ANNEX III - PERFORMANCE INDICATORS AND SERVICE TARGETS

General Index

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1. Performance Indicators

A system for measuring performance by indicators was developed with the aim of ensuring compliance with quality standards for maintenance of the elements required in ANNEX IV - CONCESSION TECHNICAL SPECIFICATIONS, as well as the current norms and certification standards required by the competent bodies. Such norms and standards are associated with the availability, quality and sustainability of the water supply and sanitation services of the MUNICIPALITIES of the BLOCK that will be served by the future CONCESSIONAIRE.

The use of performance indicators is essential in order to evaluate the quality of the water supply and sanitation services, since it entails constant monitoring, allowing for the improvement and follow-up on the implementation of the targets established in the concession agreements, as well as the identification and dissemination of best practices. The use of indicators is also relevant as an incentive mechanism for the improvement and rationalization of inspection activities, facilitating the generation of annual diagnoses that are available to the REGULATORY AGENCY and to inspection institutions, and can also serve as basis for the development of public policies for the sector.

In addition, performance indicators act as an incentive for the service provider to be efficient, since better indicators imply better remuneration for the operation when linked to tariff adjustment and review mechanisms. Finally, the measurement of indicators allows the analysis of the evolution of each aspect over time, as well as allowing the comparison of the CONCESSIONAIRE's performance with other organizations in the sector.

It should be noted that the indicators proposed in this ANNEX were selected from market surveys whereby it was possible to identify the indicators that have been adopted in sanitation projects in the country, based mainly on invitations for bids in the sector and indicators that are included in the National Sanitation Information System (SNIS).

1.1 Selection of Indicators

In the selection of indicators, the aim was to cover the most relevant dimensions of water supply and sanitation services, so as to ensure the most significant information for the CONCESSIONAIRE's performance evaluation is made available, taking into account both inspection activities and social interests. Therefore, the choice of indicators took into account requirements relating to each indicator individually and also to the set of indicators.

For the individual selection of indicators, the following aspects were taken into account:

- Possibility of calculation without significant additional effort;
- Ease and simplicity of interpretation and collection;
- Strict definition, concise meaning and unambiguous interpretation;

- Objective and unbiased measurement of a specific aspect of the CONCESSIONAIRE's performance in order to avoid subjective or biased judgments;
- Easy access to data, checks and external audit.
- Validity, communicability and reliability;
- Possibility of validation by independent verifiers.

Collectively, indicators capable of meeting the following requirements were sought in order to:

- Reflect the main aspects of the managing entity's performance, allowing for global representation;
- Avoid overlap in objectives or meaning between indicators.

1.2 Performance Indicator Framework

The proposed indicators make up a Performance Indicator Framework (PID), as fully presented in Appendix I, containing description, calculation formula, indicator components, unit of measurement, frequency and source of collection of the components.

For better preview and organization of the evaluation process, the Performance Indicators were classified into three different groups:

- Operational Performance Indicators (water and sewage);
- Customer Service Quality Indicators; and
- Environmental Performance Indicators.

Each indicator has a specific formula, the calculation of which usually consists of a relationship between two variables, seeking to determine the effective performance against an optimal performance. For most of them, the unit of measurement is a percentage, with few being measured in factor (number). The following table presents the indicators that make up the PIF.

