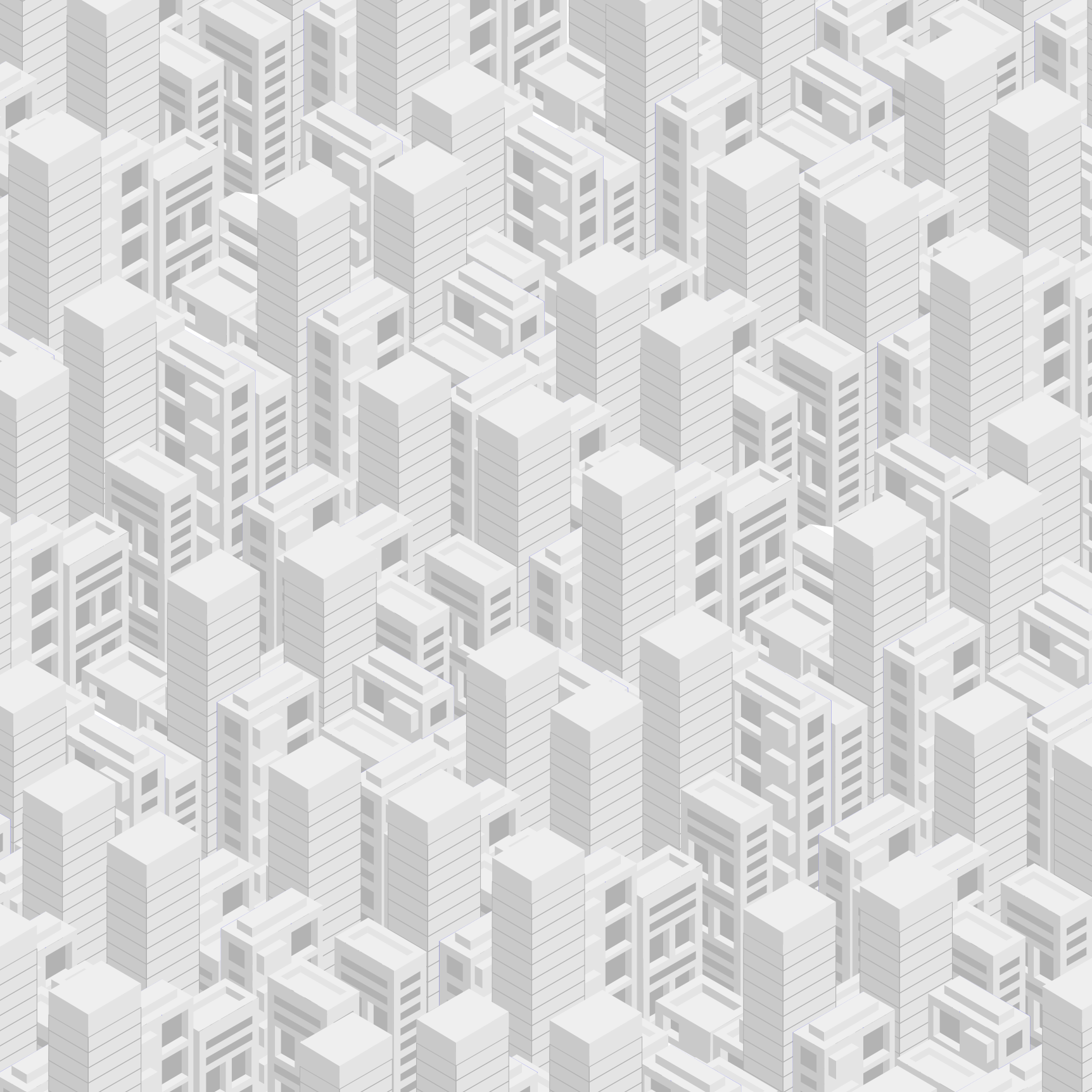
Panorama

of the private sector's participation in sanitation

2020

A TIME TO ADVANCE



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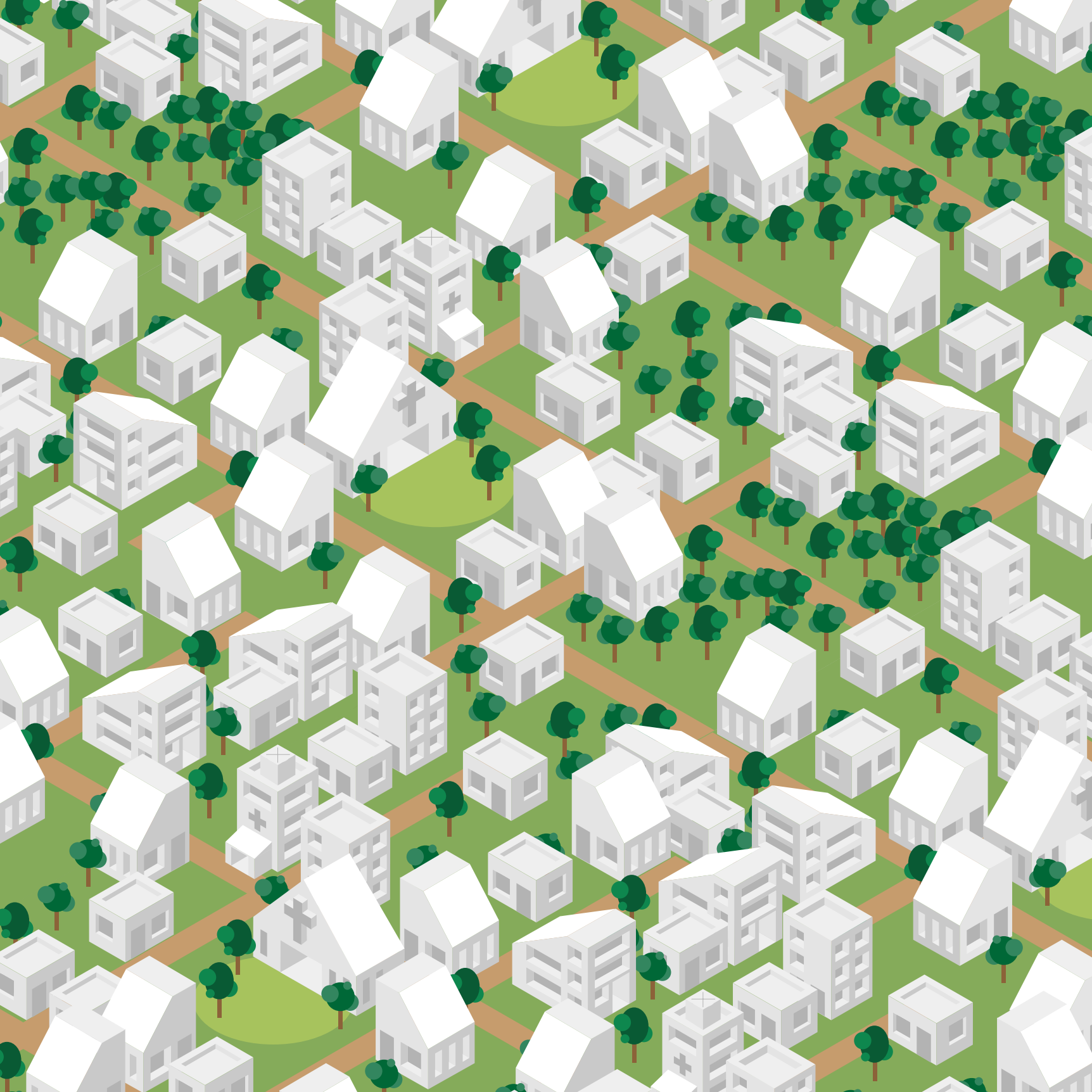


LETTER TO THE READER

Dear Reader,

The PANORAMA OF THE PRIVATE SECTOR'S PARTICIPATION IN SANITATION 2020, which comes into your hands, has become a task of the greatest importance given the current scenario of the sanitation sector.

The sector is experiencing a new moment.

Private enterprise companies operating public water and sewage services are expected to contribute decisively to the universalization of sanitation in the country.

The major role of public-private partnerships, sub-concessions and concessions in sanitation services demands great responsibility from private companies and public entities.

In addition to investment and management qualification, private sanitation operators are strengthening their compliance areas and investing to qualify their "social license to operate", improving the relationship with society.

These are increasingly solid ties between private companies and the populations assisted by them, which can contribute sustainably to overcome the sector's serious deficits.

This whole movement reinforces the commitment that private companies make to the sustainability of water and sewage systems by becoming concessionaires of sanitation services.

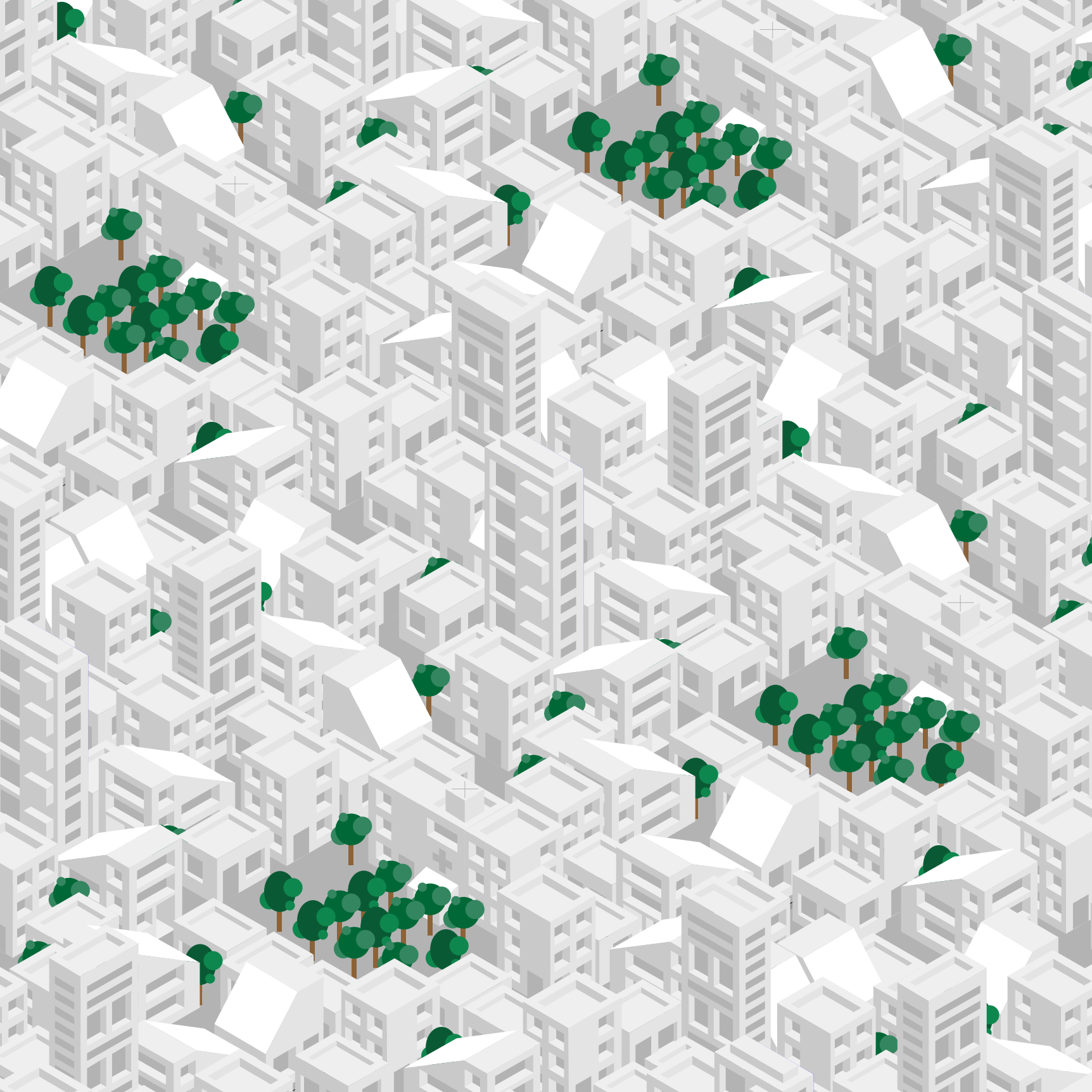
The PANORAMA 2020 reiterates this commitment.

From the compilation of information and figures, we demonstrate the advances already achieved, reinforcing the basis to understand this new scenario.

Good reading!

Percy Soares Neto

Chief Executive Officer of ABCON SINDCON



EDITORIAL

The perception that sanitation is a priority and requires an urgent solution is a great achievement for all Brazilians.

ABCON SINDCON has been strenuously working so that, from the adoption of a new legal framework for sanitation, the sector can advance and establish an era of investments that will benefit everyone, especially the significant portion of the population that currently does not have the basic right of access to treated water and sewage collection and treatment.

After an exhaustive process of discussion, initiated even before the theme has gained relevance in the National Congress, it is clear to the most different segments of society the need of a legislation that establishes parameters for a new model, which guarantees competition, efficiency and solid regulatory principles to the market.

One of the measures that point out to the further expansion of assistance – regardless of the size of the municipality – is the regional provision of services.

Cities of different sizes may be part of concession groups, enabling economies of scale to assist more and less profitable areas.

This solution will be feasible from appropriate modeling, and will be supported by the new profile of the National Water and Sanitation Agency (ANA), which will establish reference standards that encourage the regionalization of services provision.

This model imposes challenges on the Union, which is liable for ensuring the consistency of regulatory guidelines, as well as to states and municipalities, which should seek the best regional arrangements for the provision of services.

In a year of municipal elections, future mayors might be familiar with this issue.

In fact, they need to go further and foresee the opportunities provided by the new legal framework.

We believe that reading this PANORAMA 2020 is very valuable for our municipal leaders to consider sanitation as one of the priorities of their respective managements.

Finally, the PANORAMA 2020 is another tool to inform and instill in society the importance of being mobilized, taking advantage of the window of opportunities opened by the new legal framework, so that we have effective results in sanitation.

This means, at this moment, that we need to be attentive to the Legislative Branch so that it can translate into laws the popular will to have universalized and benecial services to public health, with projects that enable this development throughout the country; and also strengthen actions that promote the implementation of the new legal framework guidelines by the Executive Branch.

Cohesion and partnership must be the driving force on behalf of universalization.

Let's make access to sanitation for all into a reality!

Alexandre Ferreira Lopes

President Executive Officer of SINDCON

Carlos Henrique da Cruz Lima

Directors Board Chairman of ABCON

1. CURRENT CONTEXT

1.1. HEALTH

Brazilians live with epidemics and diseases that could be eradicated

Sanitation and health are directly related. The higher the supply of basic water, sewage collection and treatment services, the more public health and well-being.

Dirty water and untreated sewage are synonymous with diseases, some of which are not eradicated in countries that have already achieved the universalization of sanitation services. The lower the service supply rate, the higher the risk to health and the incidence of water borne diseases. This relationship can be proven by the increase in occurrences, registered in the SUS (Unified Health System), of water borne diseases and epidemics, such as dengue, zika and chikungunya. Even those who have water supply at home can be affected by poor service conditions. According to the Ministry of Regional Development, 47% of Brazilians are in this situation.

This situation is even more worrisome in pandemic situations, such as COVID-19, in which beds are occupied by people with diseases that could be significantly reduced if there was an expansion, with quality, of water supply and sewage services.

In September last year, a survey conducted by UFRJ proved the relationship between the poor quality of sanitation (proliferation of bacteria that release saxitoxin) with the high incidence of microcephaly in northeastern Brazil. The study revealed that the lack of adequate services increases the vulnerability of the population's health.

Indeed, while a model is discussed in the National Congress so that sanitation can be improved, from a new legal framework for the sector, people are dying due to the lack of this service. The deficit causes deaths and the ones that suffer the most are children, women and low-income population.

In 2020, more than a hundred years after the first popular campaigns for sanitation in the country, most Brazilians are still subject to deplorable conditions.

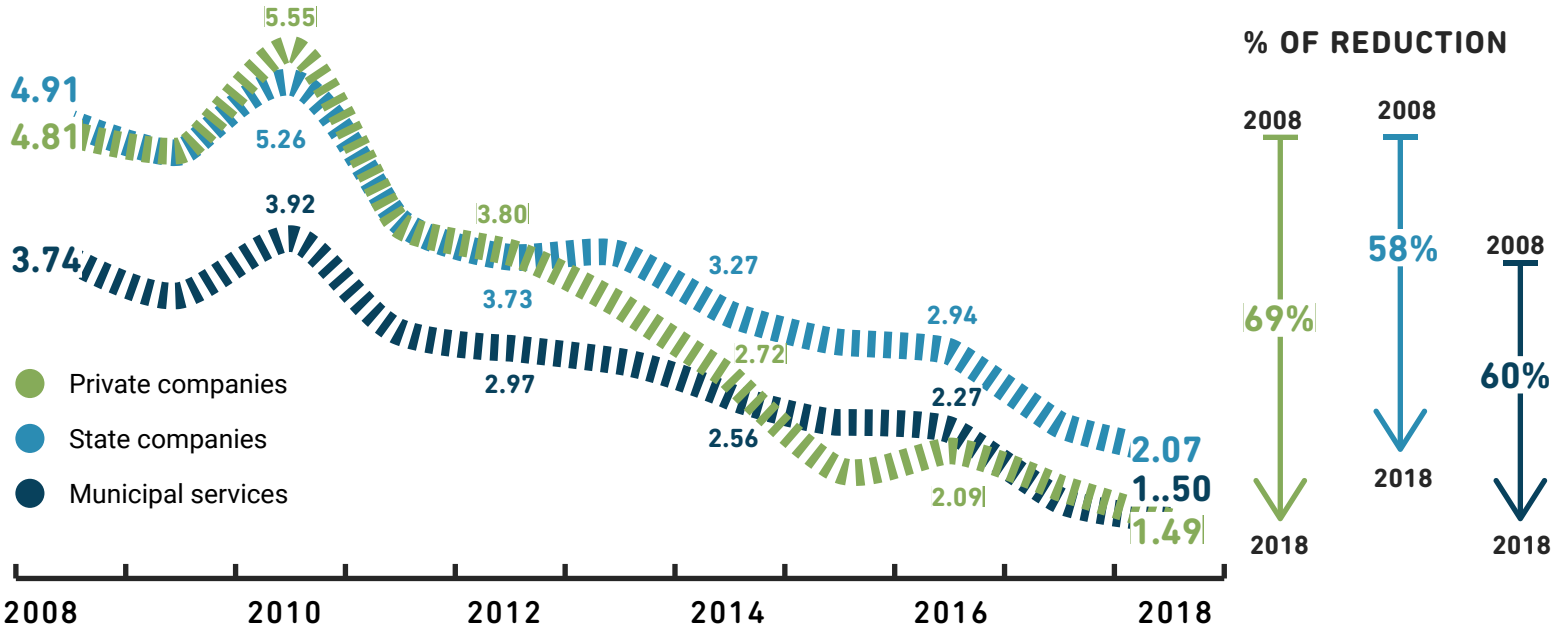
Diseases related to lack of sanitation

- Cholera
- Typhoid and paratyphoid fever
- Shigellosis
- Amebiasis
- Diarrhoea and gastroenteritis of presumed infectious origin
- Other intestinal infectious diseases
- Leptospirosis
- Schistosomiasis
- Dengue fever
- Zika fever
- Chikungunya
- Yellow fever
- Malaria
- Trypanosomiasis

CHART 1

Reduction in the average number of Hospital Admission Authorizations related to water borne diseases, per 1,000 inhabitants, from 2008 to 2018

Source: DATASUS, IBGE



Reduction of illnesses among the private concessions is higher

A survey conducted by ABCON SINDCON with data from DATASUS/ Ministry of Health and IBGE shows that the greatest reduction in hospitalizations for water borne diseases in the last ten years has occurred in municipalities with private sanitation concessions.

Uruguaiana improves health indicators and reduces hospitalizations

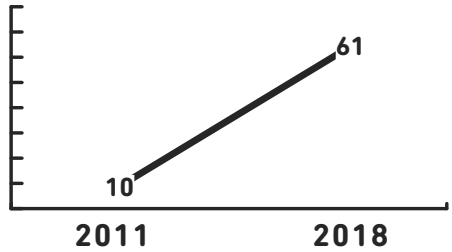
It's historical. Never before in Uruguaiana (RS) has there been such an important reduction in the rates of water borne diseases, thanks to the investments in sewage collection and treatment in the last seven years.

Data from the Municipal Health Department of the municipality (**Chart 2**) prove that sanitation directly improves life quality, reducing diarrhea cases and the infant mortality rate. The number of these occurrences was gradually reduced from 2011, when the construction of the sewage networks started, made by the private concessionaire BRK Ambiental Uruguaiana.

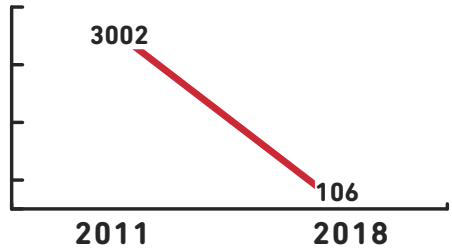
With the reduction of diseases, it is estimated that the municipality saves about R$1 million per year, a value that can be invested in other priority areas for the population.

CHART 2
Health Situation in Uruguaiana-RS. Comparative 2011-2018

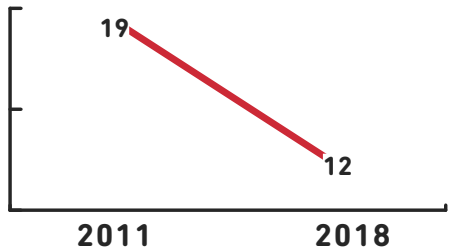
RATE OF TREATED SEWAGE RELATED TO CONSUMED WATER
(%) Source: SNIS 2011 -2018



CASES OF DIARRHEA*



INFANT MORTALITY*
(deaths per 1,000 live births)



*** Source:** Municipal Health Department of Uruguaiana

In Paraty, disease rates plummet

The deployment of the water supply and sewage system service in the municipality, conducted by the private concessionaire Águas de Paraty, of the Águas do Brasil group, was fundamental for the reduction of diseases among the population (**Chart 3**).

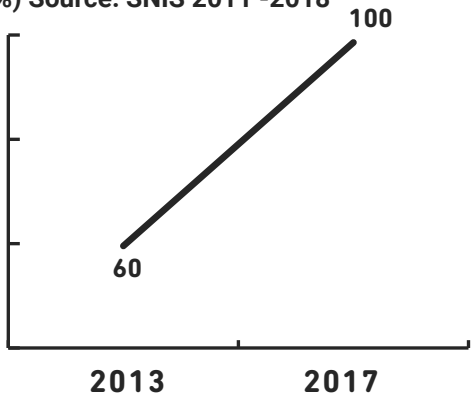
In 1991, recalls Fernando Loro, a clinical physician at the Hugo Miranda Municipal Hospital and former Secretary of Health of Paraty, "I recorded the first water borne diseases rate in the city, which presented an alarming number of 56 cases per 1,000 inhabitants. With water treatment, these numbers plummeted to almost zero in 2019." The doctor explains: "In addition to being a public health problem, these cases encumbered the system, significantly compromising hospital care".

CHART 3

Health Situation in Paraty-RJ. Comparative 2013-2017.

URBAN WATER ATTENDANCE RATE

(%) Source: SNIS 2011 -2018



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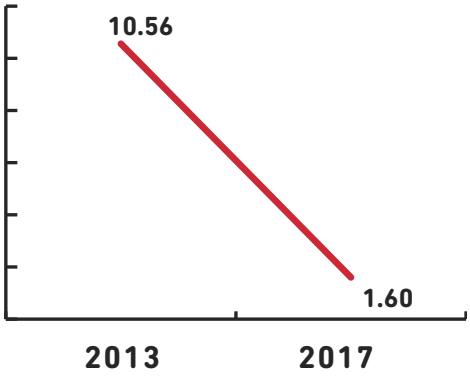


Indicators show decline in hospitalizations in Palmas

In Palmas, where the company Saneatins (BRK Ambiental group) operates, the incidence of total hospitalizations due to water borne diseases reduced between 2010 and 2018, mainly among children aged 0 to 4 years, which is the most vulnerable group to lack of sanitation (**Chart 4**).

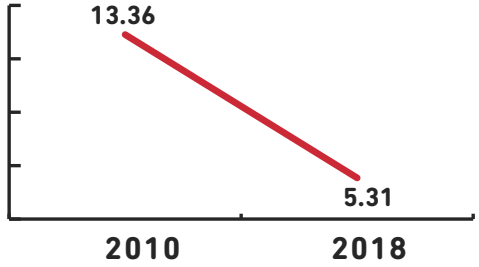
According to the Trata Brasil Institute (ITB), in Tocantins, from 2010 to 2018, health care spending fell from R$ 2.1 million to R$ 601.9 thousand. In Palmas, these expenses reduced from R$ 110.6 thousand to R$ 59.2 thousand in the same period.

CHART 4

Health Situation in Palmas-TO. Comparative 2010-2018.

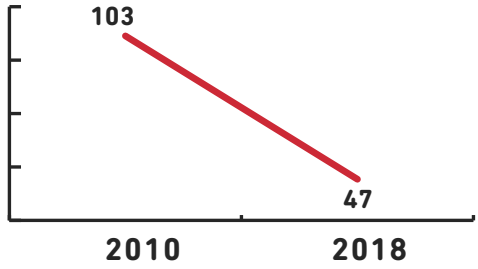
HOSPITALIZATIONS DUE TO WATER BORNE DISEASES

(every 10,000 inhabitants)



HOSPITALIZATIONS DUE TO WATER BORNE DISEASES AMONG CHILDREN FROM 0 TO 4 YEARS

(every 10,000 inhabitants)



Millions spent due to the lack of sanitation impacts the SUS

Between January and March of this year, Brazil had 103,876 hospitalizations in the SUS due to diseases caused by lack of sanitation.

The data were collected by ABCON SINDCON based on updated information from Datasus/Ministry of Health.

These beds could be intended for the treatment of Covid-19 patients and other diseases, but which end up being used for medical occurrences that should already be eradicated if we had universalized water and sewage services.

Also according to data from Datasus, if the number of hospitalizations due to diseases of this type are counted from January 2019 to March 2020, the national average is 35,198 hospitalizations/month (there were more than half a billion hospitalizations – 527.971 – in the period).

Prepared by the consultancy Ex Ante and published by the Trata Brasil Institute, the study "Economic and Social Benefits of the Expansion of Brazilian Sanitation 2018" reveals that, in 2013, considering only hospitalizations due to infectious gastrointestinal diseases, the SUS (Unified Health System) had a R$ 125.5 million expense.

1.2. EDUCATION

Public education network deals with lack of sewage treatment system

Are water supply and sanitation adequately available in our schools? According to data from the 2019 School Census, there is still a long way to go to ensure these basic services in the public school system.

In general, it is easier to have internet access in schools than to find a suitable bathroom.

In public preschool, for example, the internet is present in 61%, while only 36% of schools are connected to the sewage network.

Conducted by the National Institute of Educational Studies and Research Anísio Teixeira - INEP, the Census compiles information from 180,610 basic education schools (early childhood, elementary and high school) and some of the conclusions can be found in **Chart 5**.

The study "Economic and Social Benefits of The Expansion of Sanitation in Brazil 2018" (ITB, Ex Ante), reveals that, when access to sewage collection and treated water services is available to a student who currently does not have this benefit, a reduction of 3.6% in his/her school delay is expected.

Priority in Campo Grande

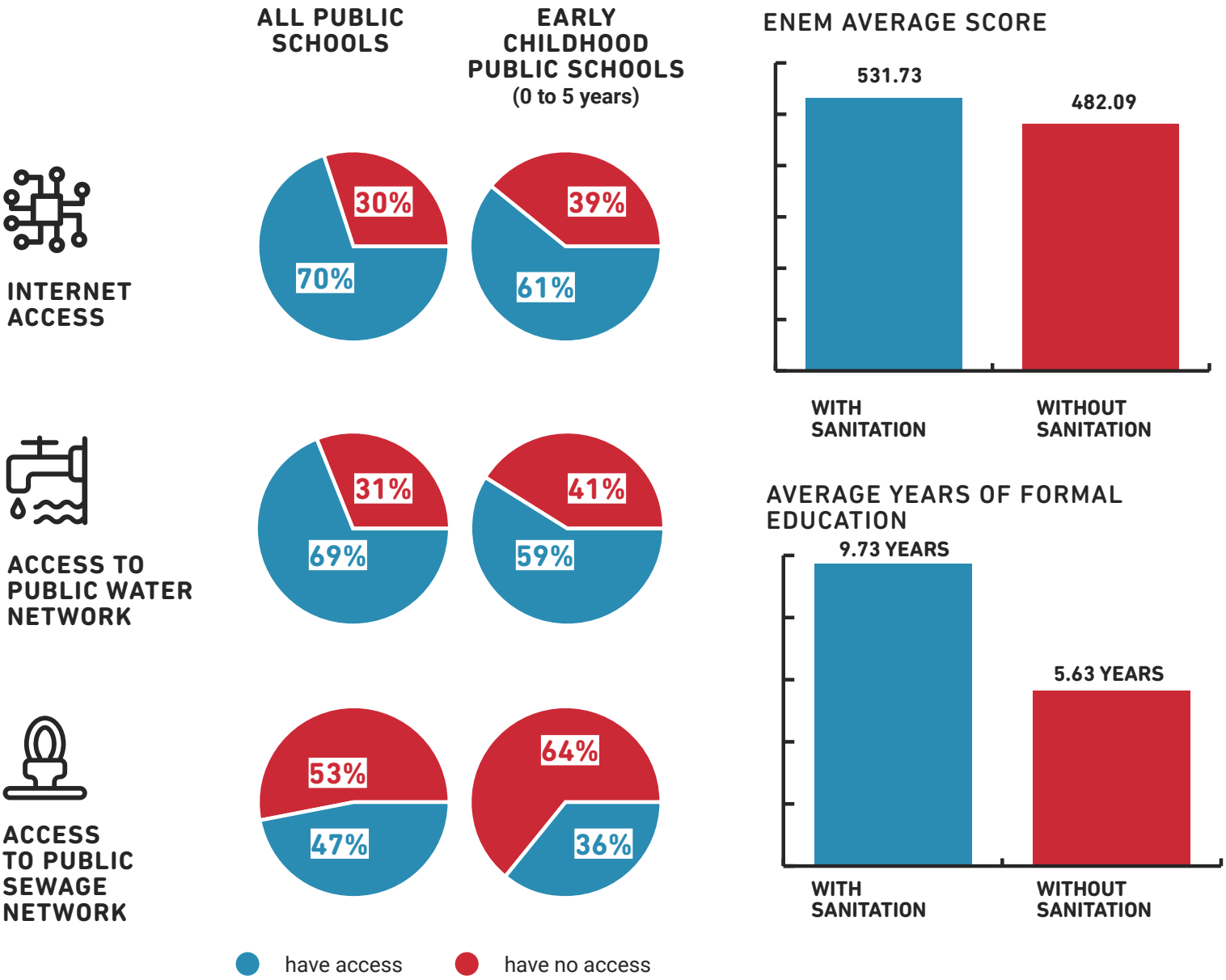
Education is one of the backbones of social activity of the private concessionaire Águas Guariroba, of the Aegea group, in Campo Grande (MS). Educational programs, which carry information about sanitation, are developed for students through theater, lectures, competitions and visits in the company's units.

