
Total current liabilities	572	605	544	764	742	1,102	1,248	1,413
Long term debt	1,330	1,632	2,082	2,417	2,762	3,047	3,547	3,547
Other long term liabilities	1,352	1,506	555	569	561	569	569	569
Total liabilities	3,254	3,743	3,181	3,751	4,064	4,718	5,364	5,529
Equity & minority interests	2,310	2,429	3,567	3,801	4,180	4,486	4,920	5,504
Total liabilities & equities	5,564	6,172	6,748	7,552	8,245	9,204	10,284	11,033

Company Profile:

Sanepar is a water and sewage utility company that serves 346 municipalities in the state of Parana and Santa Catarina, as of 2016. Sanepar's business includes planning, providing, and operating basic sanitation services throughout the territory of Parana and Santa Catarina for 7.1mn inhabitants.

Financial ratios	12/2014	12/2015	12/2016E	12/2017E	12/2018E
EBITDA margin	31.9%	30.1%	34.2%	38.8%	43.0%
Operating margin	25.2%	23.5%	28.1%	33.3%	37.9%
Net margin	16.1%	14.8%	17.7%	22.2%	26.1%
RoE	11.4%	11.0%	14.0%	18.5%	22.4%
RoIC	10.9%	10.4%	13.5%	17.2%	20.9%
EBITDA / net interest	7.6x	5.6x	6.6x	9.8x	12.9x
Net debt / EBITDA	3.2x	3.2x	2.4x	2.0x	1.5x
Total debt / EBITDA	3.3x	3.3x	3.0x	2.6x	2.1x
Net debt / (net debt + equity)	41.1%	40.4%	38.3%	37.6%	34.0%

Source: Company reports and BTG Pactual estimates. Valuations: based on the last share price of that year(E) based on share price as of 07 March 2017

Income Statement (R\$m)	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
Revenue	9,942	10,754	11,316	11,213	11,712	12,954	11,584	12,516
Operating expenses (ex deprn)	(6,818)	(7,169)	(7,308)	(8,296)	(7,596)	(8,348)	(5,723)	(5,945)
EBITDA (BTG Pactual)	3,123	3,585	4,007	2,918	4,115	4,606	5,861	6,572
Depreciation	(769)	(740)	(871)	(1,004)	(1,074)	(1,141)	(1,165)	(1,226)
Operating income (EBIT, BTG Pactual)	2,354	2,845	3,136	1,913	3,041	3,465	4,696	5,346
Other income & associates	0	0	0	0	0	0	0	0
Net Interest	(634)	(301)	(483)	(636)	(2,456)	428	(183)	13
Abnormal items (pre-tax)	0	0	0	0	0	0	0	0
Profit before tax	1,721	2,544	2,653	1,277	585	3,893	4,514	5,359
Tax	(497)	(632)	(732)	(372)	(51)	(1,233)	(1,360)	(1,625)
Profit after tax	1,223	1,912	1,921	905	534	2,660	3,154	3,734
Abnormal items (post-tax)	0	0	0	0	0	0	0	0
Minorities / pref dividends	0	0	0	0	0	0	0	0
Net Income (local GAAP)	1,223	1,912	1,921	905	534	2,660	3,154	3,734
Adjusted Net Income	1,223	1,912	1,921	905	534	2,660	3,154	3,734
Tax rate (%)	29	25	28	29	9	32	30	30
Per Share	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
EPS (local GAAP)	1.79	2.80	2.81	1.32	0.78	3.89	4.61	5.46
EPS (BTG Pactual)	1.79	2.80	2.81	1.32	0.78	3.89	4.61	5.46
Net DPS	0.85	0.78	0.79	0.37	0.22	0.97	1.15	1.37
BVPS	15.43	17.14	18.92	19.46	20.07	22.71	26.17	30.27
Cash Flow (R\$m)	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
Net Income	1,223	1,912	1,921	905	534	2,660	3,154	3,734
Depreciation	769	740	871	1,004	1,074	1,141	1,165	1,226
Net change in working capital	2	63	(104)	126	(365)	182	(93)	(81)
Other (operating)	723	(378)	87	447	1,396	(703)	40	40
Net cash from operations	2,717	2,336	2,775	2,483	2,639	3,280	4,265	4,918
Cash from investing activities	(2,008)	(1,999)	(2,281)	(2,758)	(2,459)	(1,800)	(2,554)	(2,734)
Cash from financing activities	(548)	(566)	(630)	218	(266)	(808)	(666)	(788)
Bal sheet chge in cash & equivalents	161	(229)	(139)	(59)	(84)	674	1,046	1,396
Balance Sheet (R\$m)	12/2011	12/2012	12/2013	12/2014	12/2015	12/2016E	12/2017E	12/2018E
Cash and equivalents	2,150	1,921	1,782	1,723	1,639	2,313	3,359	4,755
Other current assets	1,391	1,306	1,337	1,370	1,655	1,331	1,447	1,549
Total current assets	3,541	3,228	3,119	3,093	3,294	3,644	4,807	6,304
Net tangible fixed assets	356	383	199	305	325	309	309	309
Net intangible fixed assets	0	0	0	0	0	0	0	0
Investments / other assets	20,962	22,802	24,690	26,733	29,215	31,121	32,510	34,018
Total assets	24,859	26,413	28,009	30,131	32,835	35,074	37,626	40,632
Trade payables & other ST liabilities	2,339	2,430	2,331	2,273	2,214	2,822	2,968	3,133
Short term debt	1,630	1,367	641	1,207	1,526	1,714	1,714	1,714
Total current liabilities	3,969	3,797	2,972	3,481	3,740	4,536	4,682	4,848
Long term debt	8,661	9,564	10,871	12,084	13,555	12,340	12,380	12,420
Other long term liabilities	1,683	1,337	1,235	1,262	1,822	2,678	2,678	2,678
Total liabilities	14,313	14,698	15,078	16,827	19,118	19,554	19,740	19,945
Equity & minority interests	10,546	11,716	12,931	13,304	13,717	15,521	17,886	20,687
Total liabilities & equities	24,859	26,413	28,009	30,131	32,835	35,074	37,626	40,632