Table 1 - Operational Performance Indicators Framework

		Performance Indicator	Description	Formula	Measurement Units	Measurement Frequency	Measurement Units
Operational Performance Indicators	Water	WSI	Urban Water Supply Service Index	100*(AG013/ G003)	%	Annual	AG013: Number of water residential units with potential connection G003: Total number of urban residential units
		DLI	Distribution Loss Index	100*(AG006 + AG018 - AG010- AG024)/(AGOO6+AG018- AG024)	%	Annual	AG006: Volume of water produced AG010: Volume of water consumed AG018: Volume of imported treated water AG024: Volume of service water
		SCI	Continuity of water supply	SCI = 100*NRCperiod/NRCregistration	%	Annual	NRCtime: Number of complaints regarding the continuity of supply met on time (48h) NRCRegister: Number of registered complaints and requests
		WQI	Water Quality Index	100*QD007/QD006	%	Daily	QD 006 - Number of Samples for residual chlorine + turbidity + colour + odour at the WTP outlet QD 007 - Number of Samples for residual chlorine + turbidity + colour + odour at the WTP outlet with non-standard results
	Sewage	USSI	Urban Sewerage Service Index - IN047	100*(ES003/ G003)	%	Annual	ES003: Number of sewerage residential units with potential connection G003: Total number of urban residential units
		STI	Sewage Treatment Index - IN 016	100*(ES006+ES014)/ES005 +ES013)	%	Annual	ES005: Volume of sewage collected ES006: Volume of sewage treated ES013: Volume of imported raw sewage ES014: Volume of imported sewage treated at importer's premises
		SQI		100*A/B	%	Monthly	A - Number of 24-hour composite samples for measurement of BOD_5

		Sewage Treatment Compliance Index - IN 100				B - Number of 24-hour composite samples for measurement of BOD_5 with non-standard result
Management Performance Indicators	USI	User Satisfaction Index - USI	100*QSA/QST	%	Annual	QPA: Satisfaction surveys that meet quality standards QPT: Total satisfaction surveys
	RDR	Efficiency Index for Network or Water Branch Clearance Repair - NCR	100*A/B	%	Annual	A - Number of services performed within the period established in the Service Order B - Total number of services
Environmental Performance Indicators	DRI	Documents Regularity Index - DRI	100*QLV/QIT	%	Annual	A: Number of facilities with valid operating license or concession B: Total number of facilities
	DWC	Dry Weather Collector Performance Index - DWC	100*A/B	%	Annual	A: Number of installations performed and in operation according to the schedule B: Number of installations established in the schedule

Source: Consortium

It is important to note that the collected sewage indicator is estimated from the volume of water supplied. It is estimated that 80% of the volume of water supplied returns to the system in the form of effluents. Therefore, the volume of collected sewage will be equivalent to 80% of the volume of water supplied to the units connected to the sewage system.

2. Form of Calculation of the Indicators

One of the difficulties that can arise in a system of performance measurement through indicators is how to calculate them. The variables that make up the indicator's formula are not always easily obtained and, when they are, one must pay attention to the correct reading of the measured parameters in order to portray the operational reality of a system.

Another important aspect is the measurement frequency, which should be established according to the particular characteristics of each indicator. Finally, it is essential to set out the responsibilities of the parties involved in the process in order to make their respective roles clear and thus avoid any potential issues that could compromise the measurement of the indicators.

The following items are intended to address said issues in more detail.

2.1 Source for Data Collection

The data for calculating the indicators can be obtained internally or externally. Internal data are those generated and controlled directly by the CONCESSIONAIRE, such as the number of samples in compliance with current standards, for example. The external data are those that must be obtained from third parties, as in the case of the number of total units in the area of the concession, which is verified by the city halls.

To obtain the internal data, the following items are needed:

- Field inspection checks;
- CONCESSIONAIRE's records;
- Commercial registration of the CONCESSIONAIRE;
- Operational Reports;
- Laboratory and on-site physical-chemical, bacteriological, microbiological analysis;
- Records of environmental audits performed; and
- Records of complaints through the *Call Center* System.

The external data will be obtained from external sources, such as:

- National Water Agency (ANA);
- State environmental agencies;
- Brazilian Institute of Geography and Statistics (IBGE) - Demographic Census or National Household Survey (PNAD);
- Municipalities covered by the Project;
- National Sanitation Information System (SNIS).

2.2 Performance Indicators Target

The result of an indicator alone is meaningless and should always be compared with some reference value or target. The definition of targets must be linked both to best practices observed in the market in question and be in accordance with the values considered achievable by the REGULATORY AGENCY, in addition to being in line with the AGREEMENT.

The sources used for the definition of the Reference Values/Targets were:

1. Current legislation;
2. Technical standards related to the indicators presented in this report;
3. History of the Indicators from the National Information System (SNIS);
4. Best national and international practices adjusted to the reality of the Provider; and
5. International Water Association (IWA), appropriate to the reality of the Provider.