Students are also advised on disposal of cooking oil. To encourage and valuing the teachers, the concessionaire rewards the educators of the municipal school system.

CHART 5

Sanitation and education in 2019

Source: School Census 2019 of the National Institute of Educational Studies and Research Anísio Teixeira - INEP



1.3. THE SANITATION SECTOR IN BRAZIL

Despite a slight progress in sewage collection and treatment indicators, most of the country still remains without access to this basic right. 88 million Brazilians don't even have sewage collection. And if we consider people not assisted by sewage treatment, this quota rises to 112 million, close to the population of Mexico or Japan.

Data from the Ministry of Regional Development show the difficulty of the sector in tracking population growth, aiming at accessing the percentage of the population assisted by the water supply system.

To continue at the current pace of investment, none of these indicators will be universalized until 2033; all will be far from the goal set by Plansab - National Sanitation Plan.

CHART 6
Evolution of water and sewage service coverage (%)

Source: SNIS

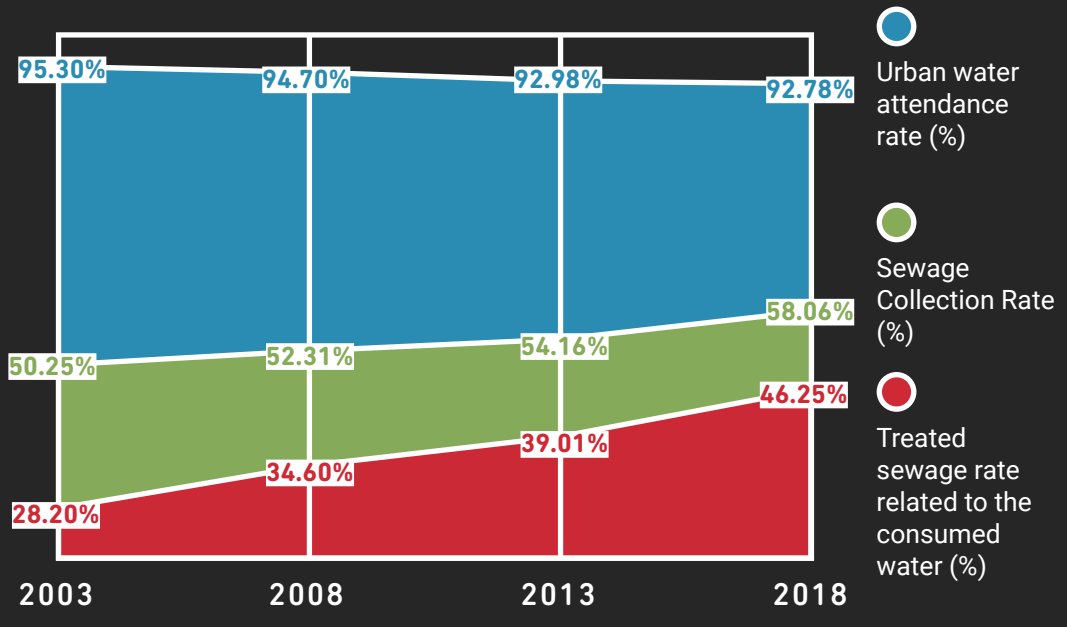


CHART 7
Population assisted (millions of inhabitants) and network extension (thousand km) of water and sewage services

Source: SNIS 2018, Plansab

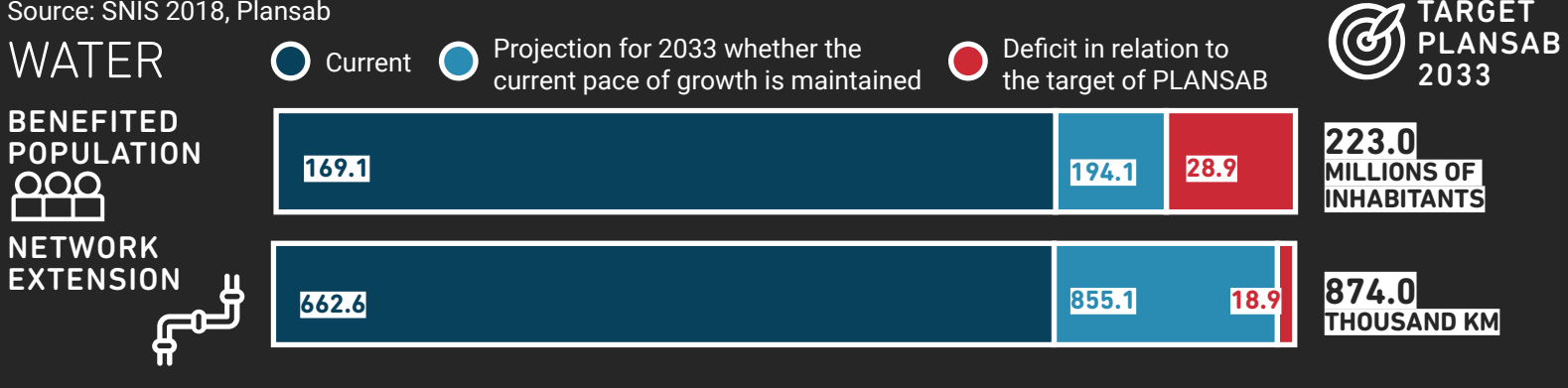
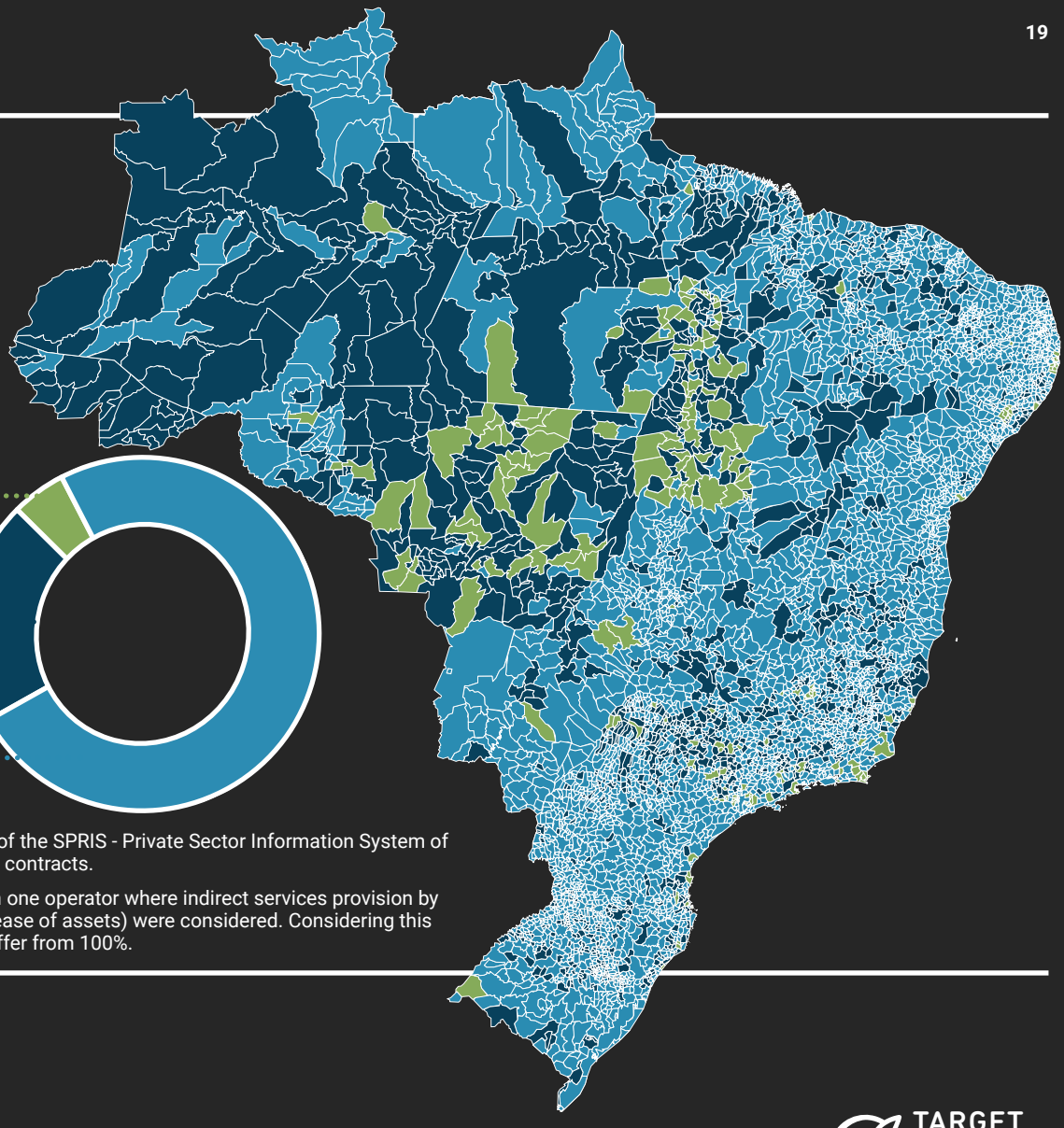
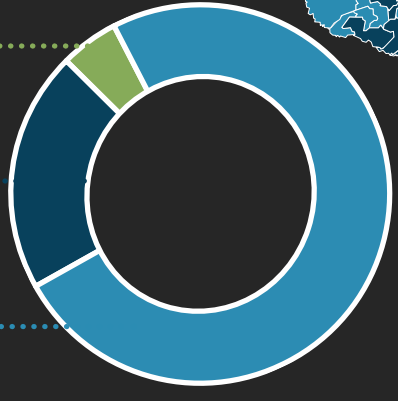


CHART 8

Participation of water and sewage service operators in Brazilian municipalities by type of operator (%)

Source: SPRIS 2018, SNIS 2018





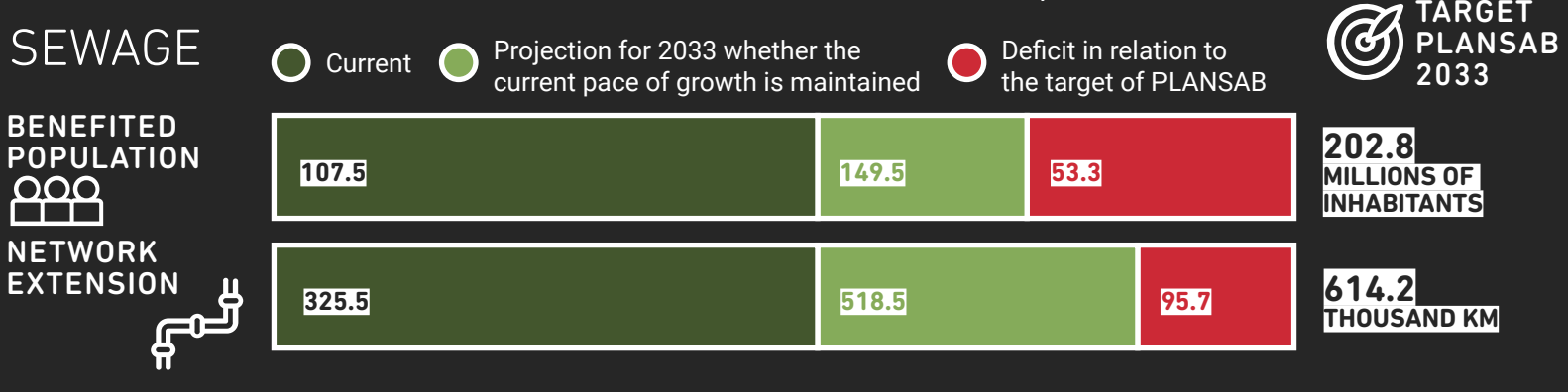
5.2% PRIVATE COMPANIES

25.7% MUNICIPAL SERVICES

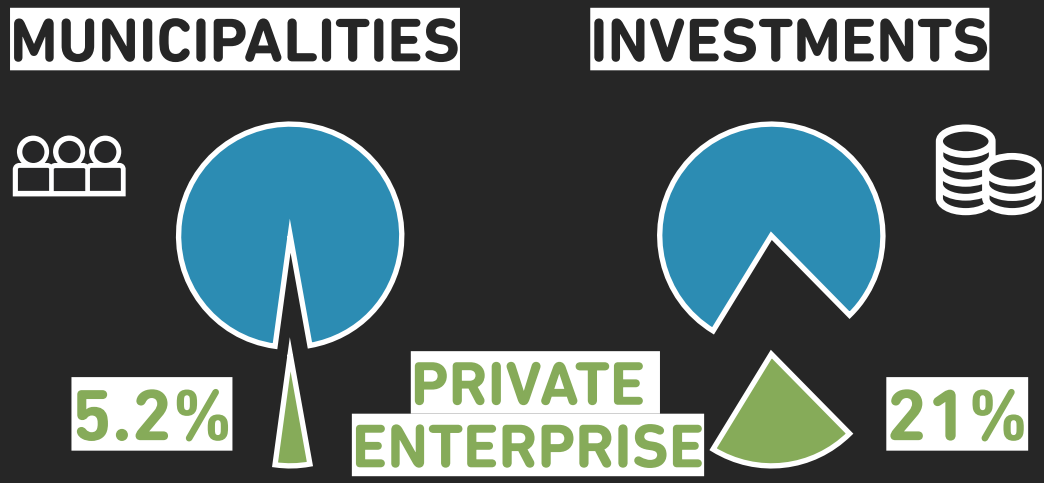
72% STATE COMPANIES

* The current methodology of data calculation of the SPRIS - Private Sector Information System of Sanitation does not count technical assistance contracts.

** There are municipalities that have more than one operator where indirect services provision by private companies (PPPs, subdelegation and lease of assets) were considered. Considering this information, the sum of the percentages will differ from 100%.



Despite corresponding to only 5.2% of the market, private sanitation concessions have historically maintained an average equal to or greater than 20% of the total invested by operators in the sector. They are solid investments, based on contracts with established goals.



* Considering all contracts, including PPPs. Source: SPRIS

CHART 9

Investments made in the sector (R$ billion — constant values in 2018)

Source: SPRIS and SNIS 2009-2018

* the percentage of private enterprise investment herein presented refers to the total invested **by operators in the sector**

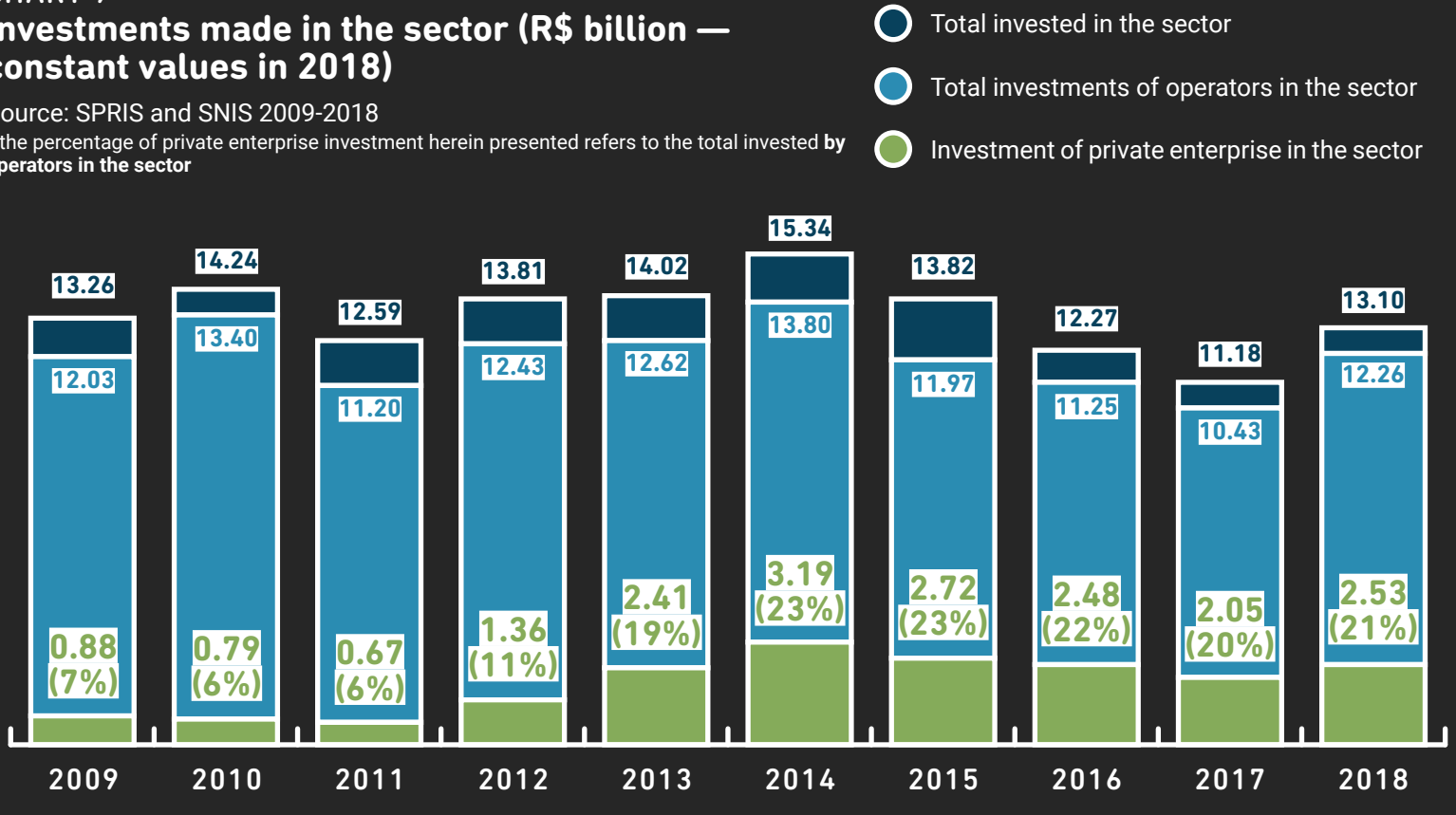


CHART 10

Average investment per water and sewage connection, by operator type (R$/connection)

Source: SNIS 2018

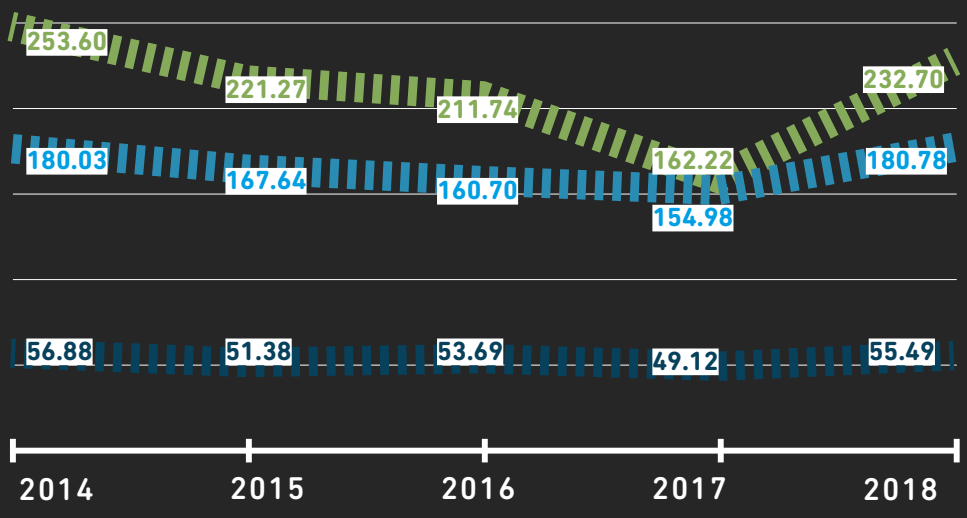
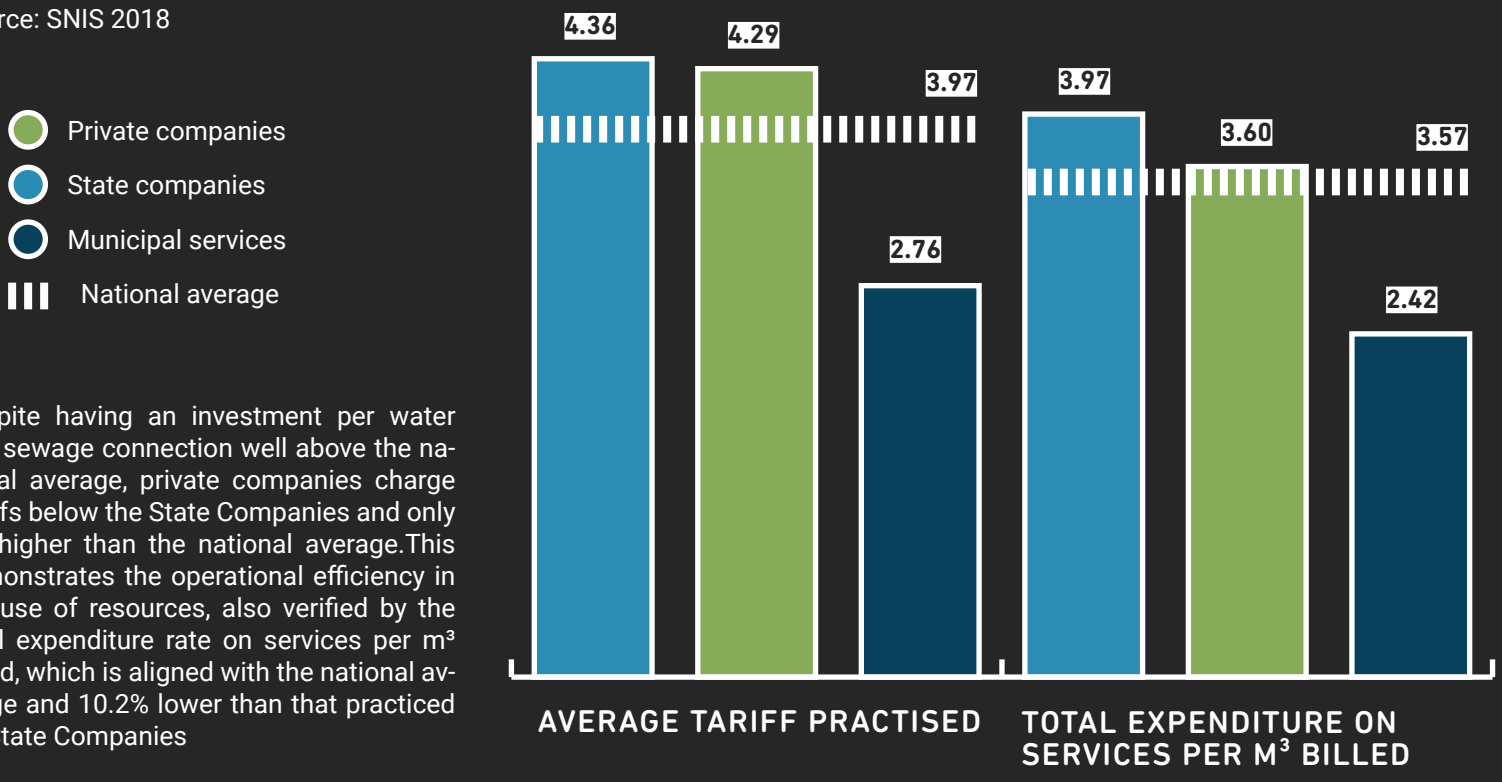


CHART 11

Average tariff practiced x Total expenditure on services per m³ billed (R$) in 2018

Source: SNIS 2018



Despite having an investment per water and sewage connection well above the national average, private companies charge tariffs below the State Companies and only 8% higher than the national average.This demonstrates the operational efficiency in the use of resources, also verified by the total expenditure rate on services per m³ billed, which is aligned with the national average and 10.2% lower than that practiced by State Companies

1.4. INVESTMENT DEMAND

Investment should be four times higher than the current one to meet demand

An investment of R$ 753 billion for the next 13 years is what Brazil needs to universalize sanitation in the country and adapt the service to the appropriate conditions of supply, or R$ 57.9 billion per year.

The values are more than four times the investment made in 2018 (R$ 13.2 billion, according to the SNIS - National Sanitation Information System).

The data refer to the expansion of network extension, pipelines, construction of water and sewage treatment plants, pumping stations, reservoirs, water connections, cisterns, artesian wells, sewage collection networks, trunk sewage system, sewage connections and septic tanks, and also include costs to compensate for the depreciation of assets.

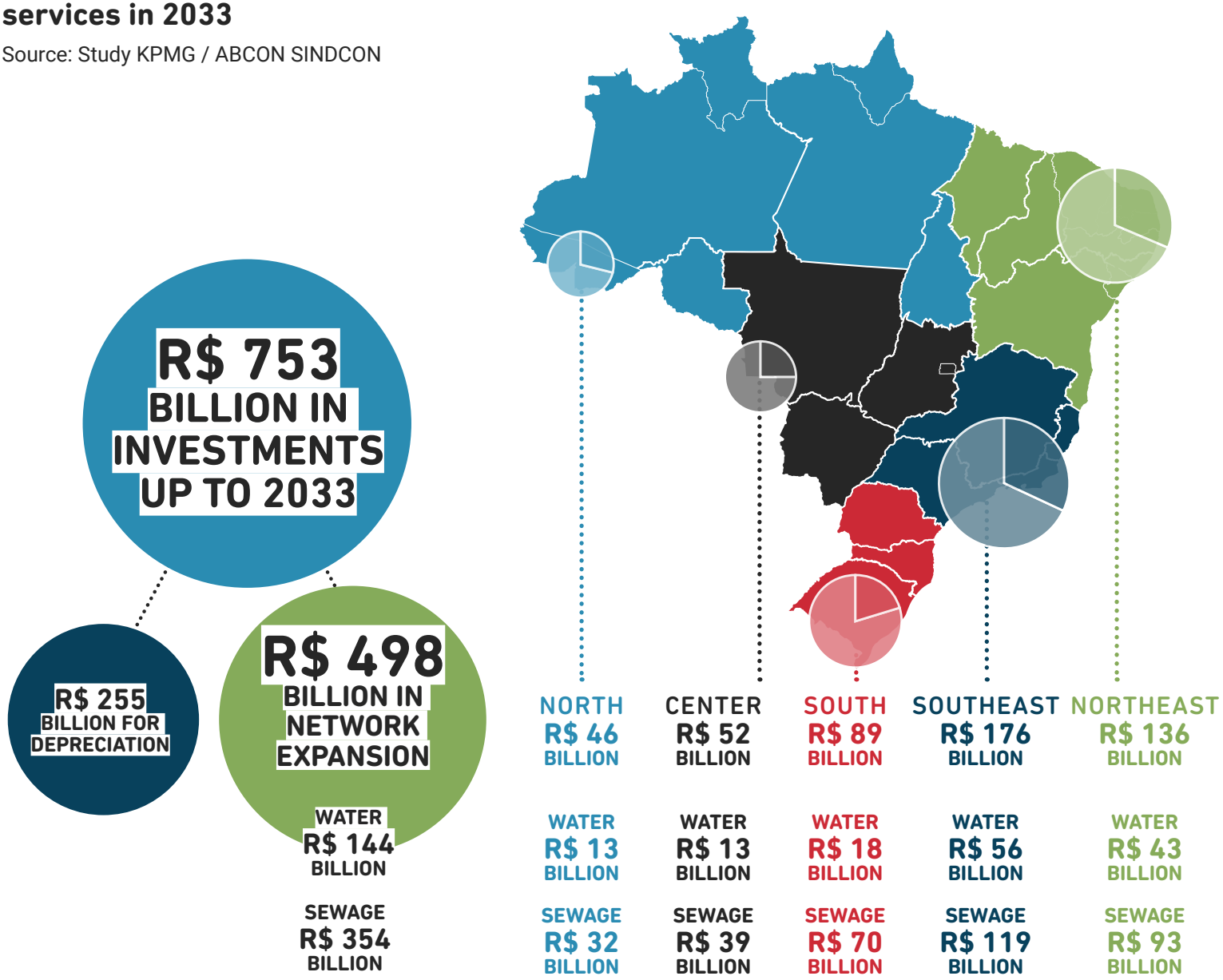
The information is part of a study conducted by KPMG consultancy to ABCON SINDCON. The research also provides detailed indicators by regions and States (**Chart 12**).

At the current pace of investment, according to the KPMG study, the universalization of services will only be achieved in 2055, more than two decades after the Plansab goal (2033).

CHART 12

Estimated investments for the universalization of water and sewage services in 2033

Source: Study KPMG / ABCON SINDCON



2. MARKET'S MOVEMENT

2.1. THE SLOW PACE IN RECENT YEARS

A critical analysis of the effects of Law 11.445 of 2007

Law 11.445 of 2007 brought advances to the sanitation sector, which lacked a Regulatory Framework and a Union guideline since the 1970s, when prepared by PLANASA. According to ABCON SINDCON's legal advisor, Eduardo Gurevich, "Law 11.445 of 2007 did not resolve critical issues to provide the universalization of services, specially the so-called Program Contracts".

The municipality is responsible for sanitation (except when configured common interest, then ownership is shared). When the State provides the public service of water supply and sewage collection and treatment, the municipality needs to hold a delegation. The delegation may be formalized by the program contract, regulated by Law 11.107 of 2005 and Decree 6.017 of 2007. This agreement has its bidding waived, as determined by Law 8.666 of 1993.

The program contracts signed between state companies and the granting authority, most of the time without defined methods and inadequate regulatory quality, do not stimulate investment in sanitation.

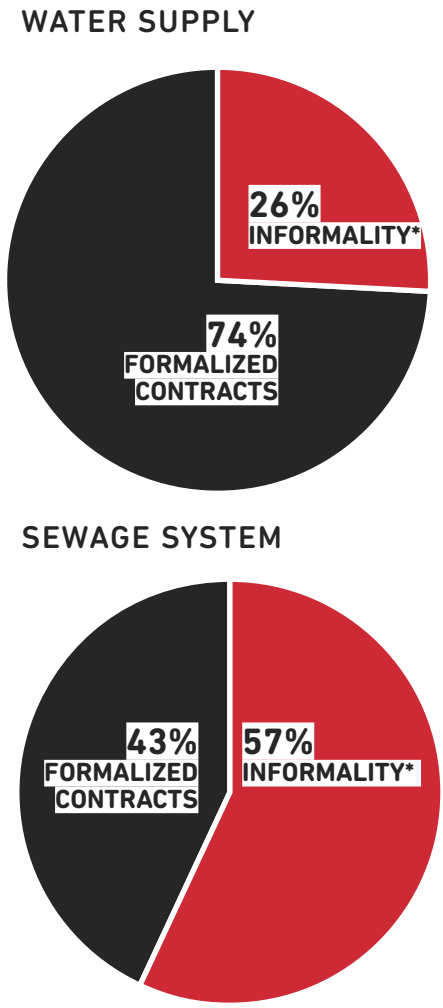
According to data from SNIS - National Sanitation Information System (SNIS 2018), there are operations, in 1,067 municipalities, of state companies whose program contracts are expired or there is no formal delegation. These operations, which are not formalized, increase the legal uncertainty of the sector.