Company Profile:

Sabesp is a water and sewage utility company that serves 363 municipalities in the state of São Paulo. The company serves 24.2 million people in the state of São Paulo with water and 20.9 million with sewage collection. Sabesp also sells water wholesale to six municipalities in the metropolitan area of São Paulo. Sabesp's business includes planning, providing, and operating basic sanitation services throughout the territory of São Paulo.

Financial ratios	12/2014	12/2015	12/2016E	12/2017E	12/2018E
EBITDA margin	26.0%	35.1%	35.6%	50.6%	52.5%
Operating margin	17.1%	26.0%	26.7%	40.5%	42.7%
Net margin	8.1%	4.6%	20.5%	27.2%	29.8%
RoE	6.9%	4.0%	18.2%	18.9%	19.4%
RoIC	8.1%	11.7%	12.8%	16.9%	18.3%
EBITDA / net interest	4.6x	1.7x	-10.8x	32.1x	-493.8x
Net debt / EBITDA	4.0x	3.3x	2.5x	1.8x	1.4x
Total debt / EBITDA	4.6x	3.7x	3.1x	2.4x	2.2x
Net debt / (net debt + equity)	46.5%	49.5%	43.1%	37.5%	31.2%

Source: Company reports and BTG Pactual estimates. Valuations: based on the last share price of that year(E) based on share price as of 07 March 2017

Required Disclosures

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The figures contained in performance charts refer to the past; past performance is not a reliable indicator of future results.

BTG Pactual Rating	Definition	Coverage *1	IB Services *2
Buy	Expected total return 10% above the company's sector average.	50%	50%
Neutral	Expected total return between +10% and -10% the company's sector average.	45%	40%
Sell	Expected total return 10% below the company's sector average.	5%	40%

1: Percentage of companies under coverage globally within the 12-month rating category.

2: Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.

Absolute return requirements

Besides the abovementioned relative return requirements, the listed absolute return requirements must be followed:

- a) a Buy rated stock must have an expected total return above 15%
- b) a Neutral rated stock can not have an expected total return below -5%
- c) a stock with expected total return above 50% must be rated Buy

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Companhia de Saneamento de Minas Gerais [BRCSMG] - Given their regulated nature, the electricity and water utility sectors are subject to political and/or legal interference. Therefore, the federal (or state) government(s) could implement changes and/or more severe rules/regulations that could hurt companies' cash flows. In addition, an abrupt change in FX rates could negatively impact foreign investors, since companies' tariffs are adjusted by inflation annually.

Companhia de Saneamento do Paraná [BRSAPR] - Given their regulated nature, the electricity and water utility sectors are subject to political and/or legal interference. Therefore, the federal (or state) government(s) could implement changes and/or more severe rules/regulations that could hurt companies' cash flows. In addition, an abrupt change in FX rates could negatively impact foreign investors, since companies' tariffs are adjusted by inflation annually.

Cia Saneamento Basico Estado Sao Paulo - Sabesp [BRSBSP] - Given their regulated nature, the electricity and water utility sectors are subject to political and/or legal interference. Therefore, the federal (or state) government(s) could implement changes and/or more severe rules/regulations that could hurt companies' cash flows. In addition, an abrupt change in FX rates could negatively impact foreign investors, since companies' tariffs are adjusted by inflation annually.