The criteria adopted for the establishment of the targets herein were:

- **Adjusted to reality**: It must be taken into account that the targets set must be set in such a way that they are achievable by the CONCESSIONAIRE. This requires knowledge of the current legislation and of market practices.
- **Optimistic, but realistic**: Targets should be optimistic and challenging, but should also avoid any loss of motivation on the part of the CONCESSIONAIRE. Therefore, targets that are excessively ambitious or even unattainable should not be adopted, instead, the restraints that characterize the service provided should be addressed.
- **Gradual**: It is reasonable to establish a period of maturation of the systems. Accordingly, gradual targets are established for the initial years of the concession until the maturity of the system is reached, from which point the targets become permanent.
- **Reliable and available information**: It is essential that the information that will serve as basis for the performance indicators' targets is reliable and available. The National Sanitation Information System (SNIS) becomes a relevant tool to assess the reality of sanitation service providers in different Brazilian states and/or municipalities and, therefore, it is a reliable and available source of information to be taken into account when setting the targets.
- ***Benchmarking*:** The targets/reference values established through comparison with other realities have the advantage of considering the strong results and their potential correction and adaptation to the operational environment of the provider in question.
- **Experience**: Alternative approach in the absence of reliable information that can serve as a basis for setting targets. It is a qualitative method based on the experience and knowledge of a specialist on the subject. It is worth highlighting the subjective and biased nature of an opinion, which might result in distancing from reality.

It is important to note that, although the CONCESSIONAIRE must issue reports as from the first year of the concession, a grace period of at least two years from the start of the operation has been established for the measurement of the indicators herein to have an impact on the

EFFECTIVE TARIFF to be validated for the CONCESSIONAIRE. This was established in view of the systems and operations to be undertaken by the CONCESSIONAIRE, so that it is only from the third year of the AGREEMENT onwards that there will be indicators that will actually impact the effective tariff. This aspect will be presented in more detail further on in this ANNEX.

A service curve has been established for water and sewerage services, as shown in Appendices II to V, depending on the BLOCK in question. Therefore, the project starts with lower service levels until it reaches operational maturity and has a constant service level until the end of the contract term. This is directly reflected in the targets set for the water and sewage universalization indicators and, indirectly reflected in all the other targets that tend to show progress as investments are made and the operation is expanded.

There are also indicators that will have fixed reference values, regardless of the operating time. It is the case of the quality indicators, whose targets will be the same throughout the term of the agreement, except for the first two years, as mentioned above.

The indicators should consider the following guidelines:

- **Urban Water Supply Service Index - UWS**

It measures the service index by means of the ratio between the total amount of units in conditions to be connected to the distribution network and the total amount of units in the concession area.

The concessionaire shall validate the initial service index, based on the commercial re-registration of the system, which shall be approved by the controlling body.

- **Distribution Loss Index - DLI**

This index reflects the efficiency of the water collection, consumption and billing process.

The concessionaire shall validate the initial water loss rate based on macro and micro-measurement analysis, or other methodology to be suggested by the concessionaire, which shall be approved by the controlling body.

- **Water Supply Continuity - SCI**

This index aims to measure the continuity of the water supply service to the population through the number of complaints registered due to interruption of water supply due to inoperative system or low gauge pressure in the water supply network.

The level of service established as target is 98%

Water supply failures by CEDAE do not impact the measurement of this performance indicator.

- **Water quality index - WQI**

For this level of service, the Concessionaire shall guarantee compliance of 98% of the samples.

If CEDAE does not deliver water within the quality standards set out in this Annex, the non-standard samples will not be taken into account for the purpose of calculating the performance indicator.

- **Urban Sewerage Service Index - USI**

It measures the service index by means of the ratio between the total amount of units in conditions to be connected to the sewage collection network and the total amount of units in the concession area.

The concessionaire shall validate the initial service index, based on the commercial re-registration of the system, which shall be approved by the controlling body.