State companies account for about 72% of the water supply market and 48% of the sewage market in Brazil.The percentage of informality of this service is presented in **Chart 13**. This is a condition that does not converge with the institutional environment required, at this moment, in the sanitation sector.

There is a lack of clear investment targets, operational efficiency or customer service among the 53% of the total water supply market and the 21% of the total sewage market covered by regular program contracts. Generally speaking, these contracts are constantly renewed without a systemic evaluation of the quality and efficiency of the service provided.

A study conducted by the Center for Regulatory and Infrastructure Studies of FGV/RJ reinforces that program contracts are inefficient. The research has analyzed 1,137 program contracts signed between the municipalities of the Southeast and the four State sanitation companies in the region. About 55% of the contracts evaluated lacked well-defined goals - SMART criteria were understood as goals - that is, these

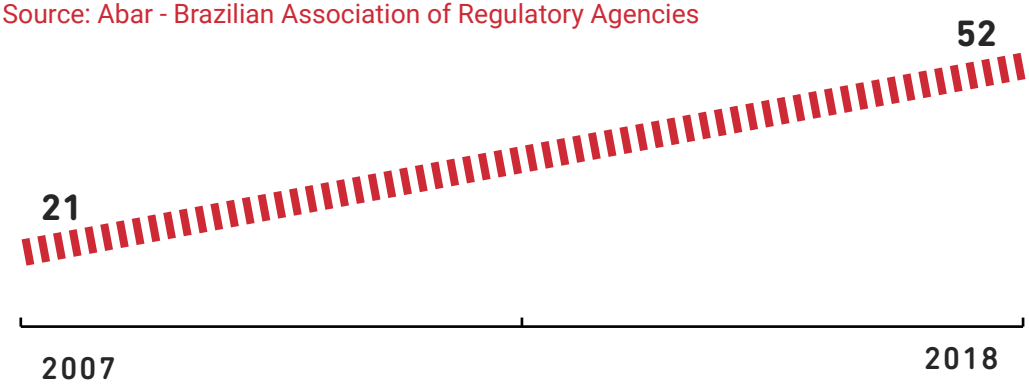
CHART 13
Informality of State Companies
Source: SNIS 2018



* Expired delegation, provision of service without the formal delegation or delegation in force without provision of service.

CHART 14
Proliferation of Regulatory Agencies

Source: Abar - Brazilian Association of Regulatory Agencies



parameters are specific, measurable, attainable, and realistic and with a deadline for their fulfillment/achievement.Generally speaking, neither Law 11.445 of 2007 has established guidelines for a competitive environment - in which public and private companies could equally compete in contract bids - nor it did solve the doubts surrounding the ownership shared between municipalities in metropolitan regions.

Another gap left by Law 11,445 of 2007 refers to regulation. Without setting general guidelines for regulatory agencies, that would be adopted and/or even created, the Law granted to each sanitation service contractor the legal duty to define the entity responsible for regulating and supervising the public sanitation policy.

As a result, we had a proliferation of regulatory agencies throughout the country (**Chart 14**), with diverse competencies (state, district, consortium and municipal), without having standards outlined nationally for important issues, such as loss management, adjustment methodology and tariff models.

In the regulatory aspect, the effort of the former Ministry of Cities deserves particular attention due to the development of the REGULASAN Program, whose objective is to qualify the regulation of the sanitation sector. The results and products of this Program are undoubtedly a relevant reference to the country's sanitation regulatory agencies and will be an important input to the general regulatory guidelines that will be under the responsibility of the National Water and Sanitation Agency.

Law 11.445 of 2007 also established that all municipalities would need to have their sanitation plans formulated and approved by their respective City Councils by 2014. Otherwise, the municipality would not be able to access federal government resources. This obligation seems to be innocuous so far: the mandatory Municipal Sanitation Plan – which also includes drainage and solid waste – has been delayed by the government since the beginning. The last postponement set the deadline for the completion of the plans in 2022.

According to the latest data provided by the Federal Government, in 2017, only 30% of municipalities had completed their Municipal Sanitation Plans.

In addition to legal uncertainty and maintenance of program contracts, the illusion created by the Growth Acceleration Programs was also added. The possibility of accessing non-refundable resources from the General Budget of the Union for the development of sanitation infrastructure caused most municipalities not to seek sustainable options involving investment, operation and maintenance of services. This mechanism bequeathed to the country 400 sanitation works suspended (according to the last data available by the Ministry of Economy in June, 2019) in addition to many works delivered and operated with very low efficiency. The fact that the main cause of works suspension are technical aspects of the projects emphasizes the ineffectiveness of a simple availability of resources in a sectoral dynamic that does not work well. The absence of qualified staff and the lack of planning and management prevent the expansion of services and is also costly: the suspended sanitation works generated costs of more than R$ 2 billion to the union's public coffers.

Finally, it is worth mentioning the effect of the severe fiscal crisis of states and municipalities on the sector, aggravated in recent

years, which further limited the investment capacity of the public sector in sanitation. To prove this decline in the potential public investments, it is sufficient to note the history of Plansab – National Sanitation Plan.

It's a country with people holding phones and walking in the sewage!

2.2. PLANSAB

Provided for in Article 52 of Law 11.445 of 2007, Plansab was the subject of public discussions and consultations before being consolidated and published in December 2013 by the National Secretariat of Environmental Sanitation of the Ministry of Cities. It has set a goal of 20 years for the universalization of sanitation services. At the time it was estimated that, in order to achieve this goal, Brazil would need to invest about R$ 15 billion/year. The total investment planned between 2014 and 2033 to universalize water supply and sewage system was R$ 304 billion.

Among Plansab's policy-makers, there was an expectation that public companies could be responsible for most of this investment. Since 2014, the first year in which investment numbers were checked after the enactment of Plansab, the resources invested in sanitation have never exceeded R$ 12 billion/year, according to SNIS. About 20% of this total was guaranteed by the private sector, despite the fact that private concessions are present in only 5% of the municipalities.

Thirteen years after the new legal framework, the sanitation sector is far from universalization in the country. Other areas of infrastructure, such as telecommunications, are able to provide each Brazilian with its services.

Warns of the sector's precarious situation in 2015

An audit performed by the TCU (Federal Court of Auditors) carried out five years ago identified the ineffectiveness of public investments in sanitation. At the time, the Court's analysis concluded that the non-refundable resources of the Federal Government Budget invested in the sector were not being effective to increase the services coverage.

A final court decision of TCU published that year concluded that the situation of sanitation in the country was incompatible with the degree of development and the level of national wealth, and called for action by the then Ministry of Cities to solve the problem.

2.3. CAUSES OF HIGH JUDICIALIZATION OF BIDDING PROCESSES AND CONTRACTS

One of the biggest obstacles to the expansion of the private sector's activities in the sanitation sector is precisely the high judicialization of bidding processes and contracts for the concession of water supply and sewage system in Brazil.

A study conducted by the legal counsel of ABCON SINDCON has analyzed 52 cases in several states of the Union, in which there was a stoppage of competition, and identified what were the causes that led to the judicialization of these processes. The results can be found in **Chart 15** and in the next text box.

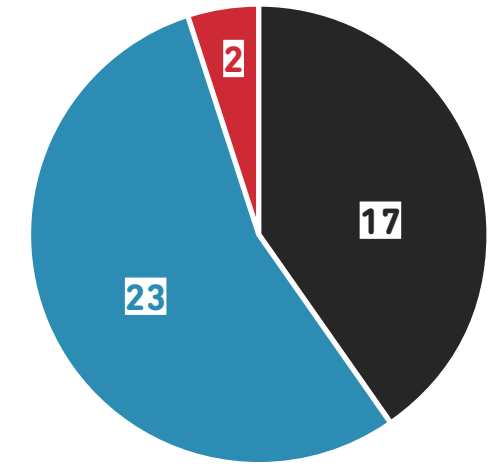
The lack of uniformity or standardization of public notices weakens the fairness of these procedures, which are at the mercy of administrative and/or judicial challenges, prior or not to hiring process, resulting in the annulment by the Judiciary Branch or the Court of Accounts. These situations result in an environment of high legal uncertainty, which directly impacts the interest of the private enterprise to expand its operations in the sector.

According to the survey, the majority of occurrences are of the "concession" type. In 46 municipalities, the public notices involve the joint bidding among companies for water supply and sewage services, and the other municipalities have opted for partial concessions of water or sewage. The main criterion for judging the proposals, present in 33 cases, was the best technique and price.

CHART 15

Analysis of 52 cases in which competition has been suspended since 2014

Source: ABCON SINDCON



Some examples of the fragility of public notices

- lack of objectivity in the criteria adopted to evaluate technical proposals.
- obligation of technical visit, in disagreement with Law 8.666 of 1993.
- non-existence of the regulatory entity, as determined by Law 11.445 of 2007.
- occurrence of illegality and breach of competitiveness rules due to determinations that may restrict the access to other potential bidders, infringing competition principles as well as the search for the most advantageous proposal or the public interest itself.
- omission of information in public notices, mainly related to technical-economic aspects or previous technical studies, necessary for the development of commercial proposals.
- the contradictions between the public notice and the fundamental legal principles for the performance of the public administration, when contracting together with the private sector, in accordance with the legal regulations in force, especially Law 8.666 of 1993, with regard to transparency and isonomy.

2.4. INCREASE IN THE NUMBER OF BIDDINGS AND PMIS

The market's movement shows that the sanitation sector is a great opportunity for investments. The challenges are regulatory.

When evaluating the increase of concession contracts and Public-Private Partnerships signed with the private sector in the last five years, the conclusion is quite obvious: there is commercial interest in the sector.

In 2019, there was a significant increase in the number of contracts signed with the private sector. These actions were due to the expectation created by the approval of the new legal framework for sanitation, which would significantly increase regulatory quality.

The compilation carried out by ABCON SINDCON shows that in the last 5 years, 52 contracts were signed and more than half of them occurred in municipalities of up to 20,000 inhabitants.

Partnerships with the private sector were conducted in all Brazilian Regions, reinforcing the partnership with the private sector as a viable alternative to the sanitation sector.

CHART 16

Analysis of the 107 public notices of sanitation published between 2015 and 2019

Source: ABCON SINDCON

46%
OF THE PUBLIC NOTICES OF SANITATION WERE SUSPENDED OR CANCELLED

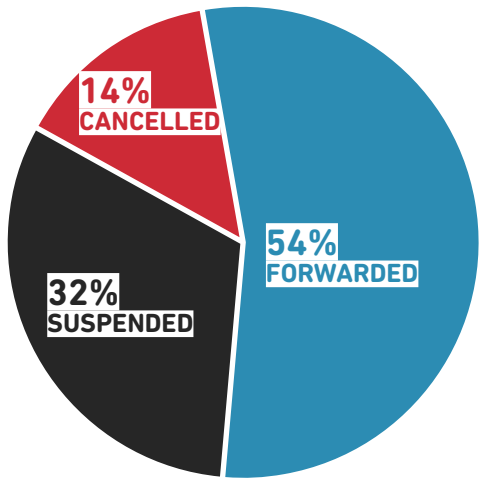


CHART 17

Evolution in the number of contracts with the private enterprise in sanitation (2015-2019)

Source: ABCON SINDCON

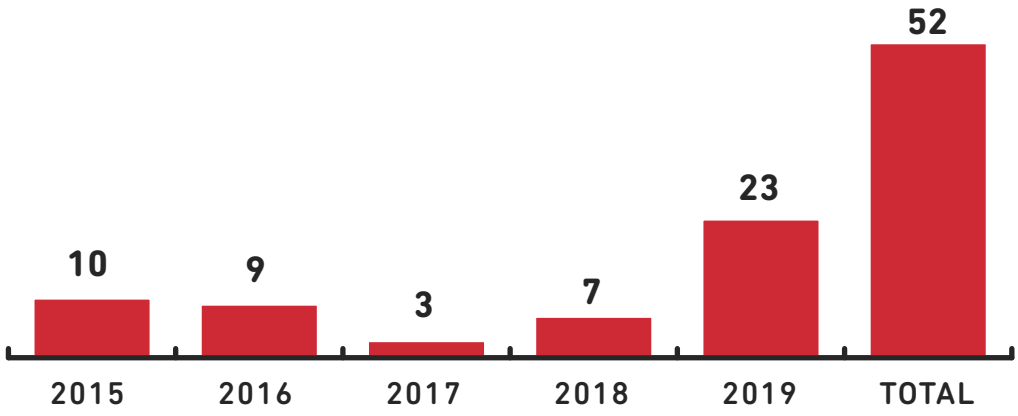


CHART 18

Contracts in effect by population group (2015-2019)

Source: ABCON SINDCON

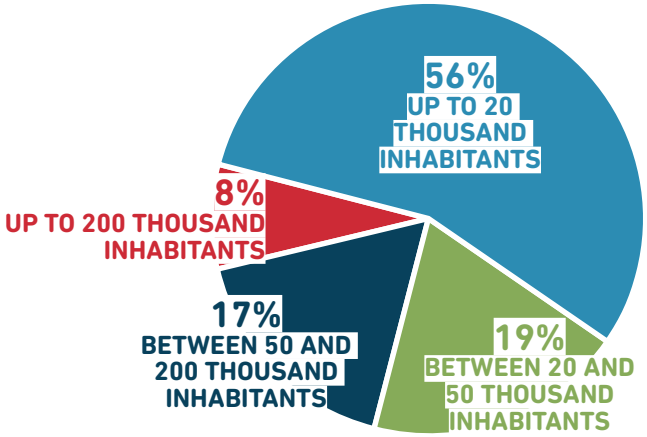
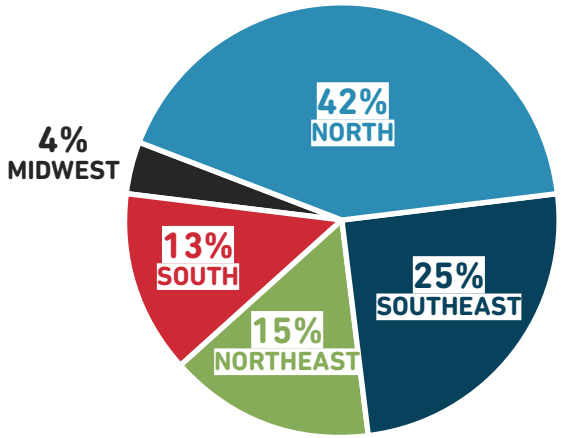


CHART 19

Contracts in effect by Region (2015-2019)

Source: ABCON SINDCON

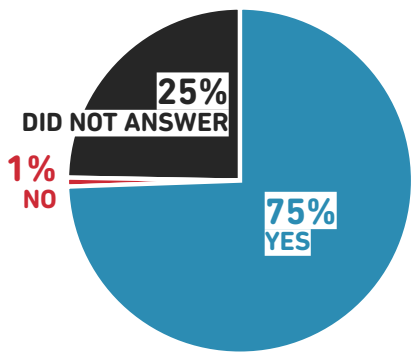


2.5. COMPLIANCE

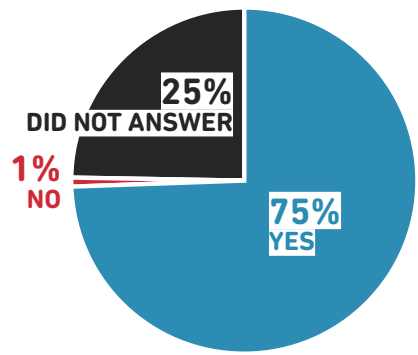
CHART 20
Private sector compliance research

Source: SPRIS

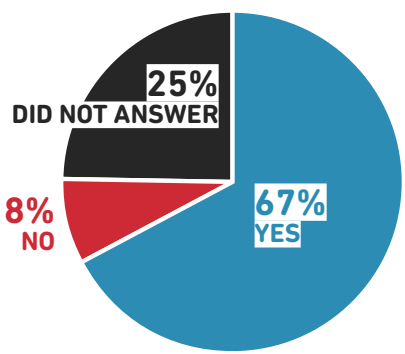
DOES YOUR COMPANY HAVE A CODE OF ETHICS AND CONDUCT?



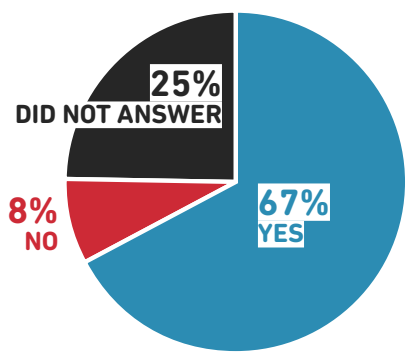
DOES YOUR COMPANY HAVE A HELP DESK OR REPORTING CHANNEL?



DOES YOUR COMPANY HAVE A FORMALIZED COMPLIANCE PROGRAM?



IS THERE A COMPLIANCE TRAINING PROGRAM IN YOUR COMPANY?



Promoting a robust integrity culture among the operations of water and sewage concessions is a common goal among private groups working in sanitation.

This effort, in turn, gains relevance as far as these companies assume public commitments to the health and well-being of the population. They also need to engage with the Executive and Legislative branches of each municipality where they operate.

In addition to innovation and commitment, transparency, ethics and focus on combating corruption are also some of the guidelines adopted by companies associated with ABCON SINDCON in their compliance initiatives.

A series of actions have been carried out by both Holdings (headquarters) and SPEs (Specific Purpose Companies – the company that operates in the municipality).

A survey conducted by ABCON SINDCON shows that of the 110 concessionaires (Holdings and SPEs), 82 have a code of ethics and 74 have some Compliance program.

The theme is so relevant that 82 concessionaires provide reporting channels so that the technical and public staff can report unethical situations that they may know.

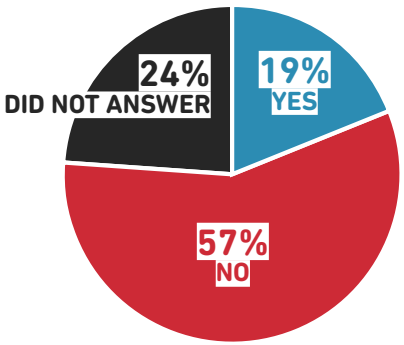
Companies also train their teams within the Compliance Program: 74 companies carry out internal qualification through internal or external training.

Companies have also sought external recognition of the maturity of the Compliance Pro-

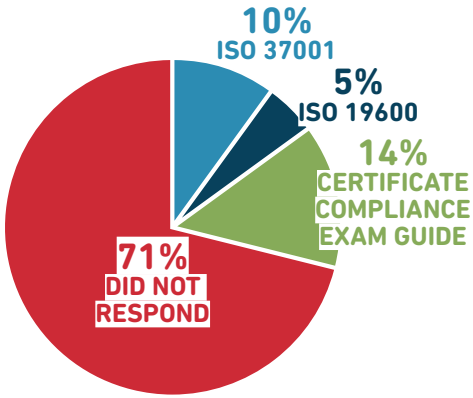
CHART 21
External recognition of the Compliance Program

Source: SPRIS

DOES YOUR COMPANY HAS A EXTERNAL RECOGNITION OF THE MATURITY OF THE COMPLIANCE PROGRAM DEPLOYED?



WHAT TYPES OF EXTERNAL RECOGNITION?



gram: Currently, 21 companies have some kind of certification, seal, ISO and etc.

The sector already has important ISO, etc., such as ISO 37001:2017 that deals with anti-bribery management and ISO 19600:2014 that deals with compliance management. ISO 37001:2017 establishes an anti-bribery culture within the company and creates controls to detect and eliminate this type of conduct. ISO 19600:2014 establishes instruments that disseminate compliance with current legal standards and monitoring practices for their effectiveness.

Such actions reinforce the commitment of companies for a transparent, ethical and good-quality public provision of services.

Private concessionaires invest in compliance and qualify

The Águas do Brasil Group, for example, is certified in ISO 37001:2017 (anti-bribery management) and also in ISO 19600:2014 (compliance management), being one of the pioneer companies with this type of certification in Brazil.

According to the group, it is extremely important that the indutry and suppliers know that the Águas do Brasil Group has an effective anti-bribery policy. Annual audits will be carried out so that there is no relaxation and the holding company maintains the standard.

The ISO 37001 standard is considered the world's most advanced in anti-bribery systems.

Another company, Aegea, adopts three pillars for compliance: prevention, detection and correction. Manuals and conduct procedures are made available and disseminated among employees.

There are service channels for complaints and reports of misconduct. Appropriate measures are provided to ensure that integrity is respected.

The whole process results in automated indicators. In 2020, the group intends to implement ISO 27701, aimed at controlling the information security system. Compliance with the General Data Protection Law (LGPD) is also ongoing.

3. PRIVATE SECTOR PROFILE

The private sector has a great commitment to the universalization of water supply, sewage collection and treatment services. The development of private indicators is above the national average, as can be seen in **Chart 22**.

The portion of the population with sewage collection increased by 13.3 percentage points in concessions that are between 5 and 10 years old; 5.9 percentage points in concessions older than 10 years and only 4.6 percentage points throughout Brazil between 2013 and 2018.

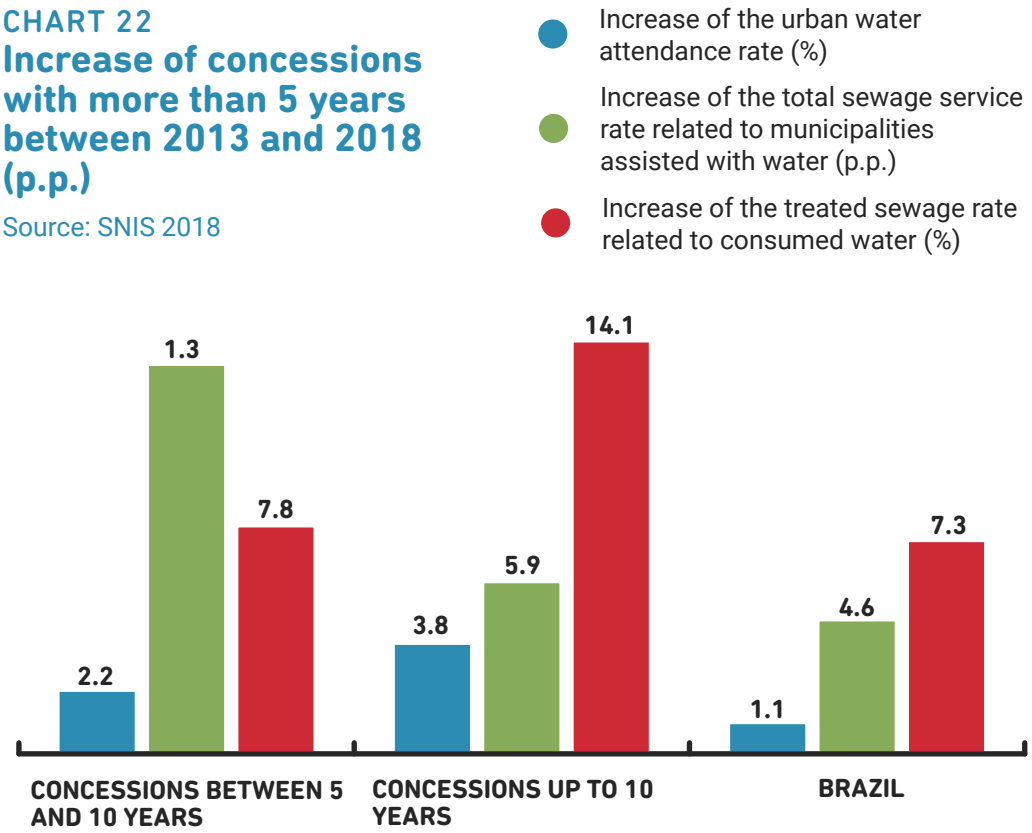
The significantly higher results of the private provision of services show the efficient conduct adopted by the operators, with greater investment capacity and effective results.

In 2018, private concessionaires invested R$ 232.70 per water and sewage connection – a value 53% higher than the national average of R$152.26 in the same year.

CHART 22

Increase of concessions with more than 5 years between 2013 and 2018 (p.p.)

Source: SNIS 2018



3.1. 25 YEARS OF THE FIRST CONCESSIONS

Limeira

First full concession to the private sector completes 25 years and celebrates results

With just over 300,000 inhabitants, Limeira, in the countryside of São Paulo, has had a private concession of water and sewage services for 25 years. It is the municipality with the longest operation time within this model. The results of this management continuity make the city a model for the whole country. Since 2011, Limeira has its services universalized.

The contract of the private concession BRK Ambiental Limeira runs until 2039. Committed to the continuous improvement of the services provided, the concessionaire has already invested R$463 million, and new works are planned, such as the duplication of the Sewage Treatment Plant, expansion of the Water Treatment Plant and pipelines, as well as replacement of old networks.

Comparative data

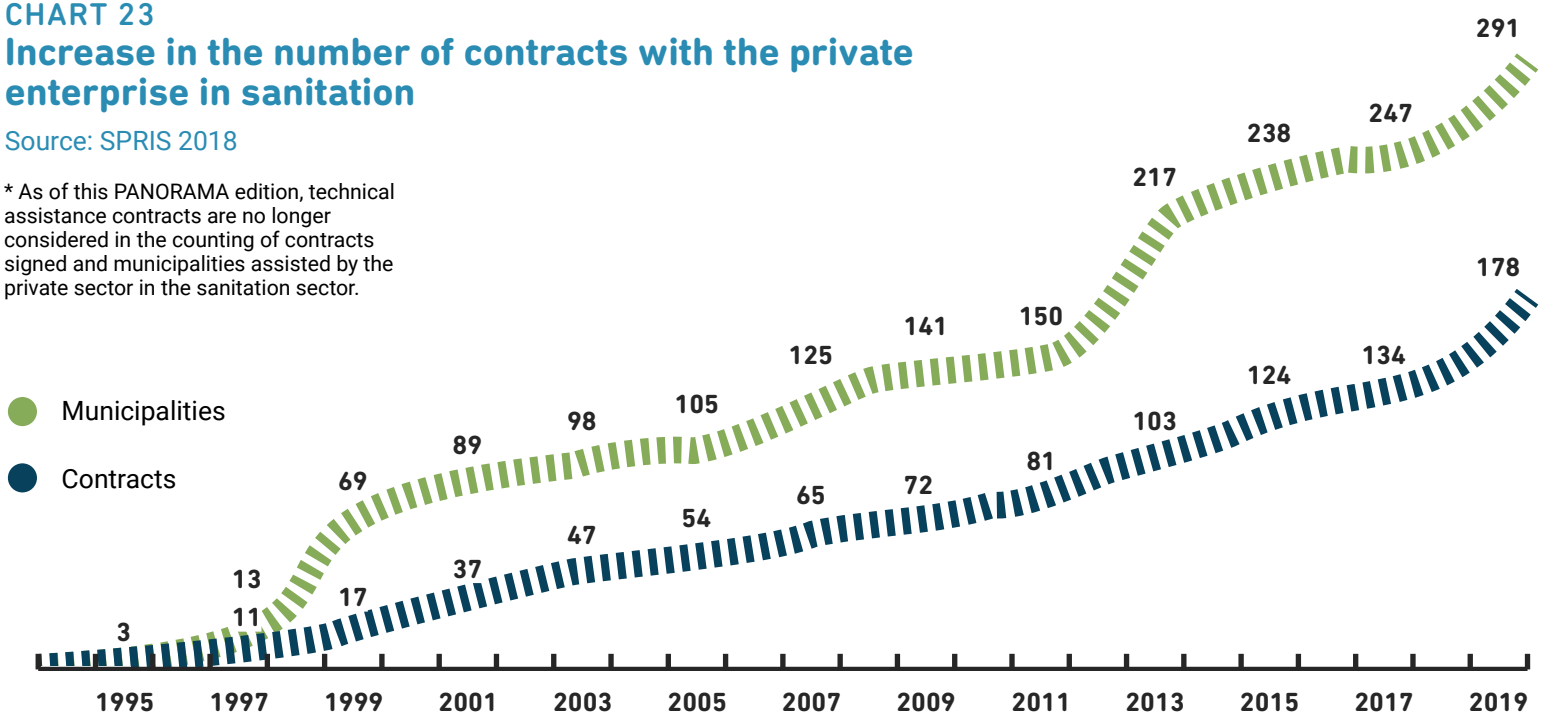
	1995	2020
No. of water connections	55 thousand	101 thousand
Water coverage	95%	100%
Sewage collection	78%	100%
Sewage treatment	2%	100%
Loss Index	> 40%	16% (2019)
Per capita consumption	377 l/day	177 l/day
Water network	753 km	1,199 km (2019)
Sewage network	638 km	1,049 km (2019)

CHART 23

Increase in the number of contracts with the private enterprise in sanitation

Source: SPRIS 2018

* As of this PANORAMA edition, technical assistance contracts are no longer considered in the counting of contracts signed and municipalities assisted by the private sector in the sanitation sector.



Ribeirão Preto

Example of partnership, first partial sewage concession also celebrates a quarter of a century

The first sanitation concessions to the private sector in Brazil took place in the State of São Paulo, including the city that pioneered a partial sewage concession: Ribeirão Preto. With a quarter of a century of history, the partnership signed by the municipality, for sewage system, with the private concessionaire Ambient, of the GS Inima Brasil group, made the city achieve very expressive results in the universalization of services. In the last ABES Ranking of Universalization of Sanitation, for example, Ribeirão Preto obtained the 20th place.

In these 25 years, the city went from 450,000 inhabitants to the current 695,000. In 1995, 95% of residents had their domestic effluents collected, but only 4% of this volume was treated, according to the SNIS.

Today, all domestic sewage collected is treated using state-of-the-art technology. In 2011, the private concessionaire innovated by transforming biogas, produced from sludge generated in the sewage treatment process, into an energy source.

Last year, the concessionaire announced a new investment package of R$ 138 million to universalize services in the face of the demand generated by the population expansion in Ribeirão Preto.

Summary-chart of the Concessions Framework by Federation State

State	Assisted Municipalities	Agreements signed	Benefited population	Investment (R$ million)	
				Total contract commitment	Materialized in 2018
Alagoas	11	2	629,026	478	25
Amazonas	1	1	2,102,535	4,563	155
Bahia	4	3	1,997,725	359	-
Espírito Santo	3	3	704,389	1,635	672
Goiás	4	1	407,548	951	172
Maranhão	3	2	429,052	657	51
Mato Grosso	38	38	1,469,252	4,320	203
Mato Grosso do Sul	1	1	895,982	1,964	74
Minas Gerais	20	7	2,221,713	1052	9
Pará	17	9	335,503	770	22
Paraná	1	1	150,302	1,010	49
Pernambuco	15	1	1,297,952	2,955	205
Piauí	4	4	826,152	1,337	95
Rio de Janeiro	19	13	3,692,134	7,392	270
Rio Grande do Sul	2	2	189,194	271	18
Rondônia	4	4	177,494	501	13
Santa Catarina	12	13	632,557	1,606	119
São Paulo	53	40	11,115,657	7462	269
Tocantins	79	33	1,145,696	1,555	115
	291	178	30.4 million	40,840 million	2,538 million

3.2. PROFILE BY MUNICIPALITY SIZE

The following are some examples of progress made with the operation of private concessions in different municipalities and regions of the country.