Valuation Methodology

Companhia de Saneamento de Minas Gerais [BRCSMG] - Our target price is DCF-derived, discounted at a real WACC. Our model contains rate reviews every five years, with a long-term real regulatory WACC rate of 7%. We also assume the operation is perpetual, with no perpetuity growth.

Companhia de Saneamento do Paraná [BRSAPR] - Our target price is DCF-derived, discounted at a real WACC. Our model contains rate reviews every four years, with a long-term real regulatory WACC rate of 8.6%. We also assume the operation is perpetual, with no perpetuity growth.

Cia Saneamento Basico Estado Sao Paulo - Sabesp [BRSBSP] - Our target price for Sabesp is DCF-derived, discounted at a real WACC. Our model contains rate reviews every five years, with a long-term real regulatory WACC rate of 7%. We also assume the operation is perpetual, with no perpetuity growth.

Company Disclosures

Company Name	Reuters	12-mo rating	Price	Price date
Copasa ^{1, 2, 4, 6, 10, 18, 19, 22}	CSMG3.SA	Buy	R\$54.31	7-3-2017
Sabesp ^{1, 2, 4, 6, 18, 19, 20, 22}	SBSP3.SA	Buy	R\$33.44	7-3-2017
Sanepar ^{1, 9, 18, 20, 21, 22}	SAPR4.SA	Buy	R\$14.45	7-3-2017

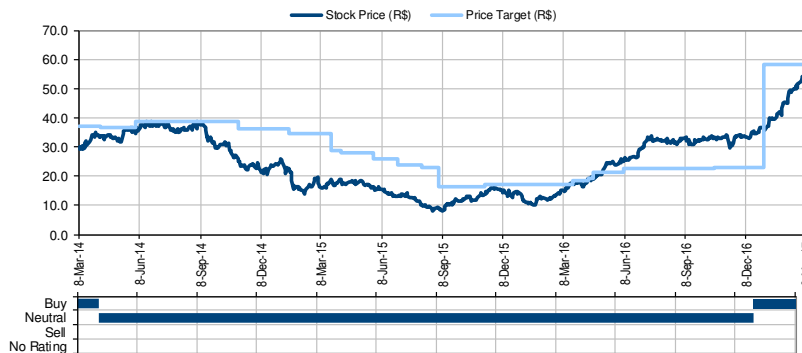
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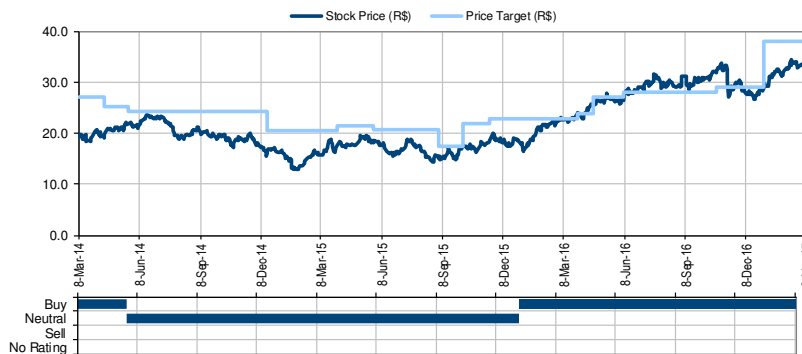
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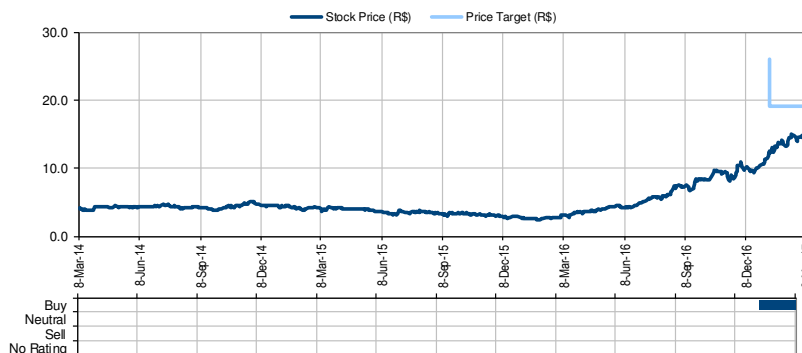
Source: BTG Pactual and Economática. Prices as of 07 March 2017

Sabesp



Source: BTG Pactual and Economática. Prices as of 07 March 2017

Sanepar



Source: BTG Pactual and Economática. Prices as of 07 March 2017

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