The locations with the implementation of the Dry Weather Collector system, will maintain the existing sewage collection index of year 0 until the 5th year of concession, and from the 6th year onwards, they should grow linearly until the target year presented in the Appendix. The locations that will be served with Dry Weather Collector are: Belford Roxo, Duque de Caxias, Itaboraí, Mesquita, Nilópolis, Nova Iguaçu, Rio de Janeiro, São Gonçalo and their respective districts;

- **Sewage treatment index - STI**

It is intended to assess how much of the collected sewage is sent to treatment plants and treated or for preliminary treatment and submarine outfall.

The service level set as target is 100% treatment of the collected sewage

- **Sewage Treatment Compliance Index - SCI**

Among a number of quality control parameters for a sewage treatment plant, the biochemical oxygen demand of 5 days at 20ºC is the one adopted.

$BOD_{5,20}$ concentration analyses should be performed according to the methods described in the latest edition of the *Standard Methods for the Examination of Water and Wastewater of the American Public Health Association.*

For a better characterization of the average quality of raw sewage and treated sewage, the composite analysis should be performed preferably every hour, for 24 hours in a row and never at intervals longer than two hours.

For this level of service, the classification of non-compliance that will be used, including for the application of penalties, is as follows:

The level of service established as target is 98%.

- **Customer satisfaction index - CSI**

The user's satisfaction index should measure the degree of satisfaction with the service received.

The data composing the index should be obtained by sampling, in sufficient quantity to ensure the representativity of the universe of requests.

The level of service set as target is 90% satisfaction.

- **Efficiency index for clearance in the network or sewer branches - NCR**

The time period between the service request and the date of effective completion of the service will be measured.

The level of service established as acceptable is of 98% of the services resolved within 24 hours. The level of service established as acceptable is 24 hours.

- **Documents Regularity Index - DRI**

The level of service established as acceptable is 100% of the works duly licensed.

- **Dry weather collector performance index**

The number of dry weather collector systems operating at a satisfactory level in relation to the total expected amount will be measured, with daily removal of grid material in order to minimize the emission of bad odors, clearance of the collectors, routine maintenance of lifting stations and sewage treatment.

The targets of the UWI - Urban Water Service Index and USI - Urban Sewerage Service Index indicators are presented in Appendix II of this ANNEX, divided by BLOCK.

During the grace period of each indicator, for the purpose of calculating the General Performance Indicator (GPI), they will be deemed fully met.

It should be noted that any non-conformity with the targets that is due to facts not attributable to the CONCESSIONAIRE, such as, for example, the failure to meet the target of quality of the water delivered to the USERS due to a non-conformity concerning the supply of water treated by CEDAE, shall not be taken into account in the calculation of the indicators. The CONCESSIONAIRE shall justify the non-conformity with supporting information proving the occurrence of said non-attributable facts. The REGULATORY AGENCY shall analyze the justifications presented by the CONCESSIONAIRE and express its agreement with the arguments presented. If the REGULATORY AGENCY disagrees with the CONCESSIONAIRE's arguments, the procedure set forth in sub-clause 28.11 of the AGREEMENT shall apply.

2.3 Assignment of Responsibilities

The evaluation process involves 3 entities and comprises the measurement, monitoring and calculation of the indicators as follows:

- **Concessionaire**: Responsible for measuring the indicators, preparing the indicator reports and providing the necessary information to the REGULATORY AGENCY and the Independent Verifier.
- **REGULATORY AGENCY**: Responsible for monitoring the CONCESSIONAIRE's performance and shall request and receive additional information from the Concessionaire whenever necessary.
- **Independent Verifier**: Specialized company responsible for verifying the indicators report and carrying out the field investigations necessary for assessing the results measured. This is a company that has no links to the CONCESSIONAIRE and which will verify the process and the accuracy of the data provided by the CONCESSIONAIRE, independently validating the performance achieved during a certain period of time. INDEPENDENT VERIFIER shall be hired in accordance with ANNEX V - MINIMUM TERMS AND CONDITIONS FOR HIRING INDEPENDENT VERIFIER AND CERTIFIER.

3. General Performance Indicator

The analysis of an indicator in isolation and out of context may lead to incorrect or distorted interpretations. Therefore, it is recommended that the indicators be analyzed as a whole and associated to the context in which they are inserted.