For classification purposes, the municipalities are grouped by size, starting with cities of up to 20,000 inhabitants (40% of the total).

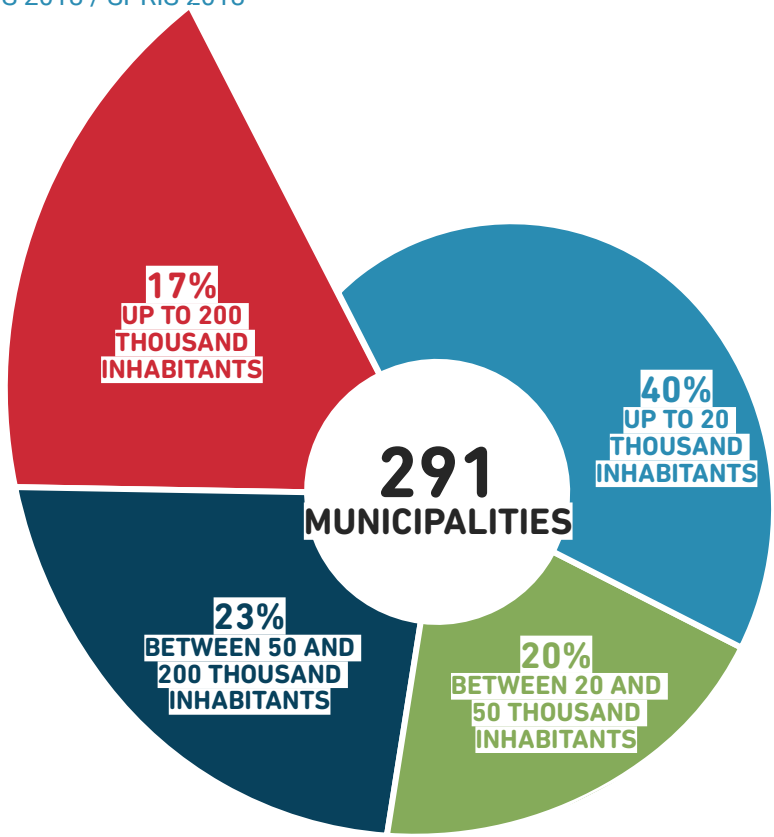
Next, we have cases of municipalities between 20,000 and 50,000 inhabitants (20% of the total); between 50,000 and 200,000 (23%); and over 200,000 (17%).

Each section presents, by profile, the respective charts of tariffs, expenses, investments and coverage, with comparative data between the performance of private concessions and the national average.

CHART 24

Municipalities with private sector participation by population size

Source: SNIS 2018 / SPRIS 2018



UP TO 20 THOUSAND INHABITANTS

Four out of ten private sanitation concessions in Brazil are located in small municipalities

CHART 25

Distribution of municipalities assisted by the private sector in relation to the types of contracts and regions

Source: SPRIS 2018

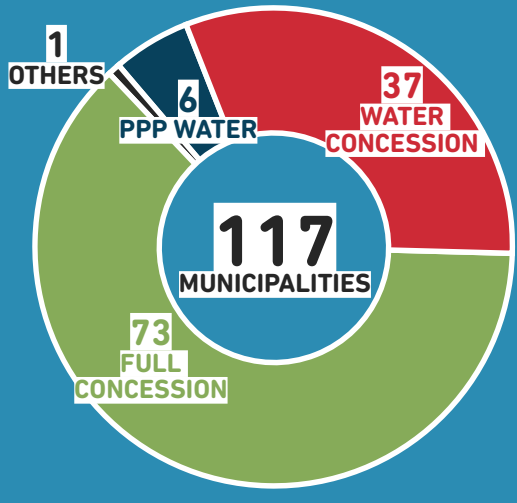


CHART 26
Average investment per Water+Sewage connection by population group (R$/ connection) Source: SNIS 2018

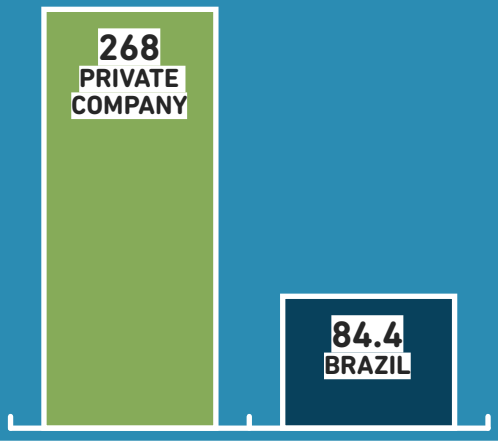


CHART 27
Average tariff practiced by population group (R$/m³)
Source: SNIS 2018

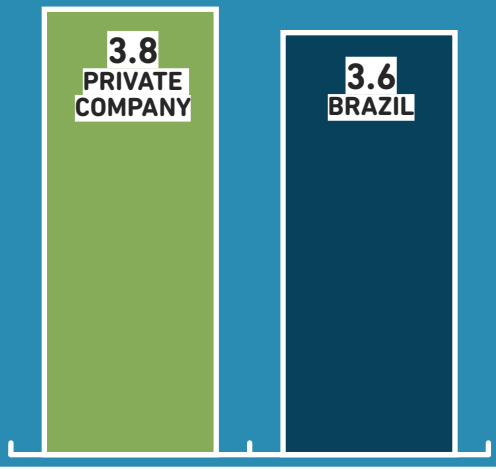


CHART 28
Average of total expenditure with services per m³ billed by population group (R$/m³)
Source: SNIS 2018

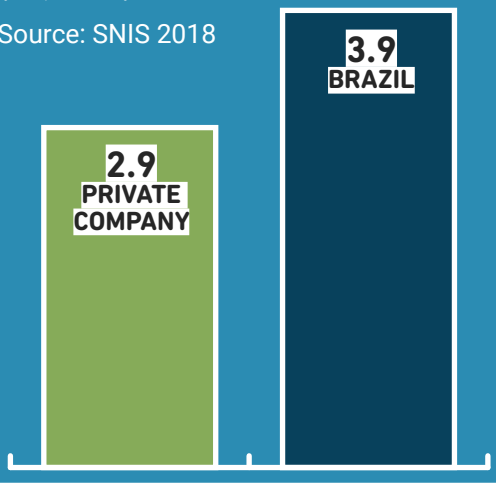
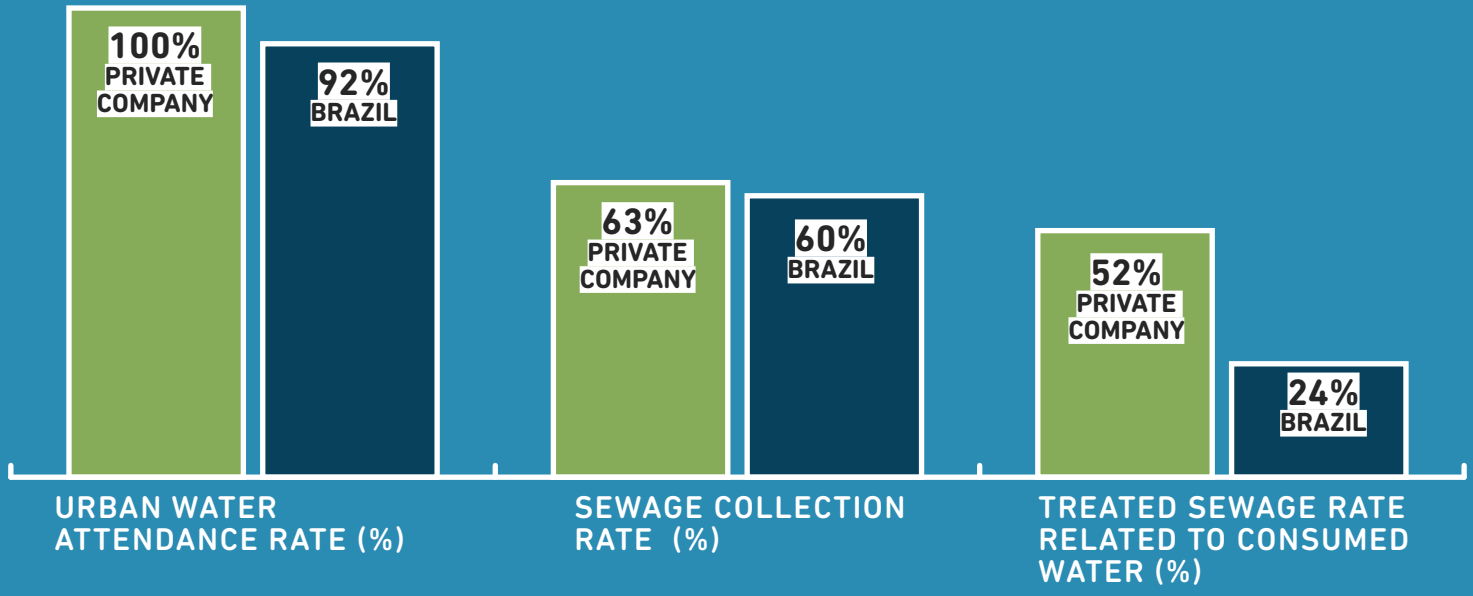
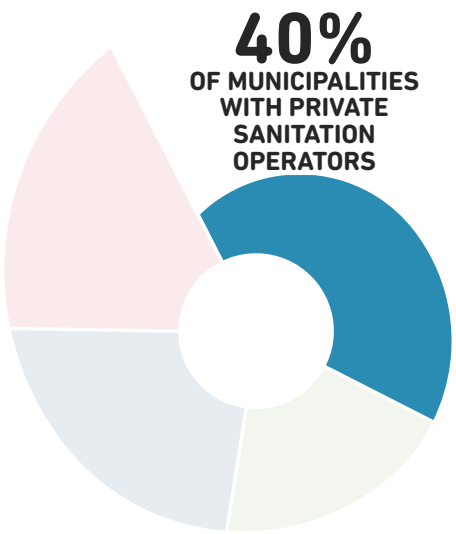


CHART 29
Average water and sewage coverage rates by population group
Source: SNIS 2018



UP TO 20 THOUSAND INHABITANTS



Balneário Gaivota (SC)

Higher targets than those foreseen in contract and satisfied population

The operations of the private concessionaire Gaivota Saneamento (Atlantis group) in this municipality of 10,000 inhabitants began in May, 2018. By contract, the work began by improving the water supply. The situation of the water treatment plant was precarious: outdated, structurally inadequate and with damaged equipment.

In two years, the evolution of service indicators shows a considerable advance. All rates are above the stipulated targets: continuity of supply, water quality, losses in distribution and predicted and unforeseen water shortage. The number of connections has increased by 10% in the period. More than 10 km of new networks have been deployed. In 2019, investment in system and infrastructure reached R$ 1 million.

Another concern was to ensure better service to users. Renovations in facilities to give more comfort to the population who get in touch with the service center, agility in solving problems and preventive maintenance were some of the measures. In the last six months, surveys have shown a 100% satisfaction rate of 100% of the population.

The city has also corresponded, in terms of water demand, to the high season, when the municipality quadruples its population.

Itapoá (SC)

Improvements to the supply system enhance regularity in water supply

Itapoá, on the coast of Santa Catarina, suffered from the irregularity of water supply, especially in the summer season, when the current population in the city increases significantly. To combat this problem, the private concessionaire Itapoá Saneamento, of the Iguá group, has modernized and expanded the municipality's supply system. Altogether, approximately R$ 15 million have been invested since 2019 in operational improvements that include expansion of intake, production, distribution and reserve systems.

The deployment of 1.1 km of new pipeline networks increased the volume of treated water from 350 liters per second to 470 liters per second, an increase of 35%. Other measures taken were the construction of two new reservoirs and renovation of an elevated reservoir. In addition, adjustments and interconnections were made at strategic points of the supply network, including the installation of three new pressurizers to regularize the supply to certain regions that previously faced water shortages in the high season period, in addition to about 9.2 km of network reinforcement.

All this effort significantly improved the city's water supply system and the resident and floating population has noticed the difference not only in the regularity of supply, but also in water pressure.

Thus, in addition to improving people's health and life quality, the concessionaire contributes to the city's development, real estate valuation and also stimulates local commerce.

Palestina (SP)

Reduced losses, cutting-edge technology and countdown to universalization

With only 12,000 inhabitants, the city of Palestina, in the Northwest of São Paulo, is a reference among private concessionaires located in small size municipalities. This year, with the completion of a third STP, the universalization of sewage treatment will be achieved in the municipality.

The operation of ESAP (groups Aviva Ambiental and Iguá Saneamento) has stood out for its efficiency since it took over the services in 2007. The loss rate is only 17%, well below the national average (38%). Another important indicator is BOD (Biochemical Oxygen Demand), which corresponds to the required amount of oxygen to stabilize the organic matter present in the treatment ponds. In the concessionaire system, the BOD reaches close to the receiver streams levels.

The quality of the water that reaches the taps is guaranteed by a procedure that includes 14 measuring points and the company's own specialized laboratory for analysis. It is approximately 56 km of distribution network.

The concessionaire has as one of its priorities the investment in technology, which provides efficient solutions in sanitation infrastructure and also in the commercial area. The adoption of the NPS (Net Promoter Score) methodology, which allows accurate problem solving, was an example of pioneering, along with a good service provision to the population.

Jauru (MT)

Sewage system gets started and becomes reality

The contract with the private concessionaire Águas de Jauru, of the Aegea group, for water and sewage services in the city, was signed in February, 2012. In the previous year, the indicators showed that, even with some networks already implemented, there was no percentage of sewage coverage. Today, coverage reaches 76% — from zero to 5,307 people benefiting from the sewage system. The population with water supply reached 6,898 inhabitants in 2018.

So far, the small town of Jauru has received investments of R$ 1.9 million from the private concessionaire. The city relies on modern equipment in its operation to ensure water quality.

Works such as the complete renovation of the Water Treatment Plant and its reservoir, as well as the rehabilitation of the catchment dam, are some of the visible signs of the transformation promoted by the concessionaire in Jauru.

Other improvements in facilities, equipment and controls, not so apparent, are also important to ensure that communities have quality treated water and sanitation, which is an example to be followed by small size municipalities.

São Sebastião da Grama (SP)

Private management changes the sanitation landscape in the city

The municipality with just over 12,000 inhabitants presented great challenges to be faced by the private concessionaire: little water, recurrent water-rationing, scrapped water treatment plant and sewage discharged in the river without any treatment. This was the picture of sanitation in São Sebastião da Grama when the concession was executed, in 2016.

Immediately, the private concessionaire Águas de São Sebastião da Grama, of the Terracom Saneamento / Perenge Engenharia group, revitalized the only water treatment plant (WTP) in the city. With this, the water that was poorly treated began to have standards of excellence. On another front, it was necessary to solve the sewage problem. The construction of a sewage treatment plant (STP) - modern, effective and delivered before the deadline stipulated in the contract - was the solution.

Currently, the entire population is supplied with drinking water, and the same rate applies to sewage collection, with 97% of treatment. Soon, São Sebastião da Grama will be included in the select group of Brazilian cities to have sanitation services universalized.

BETWEEN 20 AND 50 THOUSAND INHABITANTS

Life quality and environmental preservation are some of the direct benefits from investments in sanitation that can be observed here

CHART 30
Distribution of municipalities assisted by the private sector in relation to the types of contracts and regions
Source: SPRIS 2018

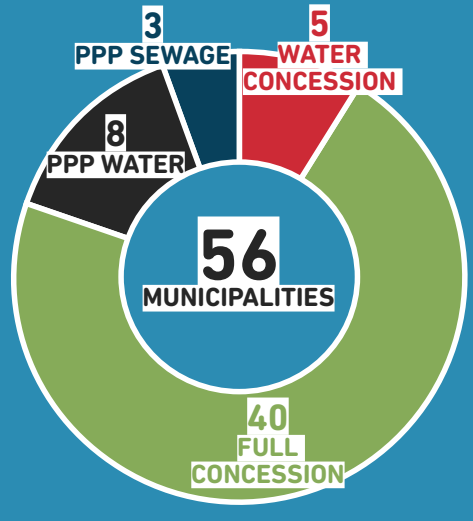


CHART 31

Average investment per Water+Sewage connection by population group (R$/connection) Source: SNIS 2018

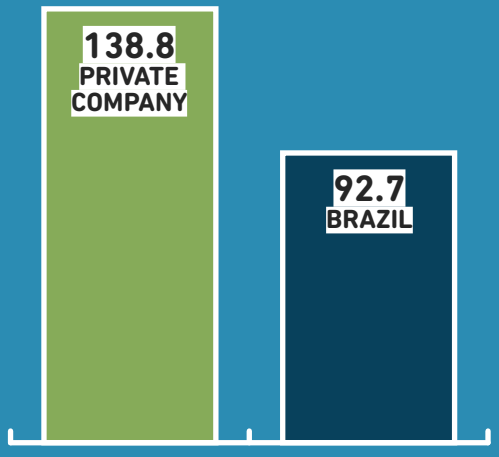


CHART 32

Average tariff practiced by population group (R$/m³)

Source: SNIS 2018

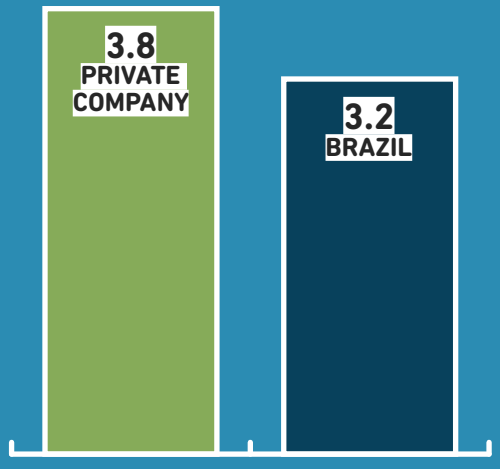


CHART 33

Average of total expenditure with services per m³ billed by population group (R$/m³) Source: SNIS 2018

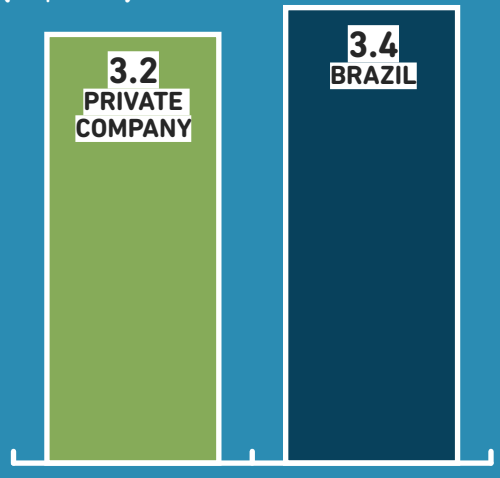
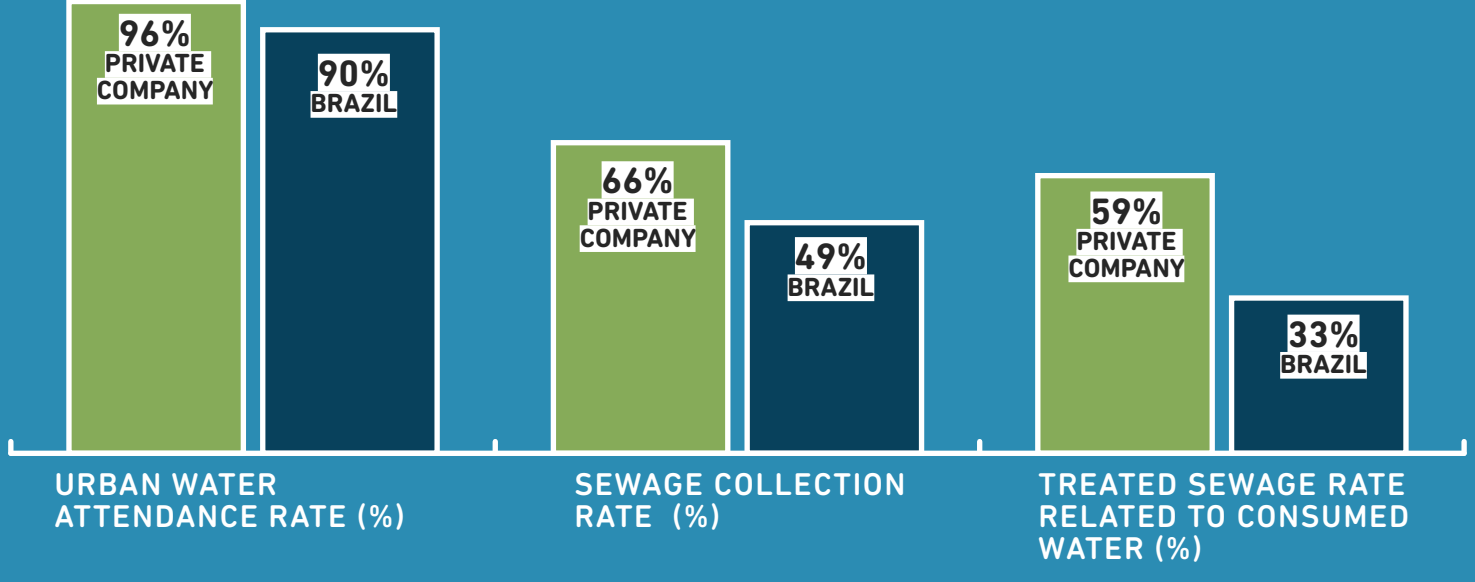


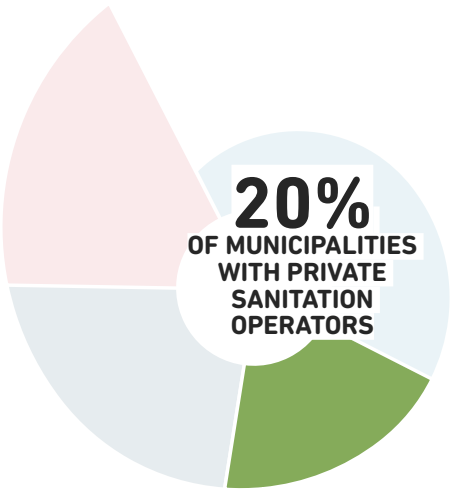
CHART 34

Average water and sewage coverage rates by population group

Source: SNIS 2018



BETWEEN 20 AND 50 THOUSAND INHABITANTS



Jaguaruna (SC)

Coastline with guaranteed water supply

The private concessionaire Águas de Jaguaruna, of the Atlantis Saneamento group, operates on the coast of the municipality of 22,000 inhabitants since 2017, with a partial concession contract for water supply. At the beginning of the operations, the municipal service assisted only 85 connections. Today, there are 4,065 connections with access to treated water, and all rates of the water supply system in the assisted area are above the contractual targets, including water quality, continuity of supply, losses in distribution and expected and unforeseen water shortage rates.

The customer satisfaction rate according to the services provided is 100% in the last six months. The work accident rate of the operation is zero.

In the last year, the private concessionaire has invested almost half a million reais in its systems, as well as in the area of water quality, commercial systems and telemetry software. In high season, the population assisted increases to more than 20,000 inhabitants.

Poconé (MT)

Private management promotes constant improvements in water service

Águas de Poconé (Aegea Group), a partial private water concessionaire that operates in the municipality of Mato Grosso, began operating in June, 2008, when the concession contract was signed.

The investments made by the concessionaire in water services resulted in an impressive improvement, starting with the deployment and replacement of more than a thousand hydrometers, aiming to combat fraud and ensure the correct consumption measurement.

The renovation of facilities dedicated to public service, extension and interconnections of networks, new connections, installation of flow meters, technological improvements and maintenance in water treatment plants are some of the achievements of the period.

An important measure was the construction of a deep driven well (DDW) to regulate supply in a region with a production deficit. In total, the concessionaire's investments have already reached more than R$ 7 million.

In addition, in the fight against waste, the concessionaire periodically performs several repairs on damaged extensions and water networks. In just one year of concession, about 432 repairs were performed, further improving the distribution of water in the system and reducing the loss rate.

The company maintains a calendar of activities focused on the community, with emphasis on health awareness and environmental conservation actions with students of the school network.

Paraty (RJ)

Historic city reaches, in two years, the universalization of drinking water in the urban area

The historic city of Paraty did not have treated water supply before the arrival of the private concessionaire Águas de Paraty, of the Águas do Brasil Group. In addition to water shortage at some times of the year, the inhabitants – especially children – suffered from water borne diseases. The concessionaire took over the sanitation services of the municipality in April, 2014, and in the first two years, increased the drinking water supply from 0% to 100% in the urban area. This was possible with the construction and operation of the Pedra Branca and Corisquinho Water Treatment Plants.

Paraty, now 353 years old, has full and quality supply, including in high season. According to the Department of Tourism of Paraty, the municipality receives 80,000 visitors during the holiday period, that is, twice the local population.

Even with the increase in water consumption in the city and the heavy summer rains, the company supplies 100% of the concession area, with treated and monitored drinking water, and also quality water, according to the standard recommended by the World Health Organization.

In 2020, the concessionaire will invest more than R$ 2 million in the construction of new networks, reservoirs, specific water pumping systems(boosters), hydraulic modeling study, loss reduction, among other initiatives.

These actions will bring even more security to the city's water supply system, contributing to the maintenance of the quality of distributed water, offering more health and life quality to the population.

Santa Rita do Passa Quatro (SP)

Full sewage treatment

With the inauguration of its new sewage treatment plants, the municipality of Santa Rita do Passa Quatro, in the countryside of São Paulo, reached 100% of domestic effluent treatment. In 2019, the STP Capituva, operated by the private concessionaire Comasa, of the GS Inima Brasil group, has been operational in the municipality of 27,000 inhabitants since 2016. In 2020, the concessionaire completed the STP named Santa Cruz da Estrela.

According to the Santa Rita's mayor, Leandro Pilha, "without the partnership with the private concessionaire, the municipality could not advance so much". Today, the city occupies a prominent position as one of the Brazilian municipalities that have achieved the universalization of sanitation.

With capacity to treat 2,900 m³ of sewage per day, the STP Capituva assists 44% of the population of Santa Rita do Passa Quatro. Another station, STP Marinho, is responsible to treat 54% of the sewage and the STP Santa Cruz da Estrela is responsible to treat 2%.

To take the sewage to the STP Capituva, the private concessionaire built a 1,300-meter-long PVC collector, with a diameter of 200 mm, which connects the CDHU (Company for Housing and Urban Development) area in the city to the interceptor of the sewage system of the Capituva stream basin. The system is integrated by a sewage pumping station, pre-treatment in aerated pond with nitrification, decanting, sludge dehydration and final disinfection of the effluent, thus returning clean water to nature.

BETWEEN 50 AND 200 THOUSAND INHABITANTS

Operations of private companies in sanitation invest in technology and management

CHART 35
Distribution of municipalities assisted by the private sector in relation to the types of contracts and regions
Source: SPRIS 2018

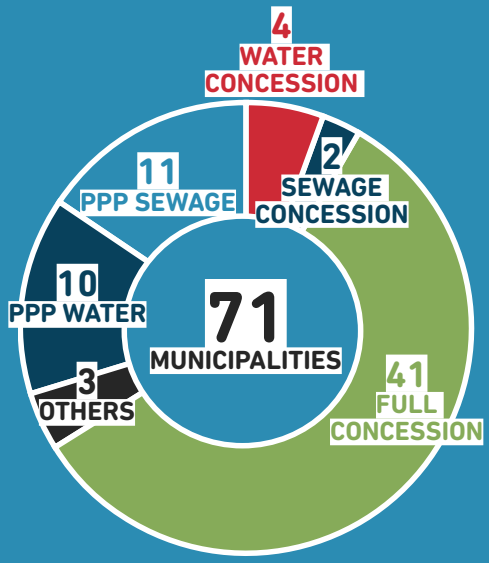


CHART 36
Average investment per Water+Sewage connection by population group (R$/ connection) Source: SNIS 2018

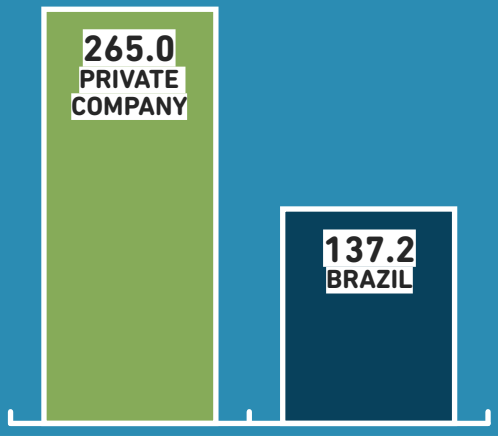


CHART 37
Average tariff practiced by population group (R$/m³)
Source: SNIS 2018

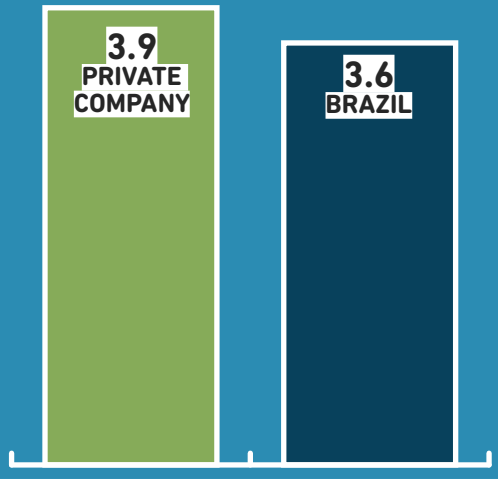


CHART 38
Average of total expenditure with services per m³ billed by population group (R$/m³) Source: SNIS 2018

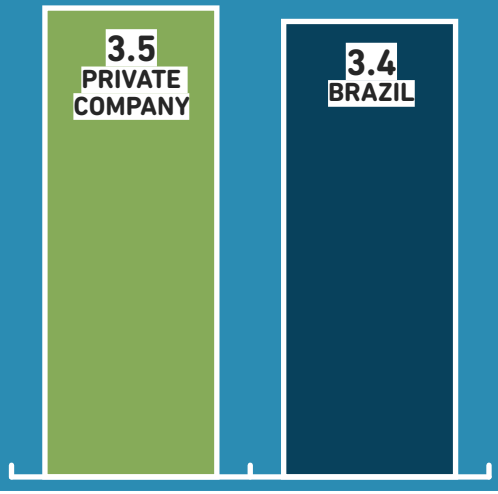
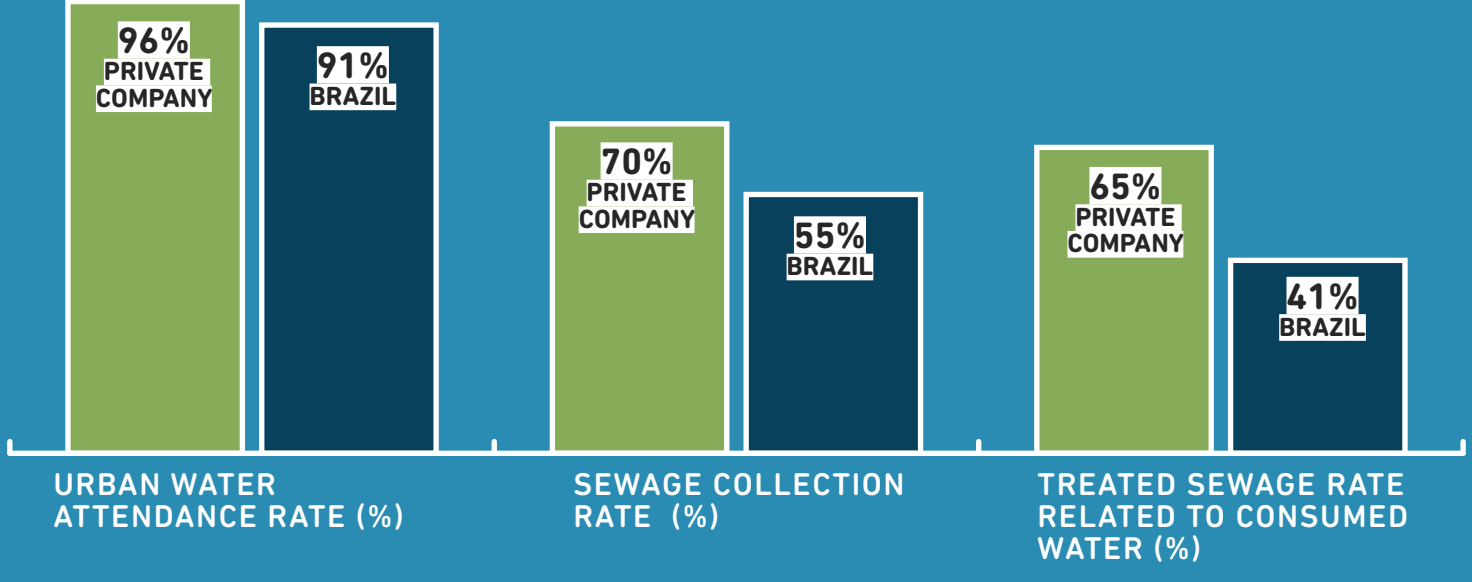
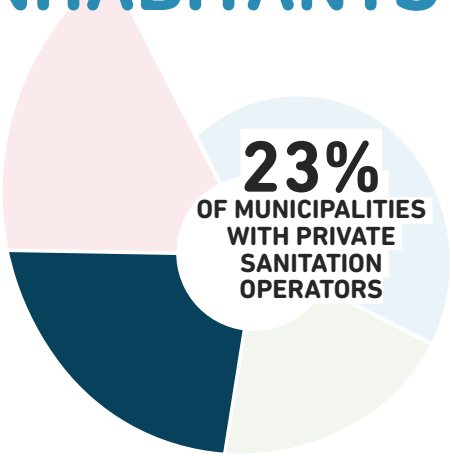


CHART 39
Average water and sewage coverage rates by population group
Source: SNIS 2018



BETWEEN 50 AND 200 THOUSAND INHABITANTS



Araçatuba (SP)

Management model and among the best in sanitation

Since taking over, in 2012, the water supply, collection and sewage treatment services of Araçatuba (now with 192,000 inhabitants), the private concessionaire GS Inima Samar, of the GS Inima Brasil group, has invested R$ 81 million to improve sanitation services. The city is in 30th place in the ABES 2020 Ranking, with 494.45 points. The maximum score is 500. Thus, it is ranked as one of the best among cities with more than 100,000 inhabitants in rates of water supply, sewage system and solid waste management.