Therefore, in order to concisely translate the most relevant aspects regarding the quality of the services provided by the concessionaire, a methodology was defined for the calculation of a General Performance Indicator (GPI) from the set of performance indicators presented in chapter 5 of this document.

3.1 Calculation Methodology

The calculation procedure consists of the following steps:

1) Assigning weights to the indicators;
2) Standardization of the indicators;
3) Adjustment to the frequency of the indicators;
4) GPI calculation.

3.1.1 Allocation of Weights

The following table presents the weights of each indicator in the GPI calculation.

Table 2 - Indicator Weights

Indicator	Weight
Urban Water Supply Service Index - UWS	15%
Distribution Loss Index - DLI	10%
Water Supply Continuity Index - SCI	5%
Water Quality Index - WQI	10%
Urban Sewerage Service Index - USI	15%
Sewage Treatment Index - STI	10%
Sewage Treatment Compliance Index - SCI	10%
User Satisfaction Index - USI	5%
Efficiency Index for Network or Water Branch Clearance Repair - NCR	5%
Documents Regularity Index - DRI	10%
Dry Weather Collector Performance Index - DWC	5%
Total	100%

Source: Consortium

It should be noted that the indicators for the universalization of water and sewage have the highest weights, in view of their greater relevance to the perceptions of both public authorities and consumers regarding the quality of the service provided.

It is worth highlighting that meeting the targets of the performance indicators, in addition to impacting the EFFECTIVE TARIFF to be collected by the CONCESSIONAIRE, consists of an incentive for the CONCESSIONAIRE to comply with the legal requirements determined by inspection agencies. This relates to fact that the penalties to be applied often have no relevant financial impact on the CONCESSIONAIRE, whereas when linking the EFFECTIVE TARIFF to these aspects, there is an overall financial impact that results from any non-compliance with the law.

3.1.2 Standardization

Since reference values/performance targets differ between indicators, they need to be standardized to be on the same basis for comparison.

The formula for standardizing the indicators is follows:

$$ID_i^{Norm} = \frac{X_{ID} - X_{pp}}{X_{meta} - X_{pp}}$$

Where:

- ID_i^{Norm} - Standardized Performance Indicator i.
- X_{ID} - Measured value of the Performance Indicator i.
- X_{pp} - Worst possible value of the Performance Indicator i.
- X_{meta}- Target Value of the Performance Indicator i.

The indicators measured each period will be inserted in the following table in order to generate the respective standardized values from the worst possible values and target values stipulated for each indicator.
For some indicators, the worst case would be to maintain the current situation, so in these cases, the worst possible value will not be 0%.

Table 3- Standardization of the Performance Indicators

Indicator	Ind. Value (X_{ID})	Worst Possible Value (X_{wp})	Target Value (X_{target})	Standardised Value
WSI		60%	100%	
DLI		65%	25%	
SCI		0%	98%	
WQI		10%	98%	
USSI		0%	100%	
STI		0%	100%	
SQI		0%	98%	
USI		0%	90%	
RDR		0%	100%	
DRI		0%	98%	
DWC		0%	100%	

Source: Consortium

If the standardized value exceeds 100%, in which case $X_{ID} > X_{Target}$, the target is considered fully met and, therefore, $ID_i^{Norm}$is equal to 1.

3.1.3 Tolerance

In order to circumvent any limitations in the measurement of the indicators, it is allowed the adoption of a tolerance of up to 1%, up or down depending on the case, on the value of the indicator. That is, if the measured value is less than 1% from the target value, the target will be deemed fully met.

For example, if in a given year the target for sewerage service is 75% and the concessionaire achieves 74%, it shall not suffer any discount in relation to this indicator. Likewise, if in a given year the leakage rate is 3%, with the target at 2%.

In addition to this tolerance, in the first occurrence of a GPI lower than 1, the calculated reduction will be mitigated by being multiplied by 25%, so that it serves more as a warning than an actual penalty for not meeting the targets. This, however, can only happen once during the entire term of the contract. That is, if said mitigating tool is already used in the 3rd year of the concession, throughout the remaining years the GPI will be fully applied according to the calculation detailed below.