The private concessionaire is also recognized with the SINDCON Sustainability Award. In its last edition, in 2019, the company ranked first in the Management Category and second in the category that distinguishes the best institutional projects.

The company maintains a strong activity focused on environmental education, with projects and actions aimed at the population and internal public.

Araçatuba has stood out in the State of São Paulo for the excellence of sanitation services thanks to investments in technology. This year, Samar has constructed a 7,000 m² treatment plant to dry sludge from sewage treatment, unprecedented in Latin America. This thermal plant reduces sludge volume by 80%, impacting waste disposal costs in landfills, in addition to saving energy. The company is also preparing to construct a new water treatment plant to strengthen the supply of more than 50% of the population.

Mirassol (SP)

City achieves universalization of water and sewage services

In 2019, with the construction of a new Sewage Treatment Plant (STP), which required investments of approximately R$ 12 million from the private concessionaire, Mirassol saw the sewage treatment rate in the city increase from 80% to 100%. With this, the municipality gained notoriety on the national scene.

This important milestone is a major advance for the city of 56,000 inhabitants, in northwest São Paulo. 11 years ago, there was no sewage treatment in the municipality. Taking over the operation in 2008, the private concessionaire Sanessol (Groups Aviva Ambiental and Iguá Saneamento) built three systems to meet the demand of local development, increase life quality of residents and preservation of natural resources. About 11,500 people benefited from the new system. In total, R$60 million has already been invested in improvements in water and sewage systems. Two other STP had already been completed and are operating since 2010 and 2012, respectively.

According to the Ranking of The Universalization of Sanitation, of the Brazilian Association of Sanitary and Environmental Engineering (ABES), which brings a mapping of 1,894 municipalities in Brazil, only 51, small and medium-sized, are in the category Towards Universalization. Mirassol is among the eight cities, in the Northwest Region of São Paulo, highlighted in the research.

The technology used in STP is one of the most sophisticated in the industry, with the integration of biological system, membrane filtration and sludge dehydration. The effluent, oxygenated according to the requirements of environmental agencies, reaches a high quality standard before being disposed to the Fartura stream.

Mogi Mirim (SP)

City invests in generating clean energy to operate sewage treatment plant

A solar power plant is responsible for 35% of the consumption of the sewage treatment plant, operated by the private concessionaire Sesamm, of the GS Inima Brasil group, in Mogi Mirim. With innovation, the company became the first Brazilian sanitation company to invest in this technology to complement the energy consumption of its STP.

Inaugurated in July 2019, the solar power plant required an investment of R$ 1.7 million. Its installation is part of the plan to improve the efficiency and sustainability of the concessionaire's systems.

Solar energy is renewable and brings environmental and economic benefits, such as reducing environmental impacts, greater operational safety due to diversification of energy sources, in addition to not relying just on the energy distribution network.

Created in 2008 to operate the sewage services of Mogi Mirim for 30 years, the private concessionaire is also responsible for complementing the sewage network as well as for the implementation and operation of the sewage system of the municipality.

The system is integrated by a pumping station and a sewage treatment plant, a network of collectors and interceptors approximately 16 km long. Currently, the concessionaire has the capacity to treat 65% of all sewage generated by the population of Mogi Mirim. The next phase of investments foresees the expansion of facilities and the collection network, allowing the universalization of sewage services in the city.

Uruguaiana (RS)

Example of progress in the South of Brazil

With the private concessionaire BRK Ambiental, Uruguaiana was one of the cities in Rio Grande do Sul that significantly advanced and applied resources in the sector. From the beginning of the concession, in 2011, to today, around R$ 145 million were invested. Currently, the municipality has 98% of networks for the collection and structure of sewage treatment. The city will receive an R$ 65 million investment in the coming years, in order to reach 100% of sewage coverage.

From the concessionaire's performance, environmental improvements were observed in the Uruguai River, which, before the expansion of sewage collection and treatment, directly received more than 90% of the sewage generated in the city. The preservation of the river enabled a boost of economic activities, such as fishing, which was previously in decline but is now a source of income for the Uruguaiana's fishermen again.

Pará de Minas (MG)

Fast, effective and emergency actions characterize private management in the municipality

When the private concessionaire Águas de Pará de Minas, of the Águas do Brasil Group, took over the sanitation services of the Municipalty in 2015, it has found a water scarcity scenario and neighborhoods that had up to 20 days of water shortage.

In just 5 months and with investments of about R$40 million, the concessionaire has built a 28 km pipeline to capture water from the Paraopeba River, thus solving the chronic lack of water problem, including in the critical period of drought.

In 2019, the capture of raw water from the Paraopeba River was interrupted due to tailings contamination from the dam breach in Brumadinho. To keep the city supplied, without being able to operate an important spring for the municipality, an emergency supply plan was elaborated, with the objective of identifying alternative water catchments, in addition to the local springs Paciência and Paivas, and also identifying different supply scenarios in the drought period. With this measure, the company has ensured the supply of the entire city without interruptions.

As agreed with the authorities, the mining company Vale will deliver to the municipality a new water collection point, located on the Pará River. The work is expected to be delivered in 2020. The capacity of the new supply system, which will be operated by the Concessionaire Águas de Pará de Minas, will be just over 1 million liters per hour, the same flow granted to the municipality on the Paraopeba River.

Thanks to the actions developed and investments applied by the concessionaire, the city has water supply and sewage treatment rates far above the reality of most Brazilian municipalities (99.8% of water supply and 99% of sewage collection and treatment). The concessionaire also performed hydraulic modeling, now recognized as one of the best technical solutions for the management of water distribution systems, which supported the achievement of a water loss rate of 19.03%, a number below the national average.

UP TO 200 THOUSAND INHABITANTS

Private concessionaires raise sanitation to a higher level, being a differential in cities that become a reference for the country

CHART 40
Distribution of municipalities assisted by the private sector in relation to the types of contracts and regions
Source: SPRIS 2018

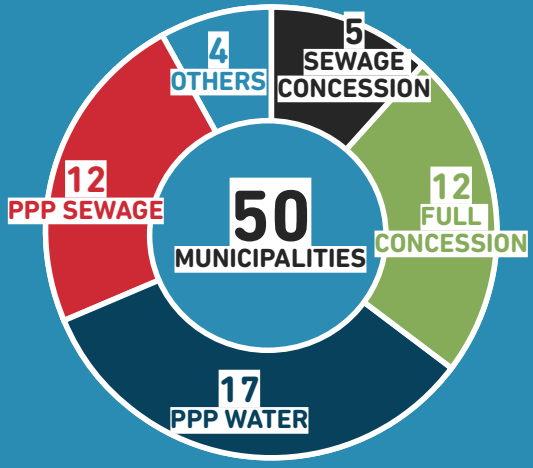


CHART 41
Average investment per Water+Sewage connection by population group (R$/ connection) Source: SNIS 2018

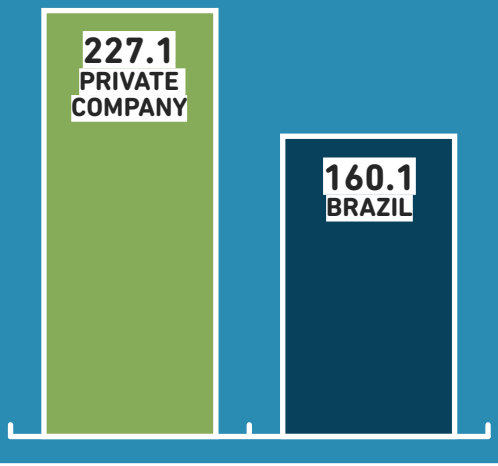


CHART 42
Average tariff practiced by population group (R$/m³)
Source: SNIS 2018

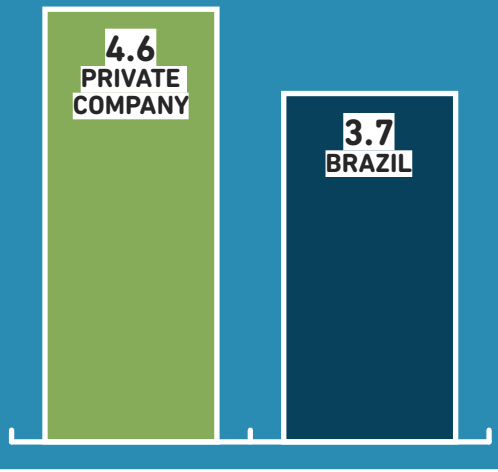


CHART 43
Average of total expenditure with services per m³ billed by population group (R$/m³) Source: SNIS 2018

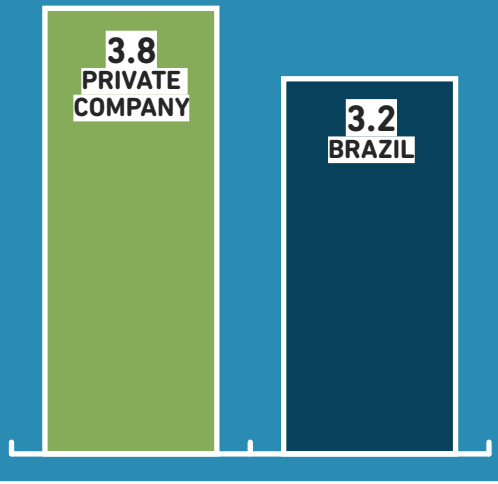
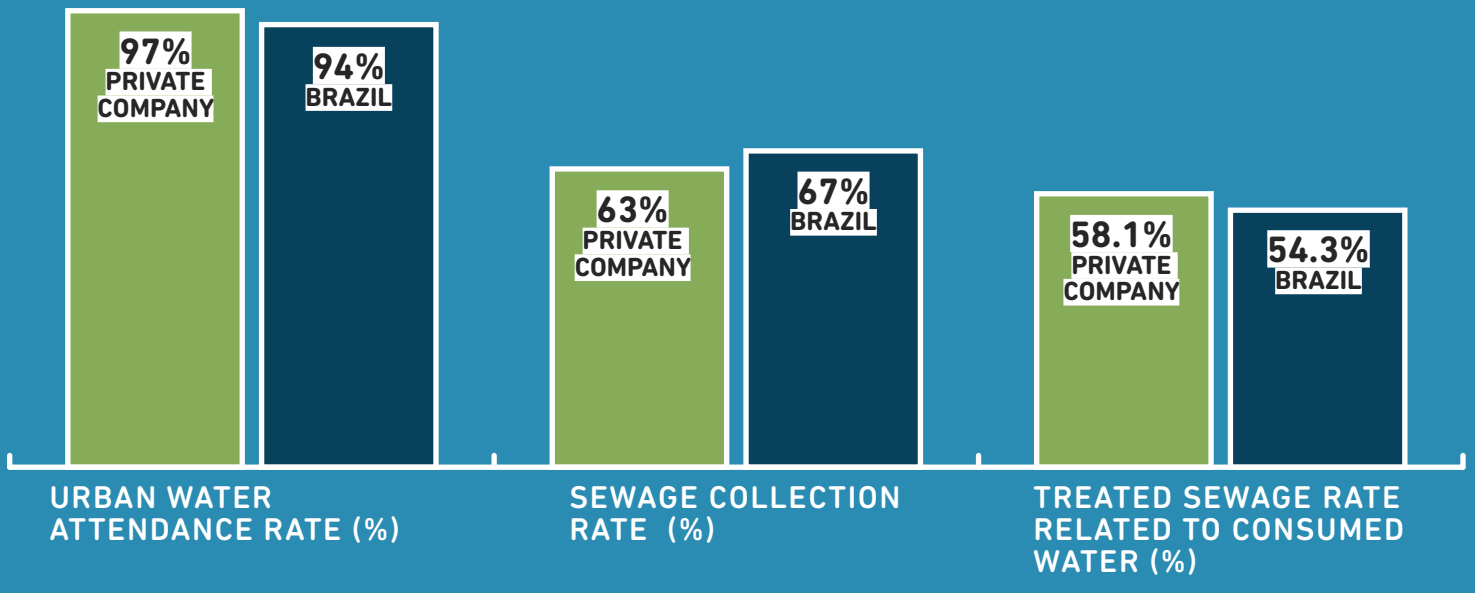
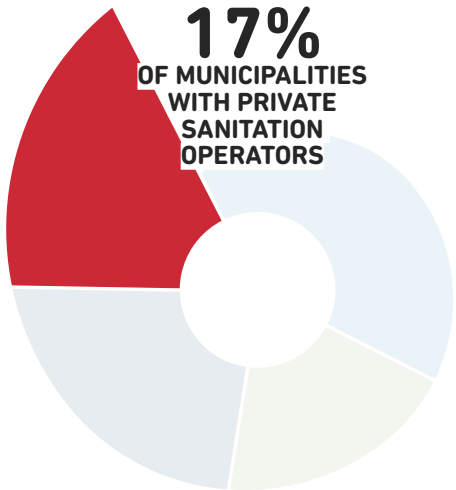


CHART 44
Average water and sewage coverage rates by population group
Source: SNIS 2018



UP TO 200 THOUSAND INHABITANTS



Cuiabá (MT)

Capital of Mato Grosso advances with investment that already exceeds R$ 400 million in the last three years

More than 100,000 residents of Cuiabá recently celebrated the continuous and safe water supply system. The end of the intermittent supply zone is one of the most noticeable results of the massive investments made in sanitation in the last 18 months. This improvement was achieved thanks to the contribution of the private concessionaire Águas Cuiabá, of the Iguá Saneamento group. Since August 2017, R$ 400 million has already been invested in works and innovations.

The concessionaire has expanded supply and sewage networks, replaced and modernized structures, improved control systems and acquired high-tech sanitation equipment. With these actions, the company contributed to the local economy through the generation of new jobs.

Currently, Cuiabá has 12 water supply systems. Since taking over the concession of sanitation services, the company has invested in each of the units, modernizing and expanding structures and, consequently, the capacity and quality of treatment as well as the service provided to the community. The goal that has been achieved, at each stage of works and deliveries, is the necessary balance for a sustainable sanitation for the population, in all regions of the capital, and the protection of the springs that supply the city.

The community has also benefited from investments that have improved water distribution. To this end, the concessionaire has directed investments to the modernization of structures that integrate the sanitation systems.

For the sewage system, the company has been conducting a challenging action plan, with an investment of more than R$150 million, which made it possible to achieve 61% of sewage coverage by the end of 2019.

Jundiaí (SP)

Increasingly present in the achievements of the community

The partial concession of sewage to the private sector, in 1996, started a new era for the sanitation in Jundiaí.

With the Jundiaí Sanitation Company (CSJ), of the Trail Infraestrutura group, the city took the definitive step to become a reference in the recovery of springs and universalization of sewage services.

CSJ built the first Sewage Treatment Plant in the municipality, the STPJ, which began operating in 1998 and continues to this day receiving about 99% of the sewage collected in the city. Currently, 100% of the sewage sent to the STP is treated.

In 2017, the Jundiaí River was reclassified as class 3, which means being considered fit for human supply after conventional water treatment. It was a great victory for the city. After all, in the 1980s, the 123 km of the river was totally compromised by pollution, receiving industrial and domestic effluents with precarious or non-existent treatment.

Today, Jundiaí is a reference in Human Development Index (HDI), a condition resulting largely from advances in sewage collection and treatment.

CSJ also stands out for recycling sewage sludge for more than 20 years, through the composting process. Every month, about 4,500 tons of sewage sludge are no longer sent to landfills and are transformed into organic fertilizer, safe to use in agriculture.

Another pride of the company is its social work, carried out by the Associação Casa da Fonte, a socio-educational association that operates permanently with the community around STPJ, with programs for children, adolescents and young people over 18 years, offering reinforcement classes, reasoning activities, creativity and initiation to drawing, dance, jazz and artistic gymnastics, knitting, crochet, embroidery, tapestry, loom, biscuit, jewelry, professional cutting and sewing, hairdresser, pedicure and manicure. In addition, the company maintains partnerships with the neighborhood schools to help maintain pedagogical projects.

Maceió (AL)

With a new plant, the capital of Alagoas improves sewage treatment

The region known as Alta Maceió received, in November, the largest investment in sewage system of the capital of Alagoas in recent years, thanks to the PPP between the private concessionaire Sanama, of the GS Inima Brasil group, and the state sanitation company. With the new sewage treatment plant, named Benedito Bentes, about 350,000 people will benefit. The inauguration of the STP is part of an investment plan of R$ 160 million, and was attended by Governor Renan Filho.

The new STP can handle up to 360 liters of sewage per second. At the end of the treatment process, the entire volume is sent back to nature with no environmental impact.

The private concessionaire has built and will operate the STP for 30 years. In addition to the advancement in health and life quality of the population, innovation in technology should also be highlighted. The facilities have a modern solution to treat sewage and give it back to nature as clean water.

Unprecedented in the country, the high performance technology improves the biological treatment of effluents and brings a reduction in energy consumption by 30%, compared to that used in conventional STPs, occupying a much smaller area (50%). It produces high quality effluents suitable for reuse for operational purposes.

Another advantage for the environment and the population: the operation process is fully aerobic and does not emit odors.

Campo Grande (MS)

Outstanding rates among the capitals and direct channel with the community are the differentials

Águas Guariroba, of the Aegea group, is the concessionaire responsible for the water and sewage services of Campo Grande. It performs from the collection, treatment and distribution of water, to the collection, transportation and final treatment of sewage. It began working in 2000, through a concession contract with the Municipal Government. During this period, it has invested more than R$ 1 billion in sanitation, transforming the living conditions of residents with more health, well-being, development and respect for the environment.

Water coverage in the capital of Mato Grosso is 99.9%, while sewage coverage exceeds 80%; the totality of the collected sewage is treated in two stations.

The city is the capital with the lowest water loss rate in the country: 19%, according to the latest Sanitation Ranking released by the Trata Brasil Institute. When the concessionaire took over the management of sanitation, the water loss rate reached 56%.

Campo Grande leads the ranking of new water connections to repair missing connections, made between 2017 and 2018, also reaching 100%. The indicator refers to the number of connections provided to achieve the universalization of the service.

The advance in access to sanitation contributed to the improvement of the life quality of the population. While the city advanced in a sewage collection and treatment network, the rates of hospitalizations for diarrheal diseases decreased sharply. The reduction reached 91% between 2003 and 2015.

The concessionaire's performance goes far beyond water and sewage services, with programs and actions that promote health, well-being and development for the population. The activities are supported by the pillars of citizenship, environment and education, with a focus on awareness so that people can live better in an increasingly sustainable city.

The concessionaire has a direct communication channel with the community. The Programa Afluentes holds meetings with community leaders, lectures, visits to the company's units and services in the neighborhoods. There are 495 registered community leaders. With the social tariff, the concessionaire acts to ensure everyone's access to treated water and sewage. It offers a 50% discount on the tariff for those with a family income of less than one minimum national wage and that are in accordance with the program requirements.

3.3. PROFILE BY CONTRACT TYPE

The private sector participates in the water and sewage services sector according to different models:

Full or partial concessions: concessions are contracts by which the granting authority (municipal and/or state authorities) transfer to the contractor (the concessionaire) the entire operation and maintenance of the water supply and sewage system, as well as the responsibility to make the necessary investments for a certain period (long contracts), during which the concessionaire will be compensated by charging tariffs to users.

The public authorities define rules on the quality of services and the tariffs composition, and a regulatory agency is responsible for monitoring the application of the terms established by the contract.

Full concessions include both water and sewage service. Partial concessions may be adopted only for one of these services (water or sewage).

Concessions, full or partial, may be **municipal** (assist a single municipality) **micro-regional/regional** (assist more than one municipality).

There are full and partial concessions, municipal and micro-regional/regional, in almost all states of Brazil.

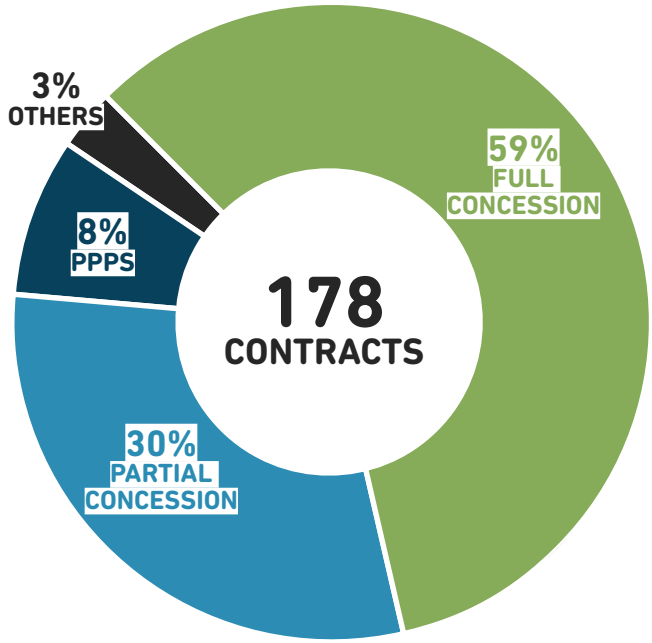
PPPs: provide for the financial resources contribution by the public administration, either by the tariff paid by the user (sponsored concession), or by the model of administrative concession for services provided, directly or indirectly, to the public power.

There are important sanitation PPPs in operation in the states of Pernambuco, Alagoas, São Paulo, Rio de Janeiro, Minas Gerais and Bahia.

Sub-delegations: or sub-concessions, are models provided for by Law 8.987 of 1995 (Concessions Law), by which the sanitation service provider transfers some of its charges to third parties (sub-delegated company). The transfer may even occur along the lines of a PPP. Presupposes participation in a bidding process. The company selling goods or services through a bidding proc-ess assumes all the rights and obligations of the sub-grantor within the limits of the subconcession.

There are sub-delegations for sanitation to the private sector established in the states of Goiás and Piauí.

CHART 45
Contract models with the private sector
Source: SPRIS 2018



MUNICIPAL CONCESSIONS

Total Assisted Population	Planned Investment Total of the Contract	Investment materialized in 2018
14 million	R$ 24.8 billion	R$ 1.1 billion

CHART 46

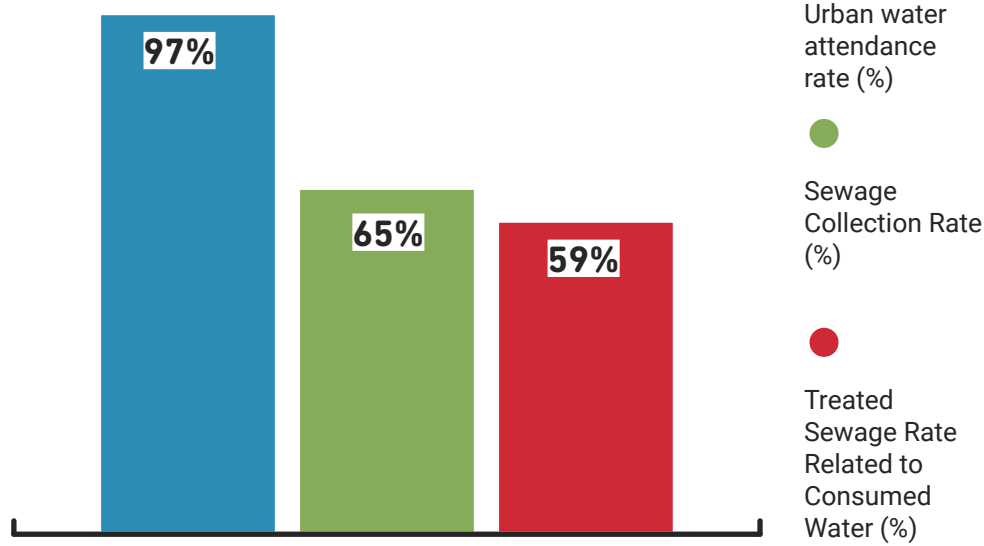
Municipal concessions by type of contract with the private operator

Source: SPRIS 2018

CHART 47

Coverage rates of full concessions (%)

Source: SPRIS 2018



Niterói (RJ)

A national reference in sanitation

In a state with great sanitation demands, Niterói became a reference, after 20 years of granting water and sewage services to the private sector. Responsible for sanitation in the municipality, the private concessionaire Águas de Niterói, of the Águas do Brasil Group, supplies 100% of the population with treated and quality water and 95% of sewage is collected and treated, a rate that previously reached only 35% in the municipality. Since 1999, when it took over the services, the company has invested more than R$700 million.

In recent years, the concessionaire has made other important investments in the city. The entire water distribution system is monitored and controlled through the Operational Control Center (CCO), which operates 24 hours a day. With the modern automation system, the CCO has pumping units, reservoirs and valves that are monitored remotely and in real time, ensuring even more agility and safety for the entire water supply system.

As to the sewage coverage, Niterói has nine STPs, reaching an important mark in the state. In 2019, the ninth station, named Sapê, was implemented and the construction of the Camboinhas plant got started. To advance further in sewage treatment, the concessionaire is implementing the sanitary sewage infrastructure system, in the Badu region, which will take the city towards the universalization of sanitation.

REGIONAL CONCESSIONS OR MICROREGIONAL

Total Assisted Population	Planned Investment Total of the Contract	Investment materialized in 2018
2 million	R$ 4.1 billion	R$ 285 million

CHART 48

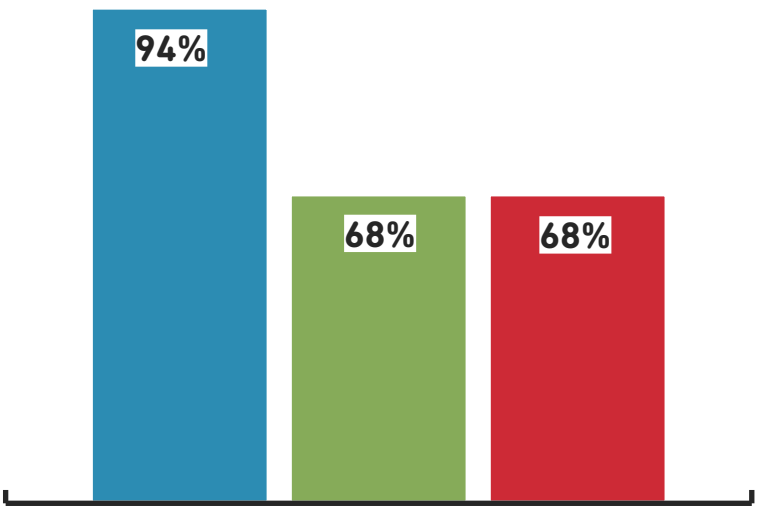
Regional or micro-regional concessions by type of contract with the private operator

Source: SPRIS 2018

CHART 49

Coverage rates of full concessions (%)

Source: SPRIS 2018



Urban water attendance rate (%)

Sewage Collection Rate (%)

Treated Sewage Rate Related to Consumed Water (%)

Juturnaíba (RJ)

Governance model in a consortium of municipalities

Prior to the arrival of the private concessionaire Águas de Juturnaíba, of the Águas do Brasil Group, the cities that are part of the consortium – Araruama, Saquarema and Silva Jardim, in the state of Rio de Janeiro – had less than 1% of sewage treatment. The Araruama Lagoon was polluted and with high proliferation of algae.

Today, after 22 years of service, 73% of the population has sewage treatment. With the treatment expansion and actions to clean up the lagoon, the ecosystem is being revitalized, providing the return of fishing, sports and tourism activities in the region.

From the point of view of governance, the coexistence of the three municipalities under the regulation of Agenersa, the Lagos São João Hydrographic Basin Committee and the Lagos São João Intermunicipal Consortium has proven to be quite effective, being a positive example for the country in relation to the regionalized provision of sanitation services.

The fixed population of the three municipalities is 239,000 inhabitants, increasing substantially in periods of high season.

Tocantins

Above the national average, coverage towards the countryside

The concessionaire responsible for water and sewage services in 47 Cities of Tocantin is a private company, Saneatins (BRK Ambiental Group), which operates 33 Water Treatment Plants and 177 Simplified Treatment Units (UTS) to treat more than 18 million liters of water per day. All urban areas of the assisted municipalities have 99.99% of treated water.

In 17 Sewage Treatment Plants (STPs), 4 million liters of sewage are treated. In Tocantins, 100% of the sewage, collected by more than 2,000 km of networks, is treated before final destination.

Palmas, the capital of Tocantins, present sewage collection coverage greater than 90%, already reaching the universalization of the service.

The investments, of more than R$ 1 billion, to expand service coverage, are directed to other cities of Tocantins to meet this goal. This is the case of Colinas do Tocantins, a municipality with 35,000 inhabitants in the central region of the state.

Since the sanitation service in the city began to be operated by the private sector in 2012, the attendance rate has risen from about 21% to the current 60%. The company is investing R$ 4.8 million to implement more than 30,000 meters of collection network and universalize, later this year, sewage collection in the municipality.

Saneatins also operates in municipalities in southwestern Pará, where private initiative achieves results that deserve to be highlighted. In São Geraldo do Araguaia, 100% of the residents have treated water and about 40% have access to the sewage collection network, a service that benefits more than 6,000 residents, which makes the municipality the best in the state regarding sewage collection.

SUBDELEGATION

Goiás

Billionaire investment in four municipalities

In Goiás, the private concessionaire BRK Ambiental is sub-delegated to the State company Saneago for operation and maintenance of sewage system services in the cities of Aparecida de Goiânia, Jataí, Rio Verde and Trindade. The operation goal is the universalization of the system in these municipalities through the collection of at least 90% of the sewage and its integral treatment.

To this extent, the company is investing approximately R$ 1 billion in the construction of 2,700 km of collectors, 100 km of interceptors, 15 new pumping stations and eight new sewage treatment plants (STP). In addition, it works to expand the existing structures in the municipalities.

Between 2017 and 2019, the company invested more than R$ 300 million in the sewage system of the four cities. The municipality of Jataí, with 98,000 inhabitants, obtained the universalization of sanitation in 2019, being the first of the four municipalities operated by the sub-delegation in the State to be operational and the first city in the state to universalize access to sewage collection.

By the end of the 28-year contract, the sub-delegation to the private sector will benefit 1 million people, ensuring more health and life quality for the population. 410 direct jobs were generated with the operation.

The sub-delegator has contributed to transform the life quality of the inhabitants and boost the development of the region. In Trindade, where the traditional Divine Eternal Father Pilgrimage is held, with more than 2 million faithful, the company promotes every year an intense work of preventive maintenance of sewage networks, in order to receive visitors safely and comfortably.

PPPs

Total Assisted Population	Planned Investment Total of the Contract	Investment materialized in 2018
13.7 million	R$ 10.6 billion	R$ 934 million

CHART 50
PPPs by type of contract with the private operator
Source: SPRIS 2018

Agreste (AL)

More water for those in need

The increase in 39% of the amount of water supplied to the population of the Agreste region of Alagoas was the last achievement of the PPP, an investment of approximately R$ 800,000 carried out by the Alagoas Sanitation Company (Casal) and the private operator Agreste Saneamento, of the Iguá Saneamento group, in order to meet the increased demand of the population of Arapiraca and surroundings.

The replacement of existing floating motor pump sets increased water flow by about 39%, increasing the supply from 920,000 liters/h to 1,500,000 liters/h. The expansion mainly benefits residents of the uptown of Arapiraca, Craíbas, Coité do Nóia and Igaci, in addition to providing raw water for the Mineração Vale Verde Company.

Since 2017, with the reduction of the water level in the São Francisco River, operational adjustments have been necessary to meet the population's consumption. The new arrangement contributes to the development of the population, in addition to more opportunities, and is another step towards increasing the production of treated and quality water in the region.

The PPP operates since 2012 and aims to universalize access to quality water and ensure improvements in the supply systems of ten municipalities of the Agreste region of Alagoas, benefiting more than 230,000 inhabitants.

Piracicaba (SP)

At the top of the list among the best in sewage treatment

Águas do Mirante (Aegea group), sewage PPP that operates in Piracicaba (SP), began its activities in 2012, when only 36% of the city's sewage was collected. In the second half of 2014, the municipality already had full sewage treatment. In the latest ranking published by the Trata Brasil Institute, Piracicaba occupies the 6th place. In the "Population with sewage collection" criteria, the city was the best among all evaluated cities.

Investments continued after 2014, and amounted to R$ 400 million in seven years. The number of sewage connections increased from 119,000 in 2012 to 141,274 (January 2020).

PPP is recognized for its social and environmental actions, having received several awards and distinctions, thanks to several projects that foster the participation and interaction of the population. One of these examples is the Afluentes program, carried out in partnership with community leaders and the social assistance network, as well as the program of visits to the Sewage Treatment Plant and the space dedicated to good environmental practices, which includes activities of production, planting and cultivation of seeds and seedlings.

The area of social responsibility acts in such a way as to provide means for communities to develop both in social and economic aspects, as well as in environmental aspects.

The relationship with stakeholders is based on sustainability and guided by principles of ethics and transparency with its various target publics. The relationship aims at the empowerment of communities, through projects and actions that prioritize a communication channel with its surroundings and that can thus hear criticisms and suggestions that will enhance the contribution to sustainable development.

4. MYTHS THAT PERSISTS

4.1. TARIFF

Fair Tariff levels is essential in order to provide the service to those who do not have sanitation access

> "Only what is rare is valuable, and water, which is the best of all things, (...) is also the cheapest." Eutidemus (Plato, 384 BC)

The debate on the expansion of sanitation services in Brazil irretrievably involves understanding the role of Fair Tariff levels as a principle for the universalization.

Thus, it is necessary to discuss the structure and value of water and sewage tariffs in a rational and well-grounded way, as they are fundamental instruments for the provision of high-quality services.

Why is the water distribution service charged?

Crucial to our survival, water is an asset made available by nature. But the water found in nature runs a long way until it is available for human consumption. Waking up every day, opening the tap, taking a bath, brushing your teeth and preparing a coffee requires a wide range of services. These activities involve a series of industrial process, which need to be adequately compensated to be carried out with quality.

Water supply is not a simple process. Water has become an increasingly scarce commodity. Compared to electricity, for example, water is relatively expensive to transport, but relatively inexpensive to store. Therefore, the strategy to avoid scarcity is different with water compared to that adopted in electricity.

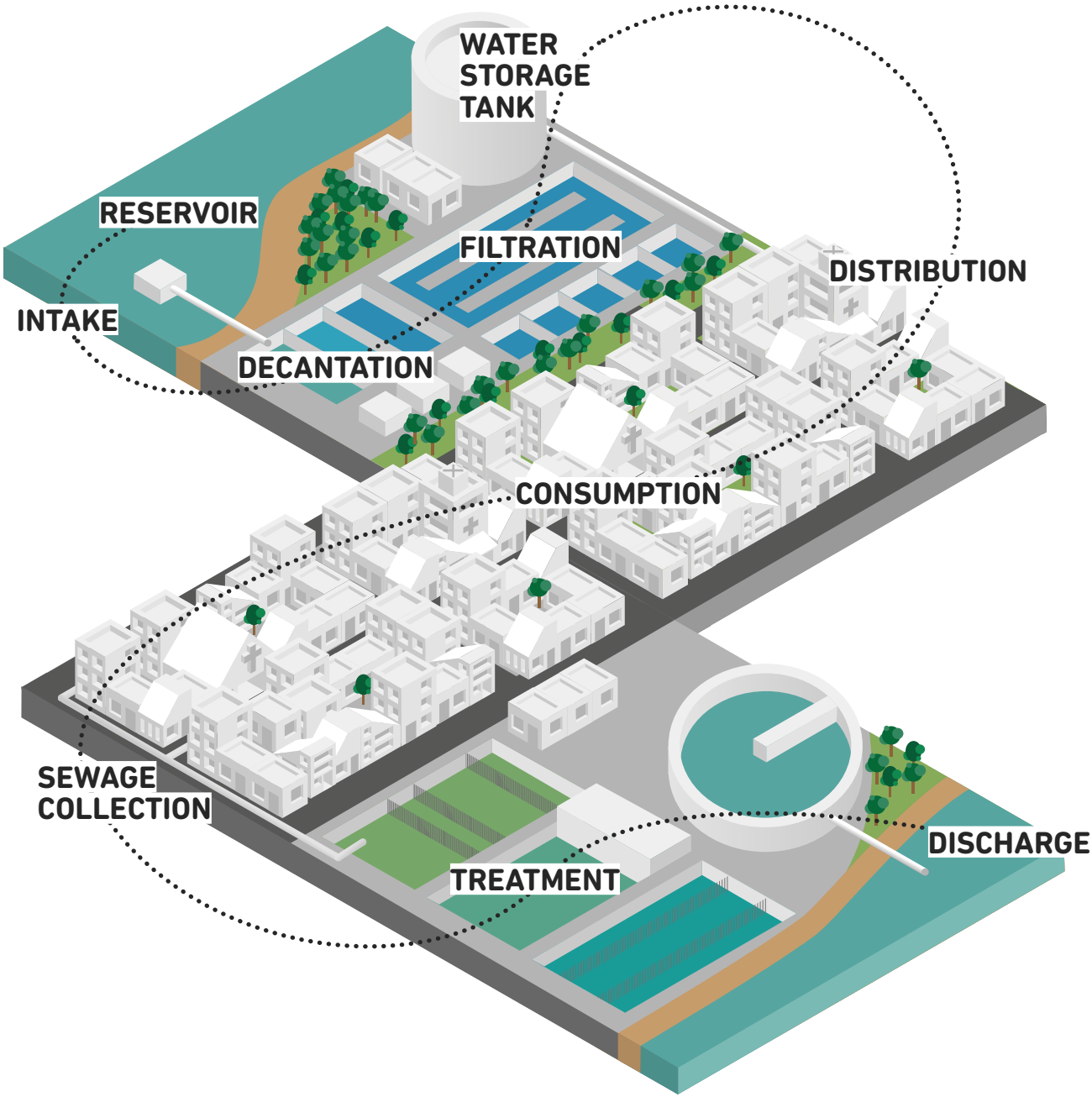
The energy supply is made through the National Interconnected System, which includes the electricity production and transmission of Brazil, including large hydro-thermal-wind generation. With water, there is no comparable interconnected transport network and there cannot be, as the cost of transporting water over long distances is prohibitive.

Receiving quality water in our homes requires heavy investments and operating costs as well as the maintenance of important systems.

In addition to the water supply, there are also a number of processes necessary for the collection and treatment of the sewage we generate. The lack of adequate sewage collection and treatment generates significant impacts on our health and the environment, polluting rivers and spreading diseases.

A sanitation company needs to manage a number of costs involved in water supply, such as capture, adduction (transport of raw water from the watershed), water treatment plant, distribution network, monitoring and continuous analysis of water quality, electromechanical maintenance of the entire supply system (pumps, valves, equipment, etc.), building connection, monitoring and revenue. As to the sewage system costs, it involves building connection, sewage collection, installation and maintenance of interceptors (pipelines intended to intercept and receive sewage flow), pumping stations, sewage treatment plants, installation and maintenance of outflow sewage system (pipe used to release sewage into the watershed), effluent releases, analysis and continuous quality monitoring of the effluent released, electromechanical maintenance of the entire sewage system (pumps, valves, equipment, etc.), destination of treated sludge (exclusive landfill, agricultural use, thermal drying, among others), and commercial revenue. A simplified version of this cycle can be found on the next page.

The sanitation cycle



The sanitation sector has a peculiar cost composition. Fixed costs account for between 60 and 70% of the total system costs (installed capacity, administrative and commercial costs). Variable costs are proportional to the production level and mostly associated with the consumption of chemicals and electricity.

Data from operations in Brazil show that the costs of chemical and electricity consumption can exceed 25% of the sector's operating expenses depending on the Brazilian region. **Chart 51** shows the proportion of these expenses in operating expenses. In addition to these, expenses with personnel as well as outsourced services are significant, around 60% to 65% of the total.

This means that the marginal cost of the sector, i.e. the additional cost of attending an additional consumer unit, is basically constant over time, as variable costs (such as chemical consumption and energy expenditure) are extremely high.

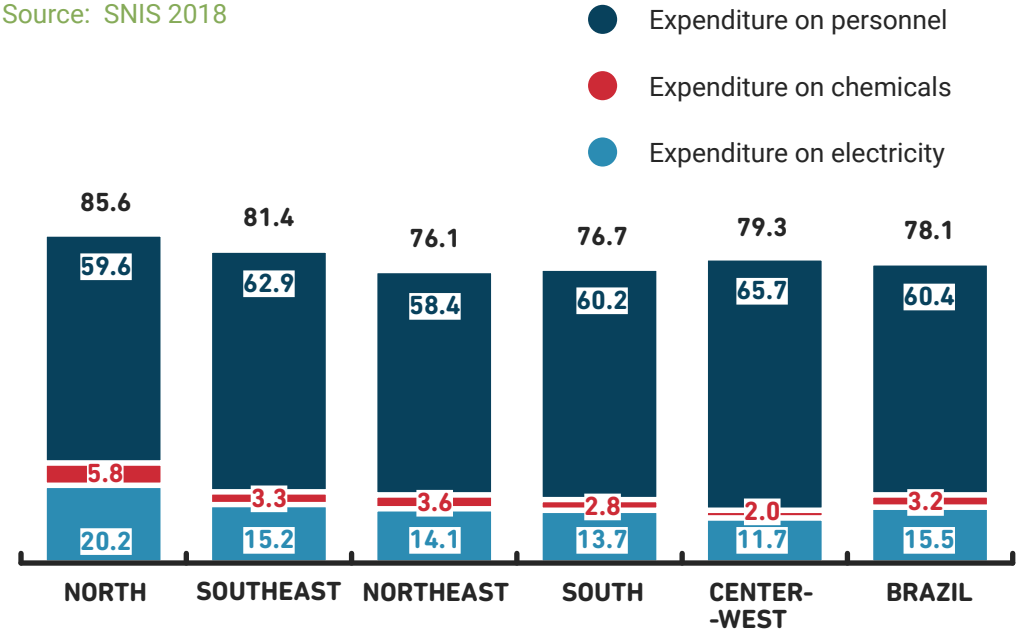
This characteristic requires a series of efficiency actions on the part of the companies, so that the tariff can compensate for the activity and be converted into services expansion.

> The worst tariff is the one that is not converted into services, quality and health for the population

CHART 51

Participation in expenses with electricity, chemicals and personnel among sanitation companies (%)

Source: SNIS 2018



One tariff, multiple applications

In addition to the cost compensation, the tariff is essential for the maintenance of quality and expansion of services. The simple search for the lowest tariff can generate unwanted results from the point of view of quality and the rhythm of the universalization of water and sewage services. The paradox is, if we reduce the tariff charged to those who already have the service, then we delay the assistance to those who are not yet assisted. In general, those who are already assisted are in nobler neighborhoods and represent the upper and middle classes, and those with no assistance are in the peripheries. It is important to highlight the perspective of social justice in this debate.

We can also associate the tariff with the quality of the service provided. The water quality criteria analyzed, described in the next table, shows that private concessionaires present better indicators than the national average. Of course, one cannot lose sight of the fact that the inefficiencies of operators do not contribute to a quality service and also impose more pressure on tariffs.

Water quality

Criteria	Analysis of incidence of total coliforms not meeting the quality standard (%)	Analysis of incidence of residual chlorine not meeting the quality standard (%)	Analysis of incidence of turbidity not meeting the quality standard (%)
Regional	1.67	1.36	15.61
Private	1.29	0.85	0.57
National	2.14	1.50	11.06

Fonte: SNIS

After all, what should be the tariff value in order to obtain positive results?

One of the great myths about the provision of water and sewage services lies in the idea that private companies would charge more for their services.

Recent data show that, on average, the tariff charged by private concessionaires has been lower than the average of state companies, which serve about 73% of the market.

However, the most correct analysis to be made is the crossing between the average tariffs practiced and the investments by

CHART 52

Average tariff practiced (R$/m^3)

Source: SNIS

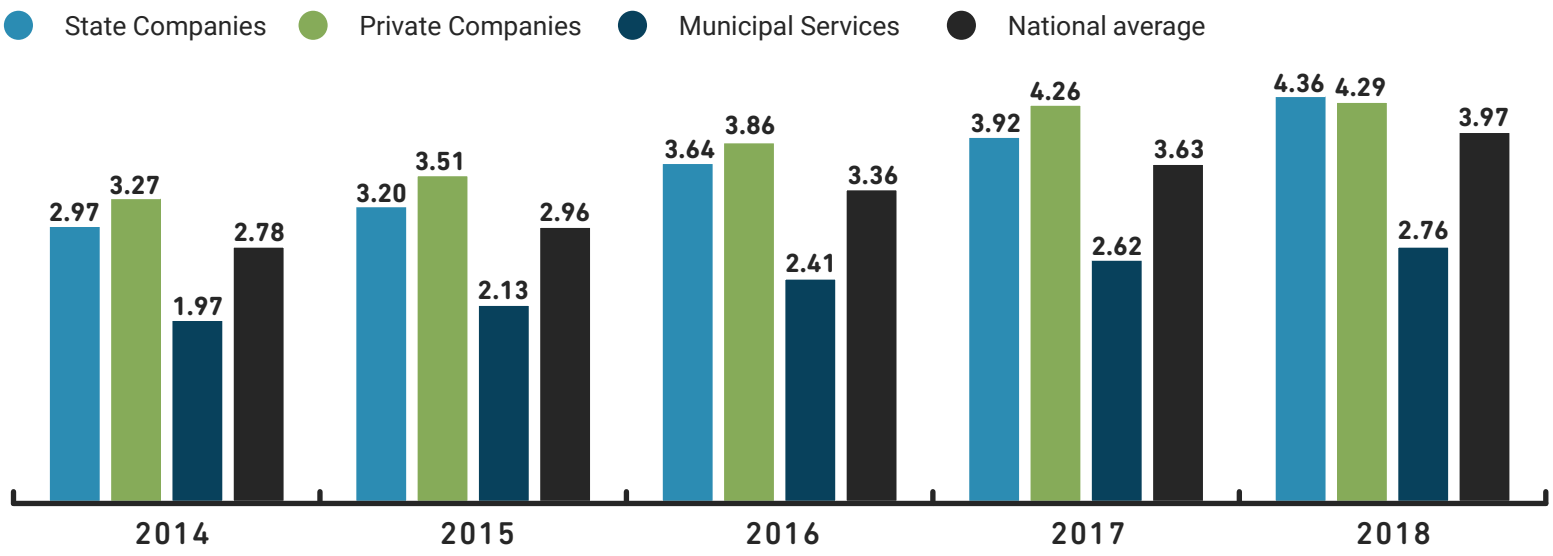
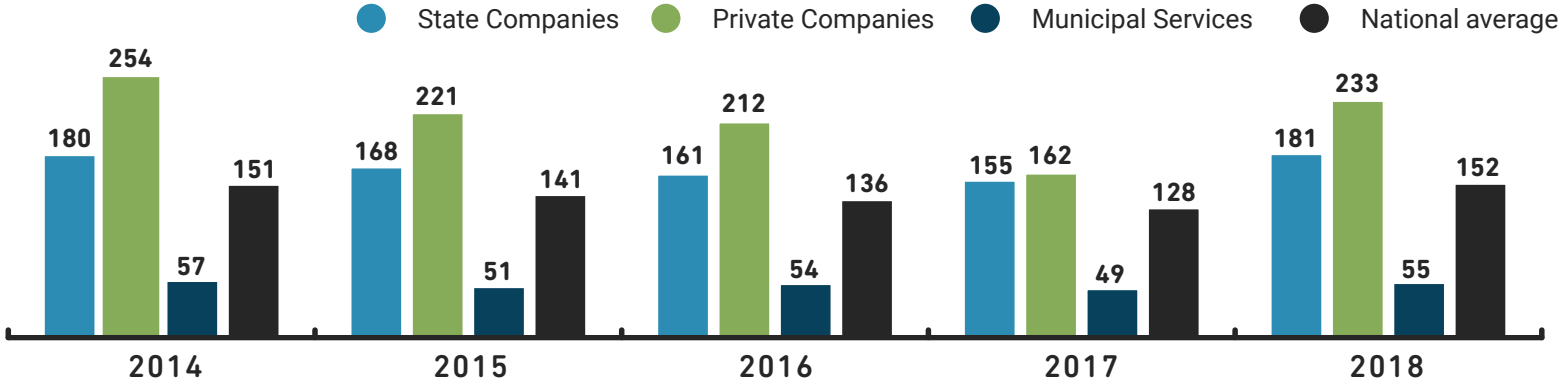


CHART 53

Average of Investments per Water and Sewage Connection (R$/conection)

Source: SNIS



water and sewage connection. These indicators have great potential to evaluate the operators' efficiency (**Charts 52 and 53**).

It is important to highlight that water and sewage tariffs represents a smaller share of household expenditures than other public services such as transport, electricity and telecommunications (**Chart 54**).

Over time, it is possible to observe that both water and sewage have not become more expensive than other infrastructure services, such as electricity (**Chart 55**).

The increase in the average water tariff practiced by private concessionaires between 2014 and 2018, for example, was lower than the increase in basic basket items such as bread roll and noodle.

CHART 54

Proportion of household budget spending (%)

Source: IBGE

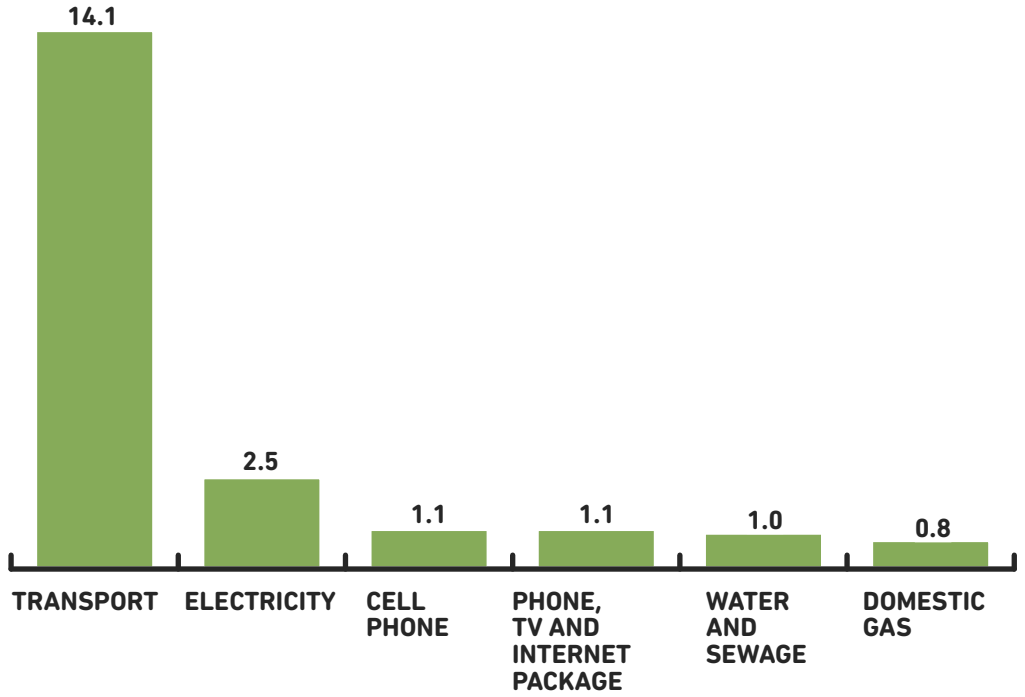
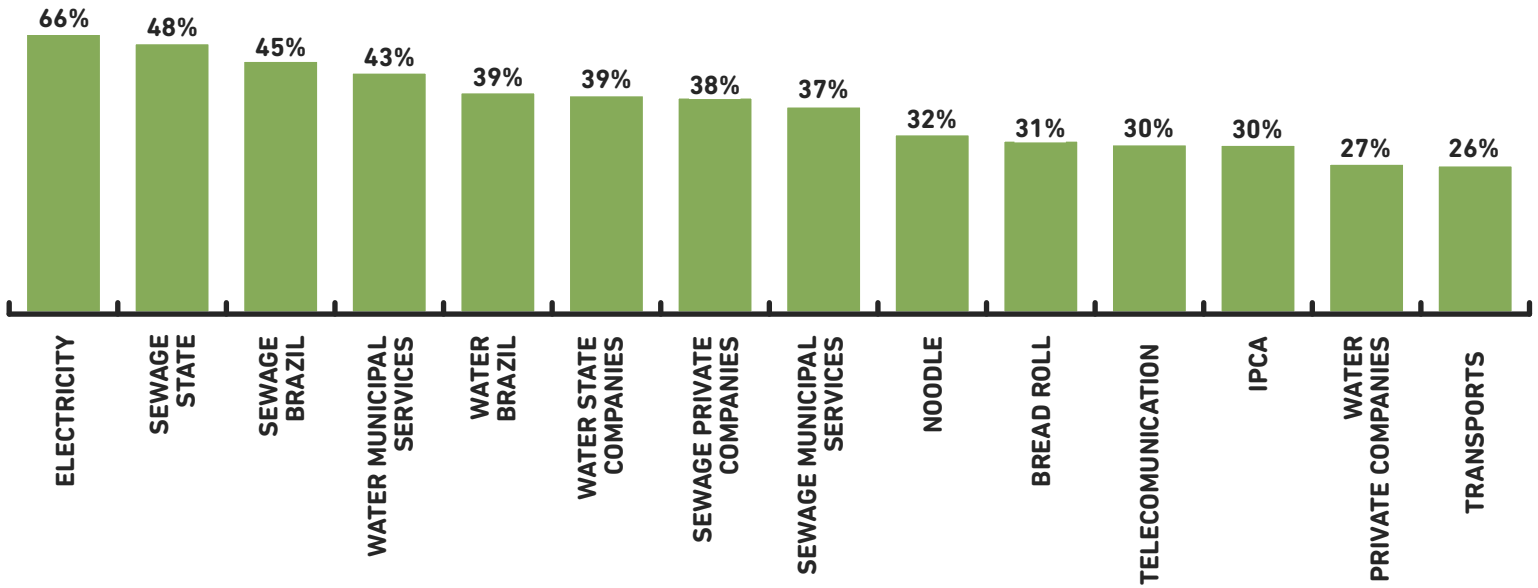


CHART 55

Increase in tariff and price of some essential items Cumulative increase (%) 2014-2018

Source: ANEEL, ANATEL, IBGE e SNIS



Another myth associated with private concessionaires is the premise that their performance is more successful in larger municipalities. Lower average tariffs may be observed in smaller municipalities.

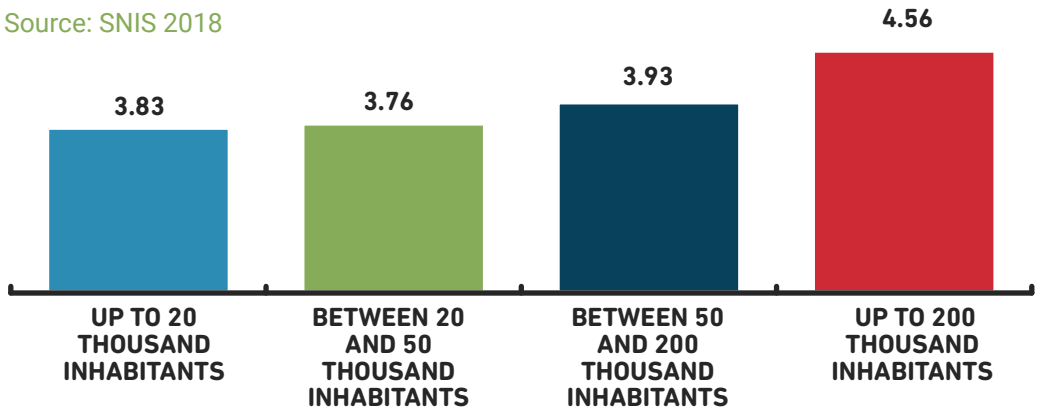
These data show that it is possible to make smaller municipalities economically viable without the implementation of unenforceable tariffs.

However, it is important to note that the calculation of average tariffs omits a number of relevant characteristics about their composition, which are essential for the understanding of their value.

CHART 56

Average tariff practiced by private concessionaires by municipality size (R$/m^3)

Source: SNIS 2018



How is the tariff charged?

Tariffs should enable the universalization of the service in addition to being accessible to the most vulnerable classes. At the same time, tariffs need to make the concessionaire activities economically and financially viable and, also, consider the burden that each user imposes on the system.

The tariff setting process involves a series of investment analyses, expansion of service provision and subsidies. Its negotiation takes place between the granting authority, the regulatory entity and the service provider.

Law 11.445/2007, which regulates sanitation, provides in Art. 29 that the economic and financial sustainability of the contracts should preferably be ensured by tariffs. And it explains, in Art. 22, Item IV, that the regulatory agency should consider mechanisms that make services more efficient and effective and also allow social appropriation of productivity gains.

One way to optimize economic and financial results is to segment customers by categories of users and consumption patterns, which generate different costs and signal the system's cross-subsidy capacity. The tariff structure is also composed of increasing groups, that is, the higher the consumption, the higher the amount paid per m³ of water.

The segmentation of consumers occurs normally among low-income residential consumers, residential, industrial and commercial consumers, among others. The tariff structure considers this composition to ensure the economic and financial balance of the system with a focus on the universalization of services and transfers of resources from the population with higher income to the needy population (cross subsidies).

Most of the sanitation company's revenue comes from residential consumers, given the number of consumer units in this type of sector. Generally speaking, non-residential consumer tariffs are negotiated on a case-by-case basis and tend to be higher. In practical terms, large residential consumers, industrial and commercial consumers contribute to the viability of services, enabling the tariffs charged to the needy populations to remain at levels compatible with their income availability. This is one of the main reasons, besides the health issue, so that the connection of large users to the networks made available by operators is mandatory.

Cross-subsidies within operations, objectively, seek to ensure the more wealthy subsidize the less favored. In Brazil, they usually occur among types of consumers, consumption bracket, income bracket and location.

The idea behind this mechanism is that large residential consumers, industrial and commercial consumers have greater ability to pay than the average of residential consumers, as well as users of larger urban centers have a greater ability to pay than residents of deprived areas. Thus, large consumers and the industrial and commercial sectors tend to ensure the viability of services, enabling services to residential and low-income consumers.

When large consumers such as shopping malls, industries, hospitals and others leave the system due to the deployment of their own water supply systems during the validity of a concession contract, the balance of this contract is impaired, residential tariffs are pressured to increase and the universalization objectives must be reviwed.

How is the tariff calculated?

Tariffs can be calculated based on the average, marginal, or incremental long-term cost. The modeling is defined by contract and regulated by the responsible regulatory agency.

Average cost: simple apportionment of costs. It induces inefficiency, since even waste is apportioned equally among all consumers, and does not consider the different levels of burden that users generate to the system.

Marginal cost: considers only the cost of operation and additional maintenance. In practical terms, the tariff would be associated with the idleness of the system. With system saturation, the marginal cost becomes high due to the need to install new structures and its applicability becomes questionable since there is no clarity about which consumers should bear the new costs.

Long-term average incremental cost: Based on the average cost of system expansion added to the average operating cost associated with the respective production increase. It includes the cost of permanent service availability and may constitute a tariff benchmark. The method differentiates the costs of providing services to groups of consumers with similar consumption characteristics, transferring to each group of consumers a tariff burden proportional to their cost.

When are tariffs adjusted?

Sanitation concession contracts last about 30 years. Over this period, the provision of water and sewage services will undergo a series of development cycles. Inflation, population growth, income variation, water crises – and so many other aspects that cannot be predicted – affect the sector's supply costs and make it impossible to predict which tariff will be adequate over decades.

Thus, the contracts provide for the adoption of the tariff adjustment and revision in order to guarantee a fair tariff, both for consumers and for the concessionaire, in order to stimulate the increase in the efficiency and quality of the services provided.

Adjustments and revisions are regulated by the responsible regulatory agency.

Tariff adjustment: provided for in the contract, aims to monetarily update the structure of revenues. It occurs with defined periodicity (annual, for example) and may be associated with a pre-established rate (IPCA, IGP, etc.).

Tariff review: it is an efficiency stimulus instrument that proposes to correct deviations occurred in the tariff adjustment, when the rate adopted is not compatible with the variation in inputs costs of the sec-

tor. The review can be ordinary and extraordinary (when unforeseen external factors affect the economic and financial balance of contracts and need to be evaluated within the tariff structure. Water scarcity and environmental disasters are some examples of these factors).

The analysis herein presented shows that the tariff is crucial in maintaining the quality of sanitation and expanding these services, and that it is possible to have distributive role in an economically and financially viable way.

The big key-factor is in the preparation of robust and clear contracts, with realistic information about the population that will be assisted, and in the construction of a rational tariff structure.

Social Tariff

The social tariff is an important instrument provided for by law that seeks to protect the poorest populations and those with low payment capacity for water and sewage services. It aims to correct distributive distortions and internalize a fair criterion on access to water supply and sewage collection.

The implementation of this benefit depends on specific regulation by the responsible regulatory agency, which will establish the access criteria, which in turn does not depend on the characteristic of the sanitation company, whether private or not.

Typically, the criteria for accessing the benefit involve family income, household size, water consumption and whether the family is a participant in some social program, such as Bolsa Família Program.

The social tariff is respected by private concessionaires in all municipalities where there is some kind of regulation regarding its implementation.

In about 70% of the municipalities with private service providers, there is a social tariff, totaling more than 110,000 benefited residences. The largest concentration is in the North region, with almost 60,000 residences contemplated.

Municipalities with social tariff - Private concessionaires

Region	Municipalities with social tariff	Municipalities without social tariff	Total of municipalities assisted	% Municipalities with Social Tariff	Residences contemplated	% Participation of residences contemplated
North	74	3	77	96%	60,811	48%
Northeast	4	0	4	100%	17,489	14%
Southeast	37	13	50	74%	33,907	27%
South	9	3	12	75%	3,257	3%
Midwest	8	27	35	23%	11,487	9%
Total	**132**	**46**	**178**	**74%**	**126,951**	**100%**

Source: SNIS 2018

4.2. REMUNICIPALISATION

The truth about remunicipalisation

The partnership with the private sector to provide water supply and sewage collection and treatment services has been an alternative adopted worldwide.

Recently used, the word "remunicipalisation" has been adopted to describe the resumption, by the municipality, of the management of municipal public water supply and/or sewage services.

The Federal Constitution of 1988 and ratified by Law 11.445 defined that "municipalities hold the municipal public water supply and/or sewage services". This municipality may delegate or grant to a public or private company the sanitation services, in the most varied contractual modalities, permitted by Brazilian legislation.

To understand the real reasons of the municipality, it is necessary to evaluate the points of support of the administrative action of the municipal Executive Branch.

They are:

• attraction and raising of financial resources for investments, given the incapacity and/or impossibility of the municipality;

• operational efficiency and productivity gains in existing systems, often obsolete;

• control in the management and corporate governance of the public services provided.

In a possible privatization of the State Sanitation Company (CESB), with the purchase of its shareholding control by a private company (including the amortized assets and assumption of existing liabilities), the approval of the municipalities, as granting authority and ownership of the service, must be consulted and approved.

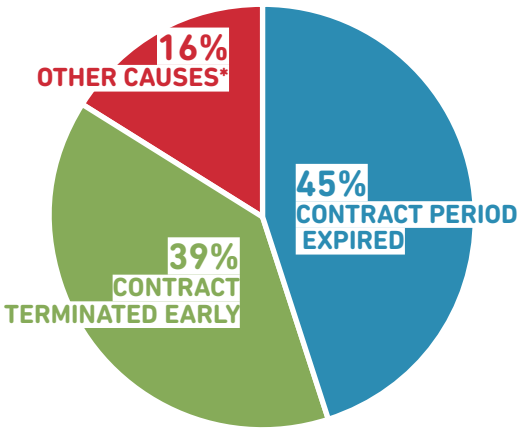
Proponents of the mistaken idea that remunicipalisation is a trend do highlight some cases of resumption, by the municipality, of the concession to private companies of water and sewage services. A recent study (October 2018), prepared by GO Associados, analyzes 235 cases of sanitation services resumption by municipalities in several countries. Most, which includes countries much richer than Brazil, are motivated by the simple end of the concession contract, as represented in **Chart 57**.

CHART 57

Causes of the resumption of sanitation services by municipalities in several countries

Source: GO Associados

*Some other causes are: Decision of resumption, by the municipality, not yet implemented (6.9%); private sold its stake (1.7%); private withdrew from the operation (3.0%) and not available (4.7%).



Most early terminated contracts occurred in developed and virtually universalized countries (61 of the 92 contracts), mainly in the United States (36), Spain (11) and Germany (6).

The American case is atypical, since most contracts allow, with some ease, the early termination of the agreement, provided that the private operator is informed in advance and the municipality pays the termination fee. Thus, the resumption becomes more susceptible to new policy guidelines (source: study "Our public water future — The Global Experience with remunicipalisation").

The Brazilian moment is the opposite of the reality of these countries. Here, in the face of the state's fiscal crisis and the historical scarcity of resources for sanitation services in recent decades, the contribution of the private sector is essential to supply structural deficits of assistance.

Paris, Berlin and Buenos Aires are international examples that deserve to be analyzed.

Paris

The city is an emblematic case. The capital of France rely on the participation of the private sector in the provision of water and sewage services since the second half of the 19th century. Specifically, the metropolitan region of Paris chose, in 1985, to grant the private sector water and sewage services in two areas, divided by the River Seine, for 25 years. Both on the right and left side of the river, the concessions considered: the obsolescence of the infrastructure; the emergence of new and stringent European environmental standards; integrated management of water resources; the processing of industrial data aiming at the safety and automation of equipment; and the population's expectations of new operators.

Over the 25 years of concession, the contract allowed a significant modernization of equipment and controls, as well as the replacement of old-fashioned lead networks (harmful to health), the improvement of the quality of distributed water and a significant reduction of losses (from 24% to 4%).

On December 31th, 2009, at the end of the contractual period, the municipality of Paris, which represents only 1/5 of the population of the metropolitan region, opted for the resumption of services. The other 4/5 of the region continues to be operated by the private sector, as shown in this page.

In the short term, as soon as the municipality decided to resume services, there was an 8% reduction of the tariff. However, investment levels were drastically reduced to one third of the national average and only 0.2% of water and sewage networks were replaced, causing an increase in the loss rate to 8%, that is, twice that of the private sector.

Berlim

The private sector concession contract lasted from 1999 to 2013. Before, there was great public investment during the reunification of West Germany with The East, to minimize the great gap in assistance and quality of services provided on both sides of the city. The modeling sought for the entry of the private operator proved to be inadequate. A fixed rate of return was foreseen for the private partner, while the profits from the operation would be reserved for the city. The result was high tariff and discontent of the population. Thus, the main causes for the resumption of services by the municipality were the compensation of the capital invested by the private sector and the disagreement in relation to the tariffs practiced in the other German cities, as well as the inflation of the country. In 2017, the average tariff value per m³ of water + sewage, for families consuming up to 15 m³/month, was US$ 6.25/m³, the highest rate overall.

Buenos Aires

The Argentine capital is a very significant example of the damage that political interference can cause to private sector sanitation concession contracts. The political crisis fueled the instability that eventually made it impossible to continue the private operation in the city, with the unilateral rupture of the concession contract.

This contract, signed in May 1993, referred to the following percentages (in the third column, the figures reached in 2002):

Service	1993	Goal 2002	Achieved 2002
Water	70.0%	88.0%	79.0%
Sewage – collection	58.0%	74.0%	63.0%

In addition to the lack of service, the scenario found by the private concessionaire included: high loss rate (45.0%); high delinquency (20.0%); absence of hydrometer measurement; significant consumption per capta (350 liters/inhabitant.day). There was a need for large investments in the very short term.

Until the cancellation of the contract, in 2006, the private company borrowed from international sources, which compromised its level of indebtedness and generated endless bilateral discussions. The situation was aggravated by the successive fiscal and currency crises of the Argentine government. An international arbitration process, conducted by investors, amounted to $1.2 billion in damages.

The causes of contractual termination can be summarized in: weak initial modeling, not considering the social aspects in relation to the low-income population and their willingness to pay; the political-institutional instability and macroeconomic situation of the country; and the organizational complexity of the regulatory environment, which sought to reconcile multiple interests in the various governmental spheres.

The experience of Buenos Aires also demonstrates the reflection of the service costs in tariffs when large short term investments are imposed, with the objective of accelerating the universalization of services.

The map of non-resumption: private initiative as a solution

In view of the examples presented, we can include some issues to be evaluated as fundamental factors for the success of private participation in sanitation, in partnership with the Public Authorities:

• Consistent work of clarification to the population to be assisted on benefits and advantages arising from the arrival of a private company to manage sanitation, improving the quality of life, municipal public health and universalization of water and sewage services, among others)

• Solidity and consistency of documents, bidding procedures and modeling of legal aspects

• Agility of the bidding process and formalization of the service provision contract, with goals, obligations and deadlines to be met

• Stable regulation, supported by independent administrative, financial and technical structures

• Adoption of mitigating actions in the definition of tariffs, easy to understand, and that are aligned with the income level of the population assisted

• Establishment of programs and actions with the population assisted, in order to overcome the rejection regarding the structural problem of sewage, as well as the low availability of users to pay for such services, considering the different income levels of this population

• Overcome any problems caused by political discontinuity, both in the Municipal Executive and Legislative Branches, so that managers of water and/or sewage services can maintain a healthy and transparent institutional relationship with the Granting Authority

• Respect compliance principles among all actors involved.

5. KEY FACTORS FOR THE SUCCESS OF THE NEW MODEL

The approval of the New Legal Framework for Sanitation is a necessity discussed for years. The current model, structured in the 1970s, clearly ran out and lost the ability to advance in achieving universalization.

The long-awaited reform of the sector needs to go beyond the approval of the legal text. A number of other challenges must be overcome to achieve the desired goal. In addition to the regulation of the Law by the Union, it is expected the good performance of state governments in supporting the structuring of the municipality groups and their willingness to engage in this new model.

Transversally, common to all federative entities, is the qualification of regulation, modeling, notices and contracts for the provision of services.

In this context, the strengthening of the National Sanitation Secretariat of the Ministry of Regional Development becomes fundamental. The deployment, monitoring and periodic evaluation of the Sanitation Policy, materialized by the new Legal Framework, will be fundamental to adjust or correct the direction of the sector in the country. Thus, it is perceived that the approval of the new Legal Framework is only the beginning of a long journey.

THE CHALLENGE OF REGULATION

One of the Union's central challenges will be to establish, with transparency and clarity, the roles of each of the actors involved in the Sanitation Policy, in particular with regard to the implementation of the Policy vis-à-vis the regulation of the provision of services.

These are complementary but distinct functions.

The substantial increase of regulation in sanitation generates uncertainties due to the different levels of regulatory quality. There are 52 agencies that regulate the sector in Brazil. The country has approximately 1/3 of the World's Sanitation Regulatory Agencies.

The structuring of standards for the regulation of sanitation by the National Water and Sanitation Agency (ANA) is one of the bets for increasing the legal certainty of the sector. In this way, it will be possible to harmonize regulation and implement minimum quality criteria.

ANA, regulated by Law 9.984 of 2000, has recent experience in the regulation of public services. Essentially a policy management and implementation agency, it has a long learning curve to meet the challenges of standardizing trading instruments, calculating indemnities or tariff regulation, among others.

There is a great distance between the management of water resources and the regulation of a sector that requires market logic in a provision of public services subject to a bidding process.

The new law of the sector requires the structuring of teams for the development of such activities, but only the hiring of service providers does not guarantee the internalization of a conduct focused on market regulation.

It is necessary to build skills that are not yet installed within the agency, including changing the profile of the new public servants who will work there – and with the proper space for them to develop.

The regulatory quality will depend on the construction of a new methodology, in addition to the existing one in ANA: less procedural and more objective. It needs to be considered the timing of market relations and existing opportunities. It is imperative that the new competencies be adopted, in a properly recognized way, incorporating them into the governance of ANA.

The harmonization of regulation is a major advance that will only be achieved with the real effort and rapid adaptation of ANA to meet this new challenge. Overcoming this challenge will not only depend on the Agency.

It is essential to create a favorable condition within the Union and a collaborative spirit of all actors in the sanitation sector.

THE CHALLENGE OF REGIONALISATION

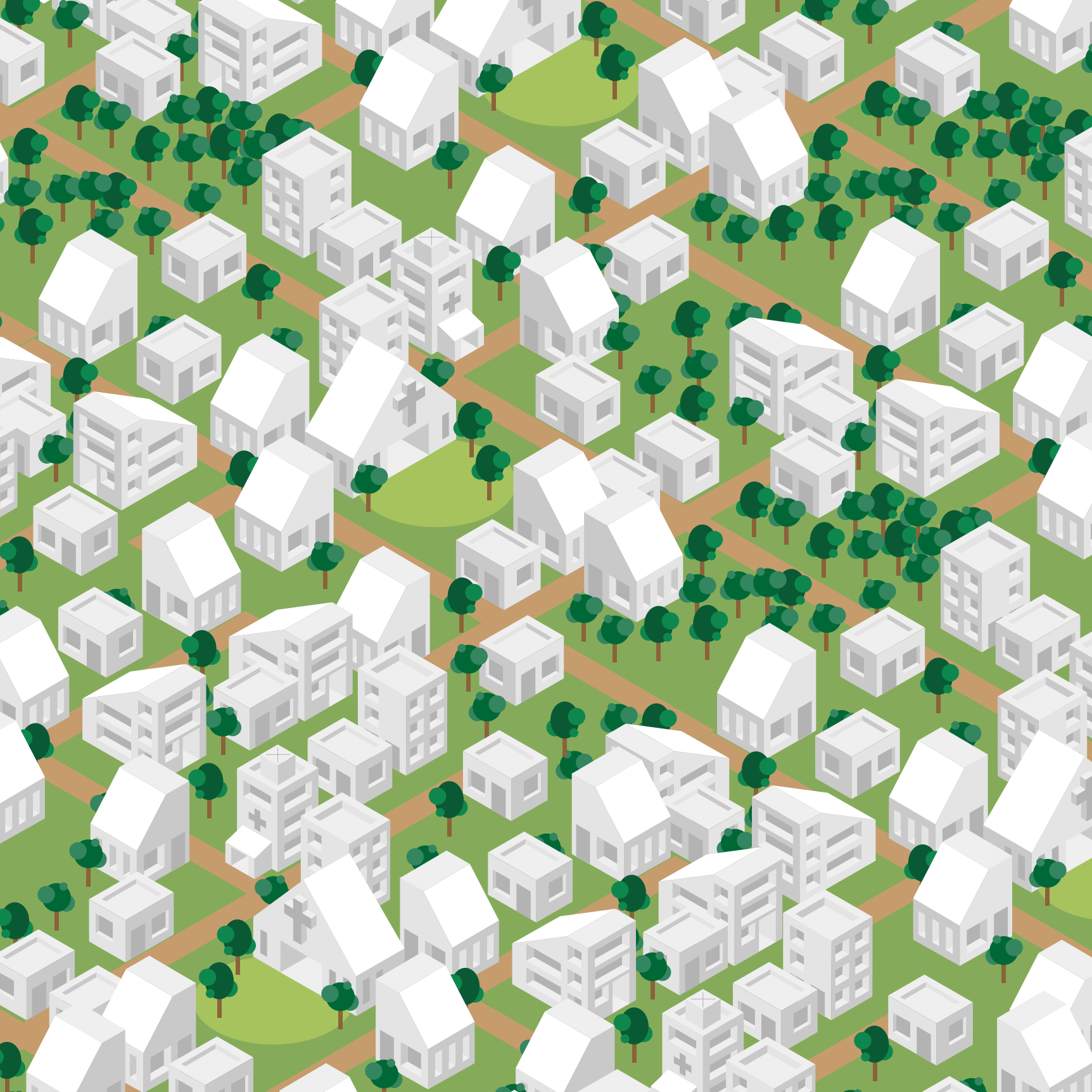
The new framework provides that the Union will establish, in a subsidiary way to the States, reference groups for the regionalised provision of public sanitation services, which will enable gains in scale and the inclusion of less profitable areas to concession groups. The instrument will be strengthened by the establishment of reference standards and mechanisms to encourage the regionalisation of the services. The actions of the Federal Government entities in order to contribute to the technical and economic-financial viability, creating scale and efficiency gains, and the universalization of services will be essential for the success of the new model.

For regionalisation to bring the desired results – scale gains and benefits arising from competition for the provision of services – it is necessary that the structuring premise of the groups be anchored in operational, economic and financial viability. State governments, with support from the Union, will play a central role in addressing this challenge.

There is no room for political interests to override the rationality of feasibility, nor can regionalisation be just a desired indication of service sharing. A proposed group that is not viable should not be a group.

Intrinsically to the success of regionalisation lies the challenge of modeling quality. The robustness and transparency of the data and information used in the modeling, the clarity regarding the regulation and contractual distribution of risks are essential for the bidding process to be successful. Another aspect relevant to the success of regionalisation is the recognition of the autonomy of the municipality and its process of choice, making it necessary to evaluate the appropriate incentives for its entry into the proposed groups. The design of the regions will need to consider the role of each municipality within the logic of cross subsidies: the “creditor” municipality, in the model, will need incentives to entry, either via grant or other differentiated agreed condition.

The approval of the law is the first step towards the real development of Brazilian sanitation. There is a great deal of work ahead that will require the joint effort of the different federative, regulatory, public and private entities.



CONCESSIONS FRAMEWORK

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Alagoas								
Arapiraca	Agreste Saneamento	Iguá Saneamento	PPP Water	2012	30	279,026	309.98	3.95
Campo Grande								
Coité do Noia								
Craíbas do Nunes								
Feira Grande								
Girau do Ponciano								
Igaci								
Lagoa da Canoa								
Olho Dágua Grande								
São Brás								
Maceió	SANAMA - Saneamento Alta Maceió	GS Inima Brasil	PPP Sewage	2014	30	350,000	168.50	21.18
11	**2**					**629,026**	**478**	**25**
Amazonas								
Manaus	Águas de Manaus	Aegea Saneamento e Participações	Full Concession	2000	45	2,102,535	4,562.87	155.16
1	**1**					**2,102,535**	**4,563**	**155**
Bahia								
Lauro de Freitas	BRK Ambiental -Jaguaribe	BRK Ambiental	PPP Sewage	2006	19	1,944,000	261.13	c.i.
Salvador								
Prado	Água e Saneamento do Prado	Socienge Engenharia e Concessões	Full Concession	2019	30	22,253	54.52	-
Serra do Ramalho*	Águas de Serra do Ramalho Saneamento	Brasil Central Engenharia	Full Concession	2019	30	31,472	43.68	-
4	**3**					**1,997,725**	**359**	**-**

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Espírito Santo								
Cachoeiro de Itapemirim	BRK Ambiental - Cachoeiro de Itapemirim	BRK Ambiental	Full Concession	1998	50	207,324	326.03	5.88
Serra	Ambiental Serra	Aegea Saneamento e Participações	PPP Sewage	2014	30	335,473	680.56	37.53
Vila Velha	Ambiental Vila Velha	Aegea Saneamento e Participações	PPP Sewage	2017	30	161,592	628.82	628.82
3	**3**					**704,389**	**1,635**	**672**
Goiás								
Aparecida de Goiania	BRK Ambiental - Goiás	BRK Ambiental	Sub-delegation Sewage	2013	N,A	407,548	951.01	171.54
Jataí								
Rio Verde								
Trindade								
4	**1**					**407,548**	**951**	**172**
Maranhão								
Paço do Lumiar	BRK Ambiental - Maranhão	BRK Ambiental	Full Concession	2015	35	283,042	450.00	44.55
São José de Ribamar								
Timon	Águas de Timon	Aegea Saneamento e Participações	Full Concession	2015	30	146,010	206.65	6.87
3	**2**					**429,052**	**657**	**51**
Mato Grosso								
Alta Floresta	Águas Alta Floresta	Iguá Saneamento	Full Concession	2002	30	44,848	107.37	1.75
Arenápolis	Águas de Arenápolis	Nascimento Engenharia	Water Concession	2001	30	9,714	n.d.	0.16
Barra do Garças	Águas de Barra do Garças	Aegea Saneamento e Participações	Full Concession	2003	30	60,661	59.24	3.88

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Campo Verde	Águas de Campo Verde	Aegea Saneamento e Participações	Full Concession	2001	30	37,937	33.05	4.40
Canarana	Águas Canarana	Iguá Saneamento	Water Concession	2000	40	16,824	39.36	1.40
Carlinda	Águas de Carlinda	Aegea Saneamento e Participações	Water Concession	2004	30	6,092	8.01	0.06
Cláudia	Águas de Claudia	Aegea Saneamento e Participações	Full Concession	2004	30	9,226	15.79	0.22
Colider	Águas Colider	Iguá Saneamento	Full Concession	2002	30	27,012	64.49	1.17
Comodoro	Águas Comodoro	Iguá Saneamento	Water Concession	2007	30	14,198	14.88	0.36
Confresa	Águas de Confresa	Aegea Saneamento e Participações	Full Concession	2014	30	17,187	108.59	0.93
Cuiabá	Águas Cuiabá	Iguá Saneamento	Full Concession	2012	30	588,572	2,684.93	157.38
Diamantino	Águas de Diamantino	Aegea Saneamento e Participações	Full Concession	2014	30	19,432	50.52	2.21
Guarantã do Norte	Águas de Guarantã Ltda,	Aegea Saneamento e Participações	Full Concession	2001	30	26,378	59.20	0.86
Jangada	Águas de Jangada	Aegea Saneamento e Participações	Full Concession	2004	30	4,835	5.71	0.06
Jauru	Águas de Jauru	Aegea Saneamento e Participações	Full Concession	2012	30	6,898	7.08	0.57
Juara	Concessionária Águas de Juara	Pereira Campanha	Full Concession	2001	30	30,403	8.00	0.92
Marcelândia	Águas de Marcelândia	Aegea Saneamento e Participações	Full Concession	2003	30	9,590	9.96	0.45
Matupá	Águas de Matupá	Aegea Saneamento e Participações	Full Concession	2001	30	15,282	27.01	1.48
Nobres	Empresa de Saneamento de Nobres	Encomind Engenharia	Full Concession	1999	30	12,600	2.60	n.d.
Nortelândia	Águas de Nortelândia	Aegea Saneamento e Participações	Water Concession	2002	50	5,844	2.36	0.13
Nova Canaã do Norte	Águas de Canaã	Construtora Premier	Water Concession	2009	30	12,739	15.88	0.50

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Nova Xavantina	Setae - Serviço de Tratamento de Água e Esgoto - Nova Xavantina	Setae - Serviço de Tratamento de Água e Esgoto	Full Concession	2001	30	20,655	n.d.	0.41
Novo São Joaquim	Setae - Serviço de Tratamento de Água e Esgoto - Novo São Joaquim	Setae - Serviço de Tratamento de Água e Esgoto	Water Concession	2001	30	3,198	n,d	0.11
Paranatinga	Águas de Paranatinga	Aegea Saneamento e Participações	Full Concession	2015	30	17,085	48.31	0.79
Pedra Preta	Águas de Pedra Preta	Aegea Saneamento e Participações	Full Concession	2003	29	16,458	52.55	0.56
Peixoto de Azevedo	Águas de Peixoto de Azevedo	Aegea Saneamento e Participações	Full Concession	2000	30	22,243	38.98	1.14
Poconé	Águas de Poconé	Aegea Saneamento e Participações	Water Concession	2008	16	23,780	2.70	0.25
Pontes e Lacerda	Águas Pontes e Lacerda	Iguá Saneamento	Full Concession	2000	30	37,747	69.19	1.61
Porto dos Gaúchos*	Águas de Porto dos Gaúchos	Lugui Construtora de Obras e Saneamento	Full Concession	2018	30	5,410	5.06	0.00
Porto Espiridião	Águas de Porto Esperidião	Aegea Saneamento e Participações	Full Concession	2012	30	5,862	13.13	0.15
Primavera do Leste	Águas de Primavera	Aegea Saneamento e Participações	Full Concession	2000	30	61,038	51.57	2.96
Santa Carmen	Águas de Santa Carmen	Aegea Saneamento e Participações	Water Concession	2001	30	4,223	0.66	0.06
São José do Rio Claro	Águas de São José Ltda	Aegea Saneamento e Participações	Full Concession	2008	30	15,620	17.60	0.14
Sapezal	Naturagua	Naturagua	Water Concession	2000	30	21,260	n.d.	0.50
Sinop	Águas de Sinop	Aegea Saneamento e Participações	Full Concession	2014	30	139,935	581.65	6.86
Sorriso	Águas de Sorriso	Aegea Saneamento e Participações	Full Concession	2000	30	87,815	64.00	8.39
União do Sul	Águas de União do Sul	Aegea Saneamento e Participações	Full Concession	2000	30	2,598	9.23	0.05
Vera	Águas de Vera Ltda,	Aegea Saneamento e Participações	Full Concession	2004	37	8,053	41.13	0.36
38	**38**					**1,469,252**	**4,320**	**203**

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Mato Grosso do Sul								
Campo Grande	Águas Guariroba	Aegea Saneamento e Participações	Full Concession	2000	60	895,982	1,963.81	73.72
1	**1**					**895,982**	**1,964**	**74**
Minas Gerais								
Araújos	Sanarj Concession, de Saneamento Básico	Global Engenharia e Planex Consultoria	Full Concession	2002	30	7,800	1.19	0.14
Belo Horizonte	BRK Ambiental - Manso S.A.	BRK Ambiental	PPP Water	2013	15	2,004,480	625.00	c.i.
Betim								
Contagem								
Ibirité								
Igarapé								
Lagoa Santa								
Mário Campos								
Pedro Leopoldo								
Ribeirão das Neves								
Santa Luzia								
São Joaquim de Bicas								
São José da Lapa								
Sarzedo								
Vespasiano								
Bom Sucesso	Águas de Bom Sucesso	Global Engenharia e Planex Consultoria	Full Concession	2002	25	17,350	3.09	0.17
Ouro Preto	Ouro Preto Serviços de Saneamento S.A. - SANEOURO	GS Inima Brasil	Full Concession	2019	35	64,595	158.8	-
Pará de Minas	Águas de Pará de Minas	Saneamento Ambiental Águas do Brasil	Full Concession	2015	35	92,793	229.83	8.20
Paraguasu	Coságua	Global Engenharia e Planex Consultoria	Full Concession	2000	30	19,958	5.28	0.11

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Santo Antônio do Amparo	Águas de Santo Antônio do Amparo	Socienge Engenharia e Concessões	Full Concession	2019	30	14,737	29.53	-
20	**7**					**2,221,713**	**1052.72**	**9**
Pará								
Abel Figueiredo	Abastecimento de Água - Abel Figueiredo	Hidroforte Administração e Operação	Water Concession	2018	30	8,801	5.63	2.30
Barcarena	Águas de São Francisco	Aegea Saneamento e Participações	Full Concession	2014	30	37,340	231.02	4.46
Bom Jesus do Tocantins	BRK Ambiental - Araguaia Saneamento	BRK Ambiental	Full Concession	2006	30	106,390	80.88	6.08
Santana do Araguaia								
São Domingos do Araguaia								
São João do Araguaia								
Redenção								
Curionópolis	Companhia de Saneamento do Tocantins - Saneatins	BRK Ambiental	Full Concession	2007	30	95,323	240.80	4.04
Eldorado dos Carajás								
São Geraldo do Araguaia								
Tucumã								
Xinguara								
Itupiranga	Abastecimento de Água e Coleta de Esgoto - Itupiranga	Hidroforte Administração e Operação	Full Concession	2015	30	8,961	5.88	4.73
Jacundá	Jacundá Ambiental	Aviva Ambiental e Ello Serviços. Obras e Participações	Full Concession	2018	30	29,000	79.00	-
Novo Progresso	Águas de Novo Progresso	Aegea Saneamento e Participações	Full Concession	2003	30	18,164	15.32	0.34
Novo Repartimento	Abastecimento de Água - Novo Repartimento	Hidroforte Administração e Operação	Water Concession	2019	30	5,524	60.47	-
Rurópolis	Águas de Rurópolis	Perenge Engenharia e Concessões e PAVIENGE Engenharia	Full Concession	2019	30	26,000	51.10	-
17	**9**					**335,503**	**770**	**22**

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Paraná								
Paranaguá	Paranaguá Saneamento	Iguá Saneamento	Full Concession	1997	45	150,302	1,010.15	49.30
1	**1**					**150,302**	**1,010**	**49**
Pernambuco								
Abreu e Lima	BRK Ambiental Atlântico	BRK Ambiental	PPP Sewage	2013	35	1,297,952	2,954.94	204.76
Araçoiaba								
Cabo de Santo Agostinho								
Camaragibe								
Goiana								
Igarassu								
Ipojuca								
Itamaracá								
Itapissuma								
Jaboatão dos Guararrapes								
Moreno								
Olinda								
Paulista								
Recife								
São Lourenço da Mata								
15	**1**					**1,297,952**	**2,955**	**205**
Piauí								
Antônio Almeida*	Companhia de Abastecimento de Água e Esgotamento Sanitário de Antônio Almeida	Diniz Neto Soluções de Águas e Esgotos	Full Concession	2019	30	3,164	n.d.	-
Bom Princípio*	Companhia de Abastecimento de Bom Princípio	Diniz Neto Soluções de Águas e Esgotos	Water Concession	2018	30	5,630	n.d.	-

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Landri Sales*	Soluções de Águas e abastecimento de Landri	Diniz Neto Soluções de Águas e Esgotos	Full Concession	2019	30	5,295	n.d.	-
Teresina	Águas de Teresina	Aegea Saneamento e Participações	Full Concession	2017	30	812,063	1,337.42	94.53
4	**4**					**826,152**	**1,337**	**95**
Rio de Janeiro								
Araruama Saquarema Silva Jardim	Águas de Juturnaíba	Saneamento Ambiental Águas do Brasil	Full Concession	1998	50	239,000	440.90	12.61
Armação de Búzios Arraial do Cabo Cabo Frio Iguaba Grande São Pedro da Aldeia	Prolagos	Aegea Saneamento e Participações	Full Concession	1998	43	346,909	1,433.30	109.25
Campos dos Goytacazes	Águas do Paraíba	Saneamento Ambiental Águas do Brasil	Full Concession	1999	60	478,252	696.57	34.83
Guapimirim	Fontes da Serra	Emissão Engenharia	Water Concession	2000	30	42,180	14.07	-
Macaé	BRK Ambiental - Macaé	BRK Ambiental	PPP Sewage	2012	35	46,643	643.37	3.20
Niterói	Águas de Niterói	Saneamento Ambiental Águas do Brasil	Full Concession	1999	50	511,786	541.36	25.62
Nova Friburgo	Águas de Nova Friburgo	Saneamento Ambiental Águas do Brasil	Full Concession	1999	40	166,043	133.00	12.19
Paraty	Águas de Paraty	Saneamento Ambiental Águas do Brasil	Full Concession	2014	30	42,000	35.6	2.1
Petrópolis	Águas do Imperador	Saneamento Ambiental Águas do Brasil	Full Concession	1998	45	296,297	299	10.27
Resende	Águas das Agulhas Negras	Saneamento Ambiental Águas do Brasil	Full Concession	2008	30	126,015	136.33	5.90
Rio das Ostras	BRK Ambiental - Rio das Ostras	BRK Ambiental	PPP Sewage	2007	17	38,594	385.00	1.03

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Rio de Janeiro	Zona Oeste Mais Saneamento S.A.	BRK Ambiental e Saneamento Ambiental Águas do Brasil	Sewage Concession	2012	30	1,341,956	2,552.00	53.88
Santo Antônio de Pádua	Águas de Santo Antônio	Conasa Infraestrutura	Water Concession	2004	30	42,359	9.03	-
19	**13**					**3,718,034**	**7,392**	**271**
Rio Grande do Sul								
São Gabriel	São Gabriel Saneamento	Solví	Full Concession	2012	30	62,115	100.79	5.14
Uruguaiana	BRK Ambiental - Uruguaiana	BRK Ambiental	Full Concession	2011	30	127,079	169.83	13.04
2	**2**					**189,194**	**271**	**18**
Rondônia								
Ariquemes	Águas de Ariquemes	Aegea Saneamento e Participações	Full Concession	2016	30	96,911	233.49	6.49
Buritis	Águas de Buritis	Aegea Saneamento e Participações	Full Concession	2015	30	4,149	94.94	0.77
Pimenta Bueno	Águas de Pimenta Bueno	Aegea Saneamento e Participações	Full Concession	2015	30	31,689	63.54	2.80
Rolim de Moura	Águas de Rolim de Moura	Aegea Saneamento e Participações	Full Concession	2016	30	44,745	109.13	3.15
4	**4**					**177,494**	**501**	**13**
Santa Catarina								
Balneário Gaivota	Gaivota Saneamento	Atlantis Saneamento	Full Concession	2018	35	8,262	163.54	0.30
Blumenau	BRK Ambiental - Blumenau S.A.	BRK Ambiental	Sewage Concession	2010	35	144,575	302.80	5.39
Bombinhas	Águas de Bombinhas	Aegea Saneamento e Participações	Full Concession	2016	35	19,193	40.91	37.08

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Caçador	BRK Ambiental - Caçador S.A.	BRK Ambiental	Full Concession	2018	30	66,766	n.d.	-
Camboriú	Águas de Camboriú	Aegea Saneamento e Participações	Full Concession	2015	35	80,026	9.01	7.96
Gravatal	Gravatal Saneamento	Atlantis Saneamento	Full Concession	2018	30	8,303	38.31	0.20
Itapema	Águas de Itapema	Conasa Infraestrutura	Full Concession	2004	40	61,678	n.d.	1.18
Itapoá	Itapoá Saneamento	Iguá Saneamento	Full Concession	2012	30	19,663	247.91	4.16
Jaguaruna	Águas de Jaguaruna	Atlantis Saneamento	Water Concession	2007	35	20,000	44.64	0.16
Jaguaruna	Jaguaruna Saneamento	Atlantis Saneamento	Water Concession	2016	40	22,000	n,d	0.20
Penha	Águas de Penha	Aegea Saneamento e Participações	Full Concession	2015	35	29,223	4.59	6.45
São Francisco do Sul	Águas de São Francisco do Sul	Aegea Saneamento e Participações	Full Concession	2014	35	48,059	20.75	9.63
Tubarão	Tubarão Saneamento	Iguá Saneamento	Full Concession	2012	30	104,809	500.77	46.29
12	**13**					**632,557**	**1,373**	**119**
São Paulo								
Álvares Florence	Datema Ambiental Saneamento Básico	DQT - Saneamento Basico e Meio Ambiente	Full Concession	2012	30	2,522	n,d	-
Andradina	Águas de Andradina	Iguá Saneamento	Full Concession	2010	30	55,334	167.98	10.20
Araçatuba	GS Inima Samar	GS Inima Brasil	Full Concession	2012	30	193,216	368.47	27.31
Araçoaiba da Serra	Águas de Araçoaiaba	Saneamento Ambiental Águas do Brasil	Full Concession	2009	30	32,649	46.4	1.56

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Arujá	Águas Spat Saneamento	Iguá Saneamento	PPP Water	2008		5,000,000	401.06	0.53
Ferraz de Vasconcelos								
Guarulhos								
Itaquaquecetuba								
Mauá								
Mogi das Cruzes								
Poá								
Santo André								
São Paulo (Zona Oeste)								
Suzano								
Atibaia	Atibaia Saneamento	Iguá Saneamento	PPP Sewage	2012	30	99,472	483.45	14.16
Barueri	Sistema de São Lourenço da Serra	CGGC	PPP Water	2013	25	1,500,000	2,214.00	n.d.
Carapicuiba								
Cotia								
Itapevi								
Jandira								
Santana de Parnaíba								
Vargem Grande Paulista								
Birigui	Aqua Pérola	Latam Water Participações	Water Concession	1994	15	28,142	2.40	c.i.
Campinas	BRK Ambiental Capivari S.A.	BRK Ambiental	Sewage Assets Location	2007	23	55,728	153.00	c.i.
Campos de Jordão	Araucária Saneamento	GS Inima Brasil	Sewage Assets Location	2010	23	76,000	116.60	c.i.
Casa Branca	Águas de Casa Branca	Terracom e Perenge Engenharia	Full Concession	2018	30	30,380	2.82	2.03
Castilho	Águas de Castilho	Iguá Saneamento	Full Concession	2010	30	15,493	42.89	2.66

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Estiva Gerbi	Águas de Estiva Gerbi	Terracom e Perenge Engenharia	Full Concession	2019	30	11,304	n.d.	-
Guará	Águas de Guará	Latam Water Participações	Full Concession	2000	25	21,129	4.00	0.18
Guaratinguetá	Guaratinguetá Saneamento	Iguá Saneamento	PPP Sewage	2008	30	105,298	240.52	1.21
Holambra	Águas de Holambra	Aegea Saneamento e Participações	Full Concession	2013	30	14,930	19.35	3.71
Jaú	Águas de Jahu	Saneamento Ambiental Águas do Brasil	Full Concession	2014	35	143,959	221.7	9.6
Jaú	Águas de Mandaguahy	SGA - Sistema de Gestão Ambiental	Water Concession	1998	30	143,959	165.00	9.78
Jundiaí	Companhia de Saneamento de Jundiaí	Trail Infraestrutura	Sewage Concession	1996	35	407,467	250.00	0.01
Limeira	BRK Ambiental - Limeira S.A.	BRK Ambiental	Full Concession	1995	44	294,620	135.47	42.31
Mairinque	Saneaqua Mairinque S.A.	BRK Ambiental	Full Concession	2010	40	40,194	82.44	4.75
Matão	Águas de Matão	Aegea Saneamento e Participações	Full Concession	2013	30	83,170	78.43	7.37
Mauá	BRK Ambiental - Mauá S.A.	BRK Ambiental	Sewage Concession	2003	40	433,926	233.00	2.94
Mineiros do Tietê	Águas de Mineiros	Latam Water Participações	Full Concession	1996	30	12,275	6.50	0.15
Mirassol	Sanessol	Aviva Ambiental e Iguá Saneamento	Full Concession	2007	30	56,897	185.06	10.61
Mogi Mirim	Sesamm - Serviços de Saneamento de Mogi Mirim	GS Inima Brasil	Sewage Concession	2008	30	78,495	91.68	1.95
Palestina	Empresa de Saneamento de Palestina - ESAP	Aviva Ambiental e Iguá Saneamento	Full Concession	2007	30	10,524	42.51	1.10
Paraibuna	CAEPA - Companhia de Água e Esgoto de Paraibuna	GS Inima Brasil	Full Concession	2015	30	13,471	20.6	1.47
Piquete	Águas Piquete	Iguá Saneamento	Full Concession	2010	30	13,157	32.75	0.48
Piracicaba	Águas do Mirante	Aegea Saneamento e Participações	PPP Sewage	2012	30	404,142	452.63	11.94

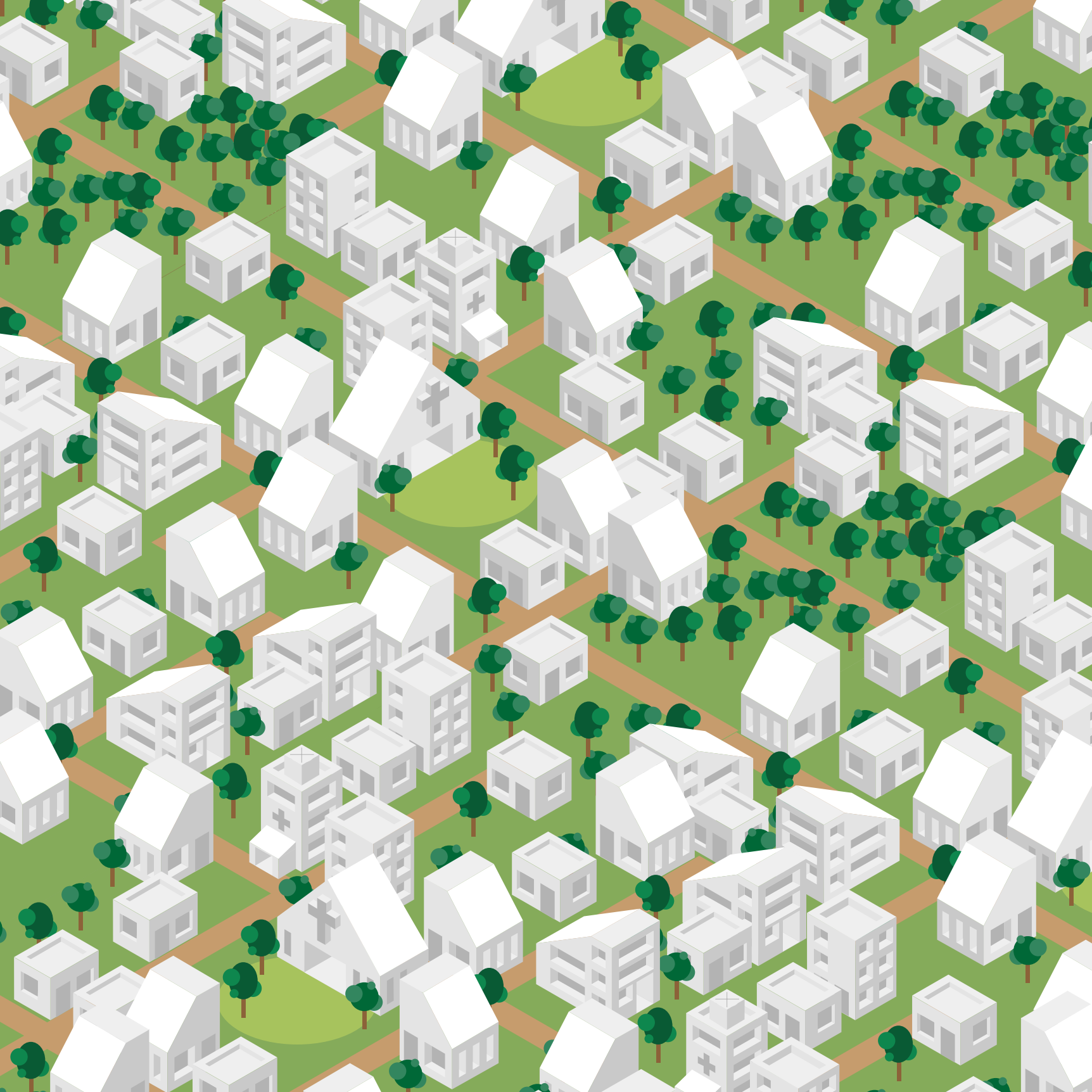
Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Porto Ferreira	BRK Ambiental - Porto Ferreira S.A.	BRK Ambiental	Full Concession	2011	30	54,786	72.84	3.12
Ribeirão Preto	GS Inima Ambient	GS Inima Brasil	Sewage Concession	1995	38	688,884	362.42	51.81
Rio Claro	BRK Ambiental - Rio Claro S.A.	BRK Ambiental	PPP Sewage	2007	30	204,797	146.35	5.60
Salto	Sanesalto Saneamento	Conasa Infraestrutura	Sewage Concession	1996	25	116,734	36.00	1.90
Santa Gertrudes	BRK Ambiental - Santa Gertrudes S.A.	BRK Ambiental	Full Concession	2010	30	25,637	29.40	0.70
Santa Rita do Passa Quatro	COMASA - Companhia Águas de Santa Rita	GS Inima Brasil	Full Concession	2016	30	24,667	27.48	1.52
São José dos Campos	Sanevap - Saneamento do Vale do Paraíba	GS Inima Brasil	Sewage Assets Location	2012	20	247,540	88.40	c.i.
São Sebastião da Grama	Águas de São Sebastião da Grama	Terracom e Perenge Engenharia	Full Concession	2016	30	12,182	2.09	1.01
Sumaré	BRK Ambiental - Sumaré S.A.	BRK Ambiental	Full Concession	2014	30	269,786	345.30	25.52
Votorantim	Águas de Votorantim	Saneamento Ambiental Águas do Brasil e SGA - Sistema de Gestão Ambiental	Full Concession	2012	30	116,703	91.30	10.18
53	**40**					**11,115,657**	**7,462**	**269**
Tocantins								
Abreuladia	Abastecimento de Água - Abreuladia	Hidroforte Administração e Operação	Water Concession	2019	30	2,331	0.80	-
Angico	Abastecimento de Água - Angico	Hidroforte Administração e Operação	Water Concession	2019	30	3,606	0.28	-
Araguacema	Abastecimento de Água - Araguacema	Hidroforte Administração e Operação	Water Concession	2019	30	6,705	1.48	-
Bom Jesus do Tocantins	Abastecimento de Água - Bom Jesus do Tocantins	Hidroforte Administração e Operação	Water Concession	2018	30	4,477	0.92	0.24
Chapada da Natividade	Abastecimento de Água - Chapada da Natividade	Hidroforte Administração e Operação	Water Concession	2020	30	2,556	0.34	-

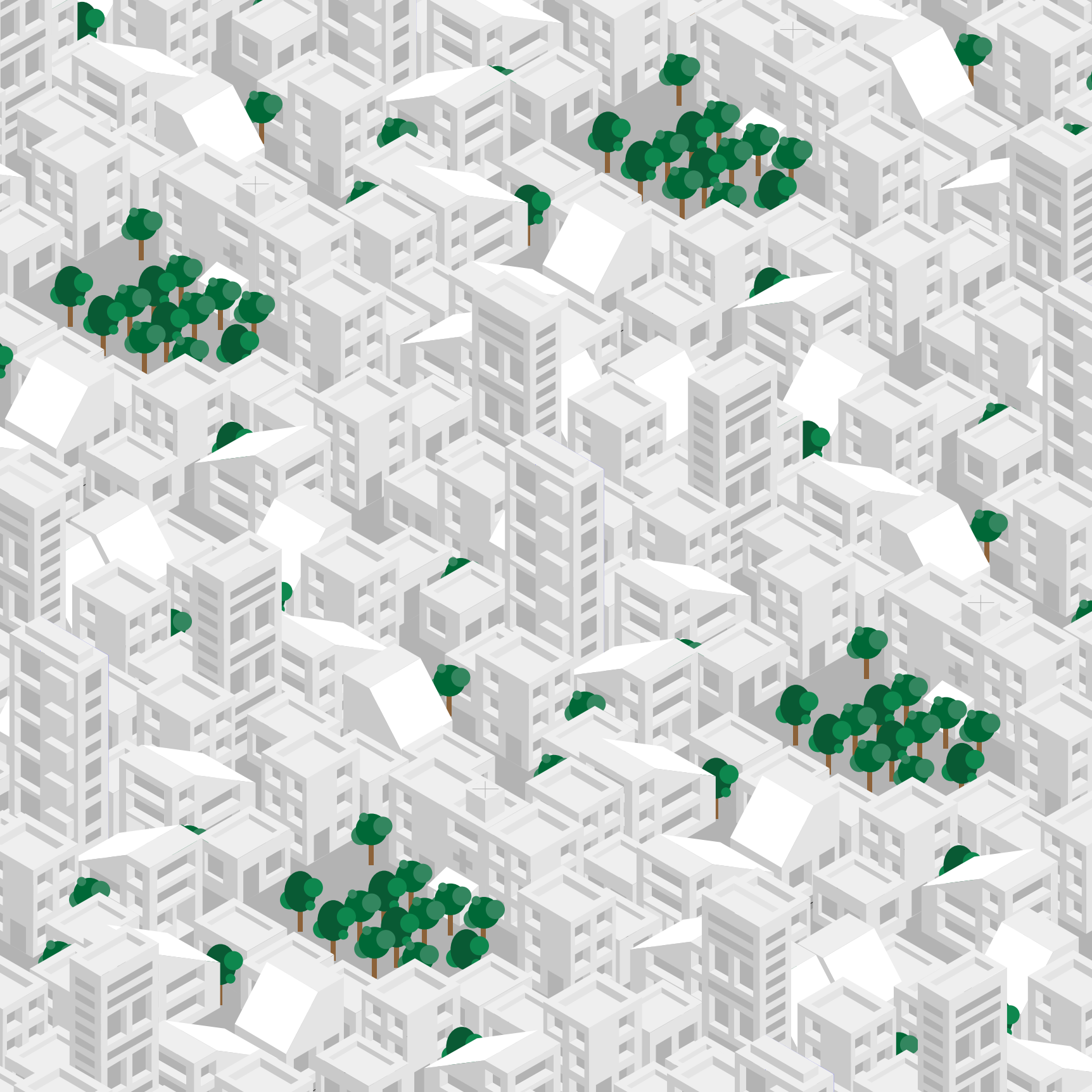
Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Chapada de Areia	Abastecimento de Água - Chapada de Areia	Hidroforte Administração e Operação	Water Concession	2019	30	1,014	0.22	-
Divinopolis	Abastecimento de Água - Divinopolis	Hidroforte Administração e Operação	Water Concession	2019	30	7,390	0.89	-
Duere	Abastecimento de Água - Duere	Hidroforte Administração e Operação	Water Concession	2019	30	4,527	0.89	-
Fortaleza do Tabocão	Abastecimento de Água - Fortaleza do Tabocão	Hidroforte Administração e Operação	Water Concession	2019	30	3,977	0.70	-
Goianorte	Abastecimento de Água - Goianorte	Hidroforte Administração e Operação	Water Concession	2019	30	3,551	0.70	-
Itaguatins	Abastecimento de Água e Coleta de Esgoto - Itaguatins	Hidroforte Administração e Operação	Full Concession	2016	30	2,749	0.17	0.40
Itapiratins	Abastecimento de Água - Itapiratins	Hidroforte Administração e Operação	Water Concession	2018	30	2,780	0.73	0.28
Jaú do Tocantins	Abastecimento de Água - Jaú do Tocantins	Hidroforte Administração e Operação	Water Concession	2018	30	2,751	0.69	0.27
Lizarda	Abastecimento de Água - Lizarda	Hidroforte Administração e Operação	Water Concession	2020	30	3,178	0.47	-
Mateiros	Abastecimento de Água - Mateiros	Hidroforte Administração e Operação	Water Concession	2018	30	2,350	0.48	0.30
Monte do Carmo	Abastecimento de Água - Monte do Carmo	Hidroforte Administração e Operação	Water Concession	2019	20	4,626	0.98	-
Novo Alegre	Abastecimento de Água - Novo Alegre	Hidroforte Administração e Operação	Water Concession	2019	20	2,815	0.89	-
Palmas + 46 Municípios	Companhia de Saneamento do Tocantins -Saneatins	BRK Ambiental	Full Concession	1999	50	1,015,928	1,529.02	109.29
Pequiseiro	Abastecimento de Água - Pequiseiro	Hidroforte Administração e Operação	Water Concession	2019	30	3,773	0.21	-
Pindorama	Abastecimento de Água - Pindorama	Hidroforte Administração e Operação	Water Concession	2019	30	4,999	0.68	-
Pium	Abastecimento de Água - Pium	Hidroforte Administração e Operação	Water Concession	2019	30	6,019	1.15	-
Ponte Alta do Bom Jesus	Abastecimento de Água - Ponte Alta do Bom Jesus	Hidroforte Administração e Operação	Water Concession	2016	30	4,747	0.22	0.25
Ponte Alta do Tocantins	Abastecimento de Água - Ponte Alta do Tocantins	Hidroforte Administração e Operação	Water Concession	2019	20	7,325	0.86	-

Municipalities Assisted	Concessionaire	Majority shareholder	Contract Model	Contract Date	Deadline	Total Population Assisted	Investments (million)	
							Total Committed Contract	Materialized in 2018
Porto Alegre	Abastecimento de Água - Porto Alegre do Tocantins	Hidroforte Administração e Operação	Water Concession	2019		3,658	n.d.	-
Praia Norte	Abastecimento de Água e Coleta de Esgoto - Praia Norte	Hidroforte Administração e Operação	Full Concession	2019	30	6,172	0.13	-
Presidente Kennedy	Abastecimento de Água - Presidente Kennedy	Hidroforte Administração e Operação	Water Concession	2019	30	3,287	0.80	-
Rio da Conceição	Abastecimento de Água - Rio da Conceição	Hidroforte Administração e Operação	Water Concession	2019	30	2,522	0.39	-
Santa Maria	Abastecimento de Água - Santa Maria	Hidroforte Administração e Operação	Emergency			2,715	n.d.	-
Santa Rita do Tocantins	Abastecimento de Água - Santa Rita do Tocantins	Hidroforte Administração e Operação	Water Concession	2018	30	1,338	0.37	0.19
Santa Rosa do Tocantins	Abastecimento de Água - Santa Rosa do Tocantins	Hidroforte Administração e Operação	Water Concession	2018	30	3,627	1.01	0.32
Silvanopolis	Abastecimento de Água - Silvanopolis	Hidroforte Administração e Operação	Water Concession	2019	30	5,956	0.80	-
Sítio Novo do Tocantins	Abastecimento de Água e Coleta de Esgoto - Sítio Novo do Tocantins	Hidroforte Administração e Operação	Full Concession	2015	30	10,476	7.69	3.46
Talismã	Abastecimento de Água e Coleta de Esgoto - Talismã	Hidroforte Administração e Operação	Full Concession	2004	20	1,771	0.06	0.21
79	**33**					**1.145.696**	**1.555**	**115**

Total municipalities served	Total contracts signed	Benefited population	Committed investment	Materialized investment
291	**178**	**30,4** milions	**41** bilions	**2,5** bilions

n.d. not disclosed
i.c. completed investments
* information taken from the bidding notice and / or the concession contract, using the population estimated by IBGE





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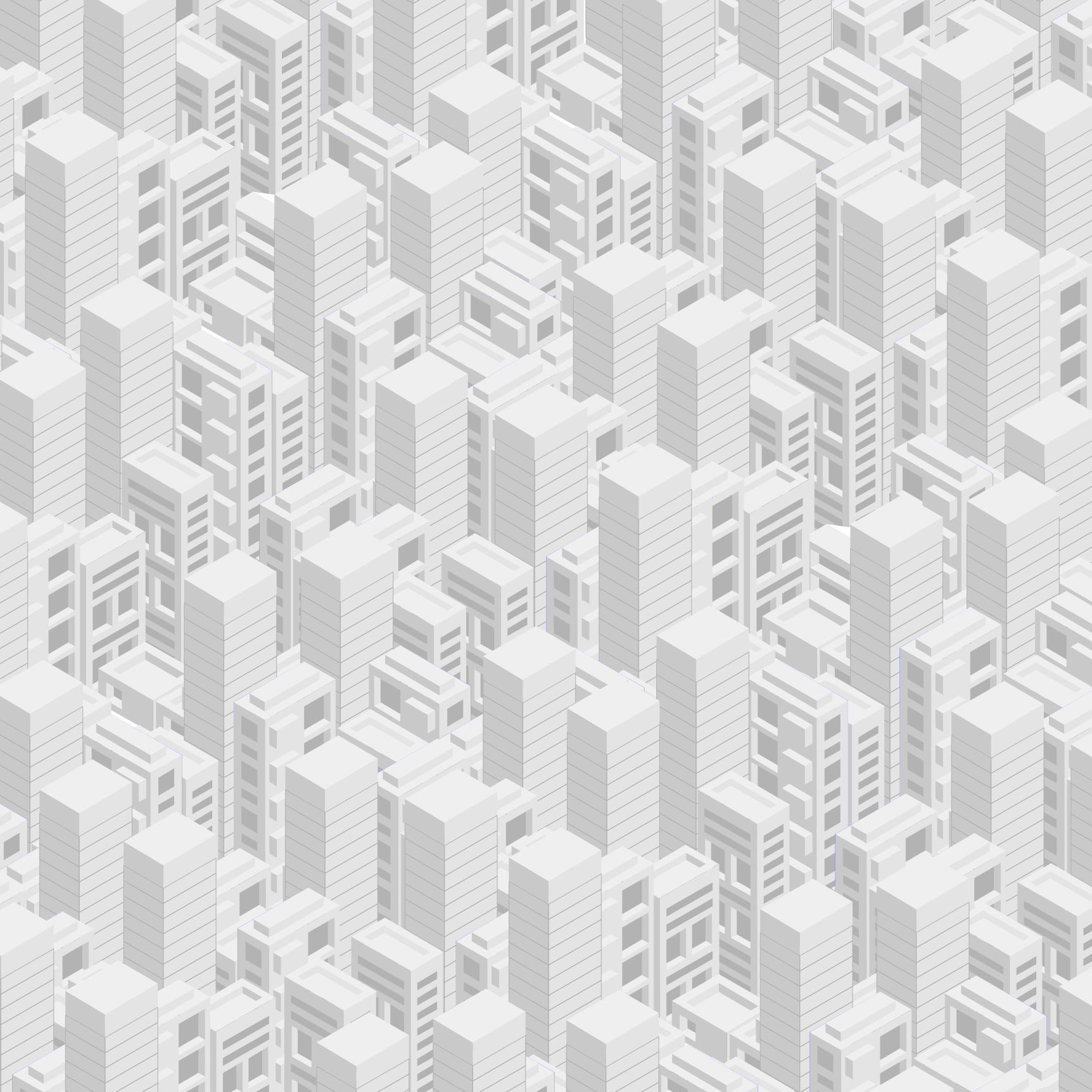

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PANORAMA of the Private Sector's Participation in Sanitation in Brazil 2020 is a publication of ABCON (Brazilian Association of Concessionaries) and SINDCON (National Union of the Private Concessionaires of Public Services of Water and Sewage)

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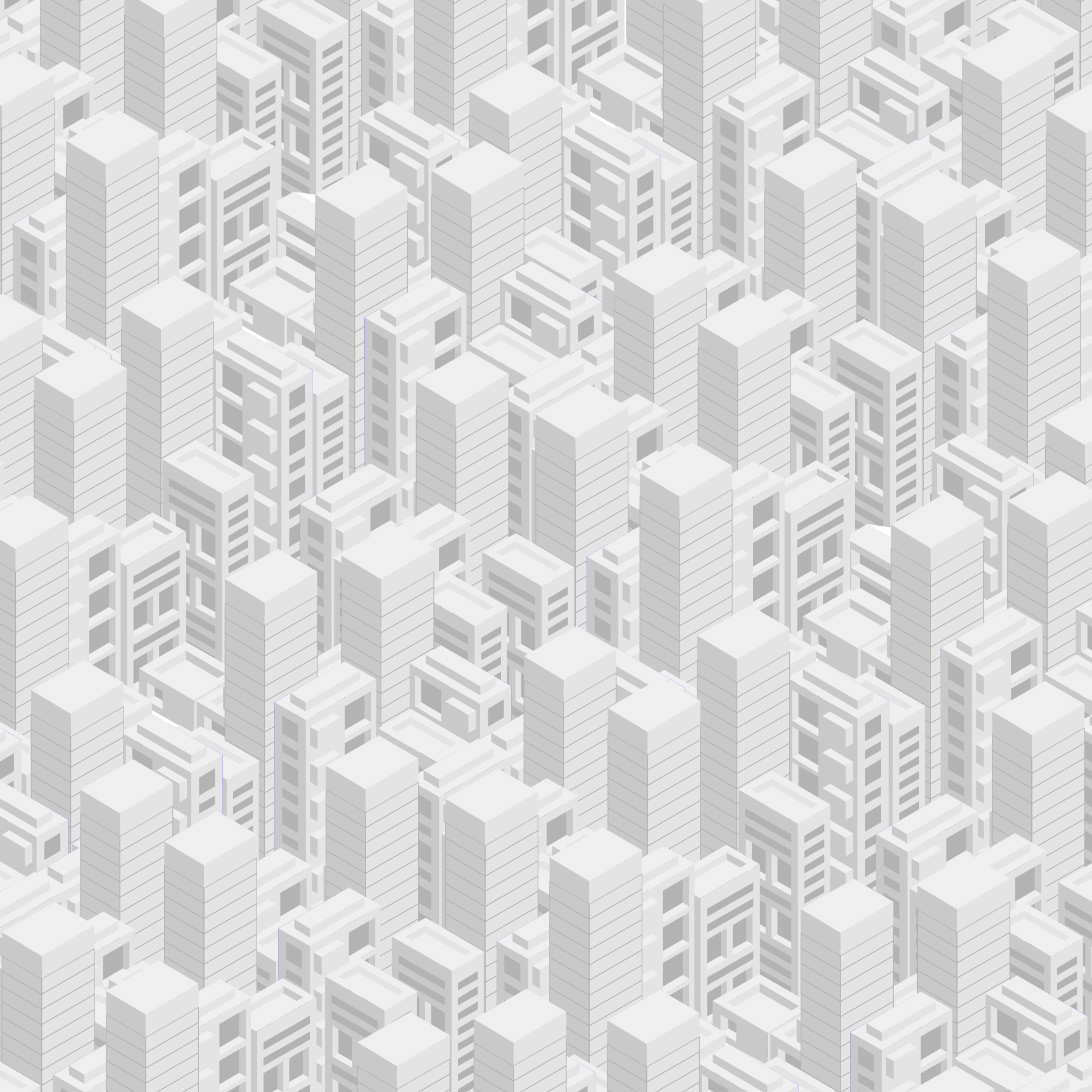
Publication

August 2020



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