3.1.4 Adjustment to Frequencies

The calculation of the GPI is annual, therefore, as there are indicators whose measurement frequency is less than one year, it is necessary to adjust them to their respective frequencies in order to obtain an annualized value for each of them.

Therefore, for such indicators there will be the calculation of an average of the values measured over the twelve months prior to the calculation of the GPI. Thus, if an indicator has a quarterly frequency, an average of the four measurements made over a year will be calculated, whereas for an indicator with a half-yearly measurement, the average of the two measurements made over the year in question will be calculated.

It is worth noting that this is a weighted average in which higher weights will be attributed to the measurements closest to the readjustment date, in order to translate the impact of the indicators' trajectory into the tariff readjustment since, if the evolution is positive throughout the year, the Concessionaire will benefit, while any downward trajectories will tend to be unfavorable.

For each indicator, the adjustment will be made as follows:

$$ID_a^{Norm} = \frac{\sum_{j=1}^{n} ID_j^{Norm} \, x \, j}{\sum_{j=1}^{n} j}$$

Where:

- ID_a^{Norm} - Adjusted and standardised Performance Indicator.
- ID_j^{Norm} - Standardised Performance Indicator of the "jth" annual measurement.
- n - Number of measurements carried out over one year.

Returning to the previous example where the indicator presents quarterly measurement frequency, the calculation would be as follows:

$$ID_a^{Norm} = \frac{ID_1^{Norm}\ x\ 1 + ID_2^{Norm} x\ 2 + ID_3^{Norm} x\ 3 + ID_4^{Norm} x\ 4}{10}$$

3.1.5 GPI calculation.

Once standardized, adjusted to the respective frequencies and established with the respective weights, the GPI is calculated according to the formula below:

$$IDG = \sum_{i=1}^{n} P_i\ x\ ID_a^{Norm} i$$

Where:

- IDG - General Performance Indicator;
- P_i - Weight of Performance Indicator i;
- $ID_a^{Norm} i$- Standardized and adjusted Performance Indicator i; and
- n - Number of Performance Indicators.

Thus, the Concessionaire shall submit a table as follows, including standardized weights and values adjusted for the calculation of GPI according to the previous equation.

Table 4 - GPI Calculation

Indicator	Weight	Standardized and Adjusted Value
WSI	15%	
DLI	10%	
WQI	5%	
WQI	10%	
USSI	15%	
STI	10%	
SOI	10%	
USI	5%	
RDR	5%	
DRI	10%	
DWC	5%	
GPI		

Source: Consortium

A GPI should be prepared for each MUNICIPALITY of the BLOCK. The calculation of the consolidated GPI shall consider the weights described in the tables of Appendices II to V for each MUNICIPALITY of each BLOCK, according to the formula below:

$$IDGconsolidado = \frac{\sum_{i=1}^{n} Peso_i \; x \; IDGi}{T_p}$$

Where:

- $IDGconsolidado$ - CONCESSIONAIRE's General Performance Indicator;
- $Peso_i$ - Weight of the MUNICIPALITY i in the calculation of the consolidated GPI;
- $IDGi$- GPI of the MUNICIPALITY i; and
- n - Quantity of MUNICIPALITIES in the block.
- Tp- Sum of the weights of each MUNICIPALITY of the BLOCK

3.2 Indicators Report

Although some of the indicators are measured less than once a year, the CONCESSIONAIRE shall prepare an annual report of indicators to be analyzed by the INDEPENDENT VERIFIER and the REGULATORY AGENCY. That report shall contain:

- Detailed information on the calculation of all performance indicators, such as the methodology adopted for the calculation of each one and also its consolidation into a General Performance Indicator (GPI) for the block in question;
- Detailed history of each indicator, with all measurements made in the period; and
- Methodology for calculating the financial reducer, which will be a function of the General Performance Indicator, as well as its result and impact on the tariff adjustment.

The format of the presentation of the indicators report shall be shared with the REGULATORY AGENCY for approval prior to the start of the operation, and may be modified during the AGREEMENT if deemed necessary to make the assessment of the results more clear and precise. Modifications should be discussed between the PARTIES in order to analyze the possible financial and/or operational impact of a change in the parameters. Changes resulting in financial impacts should be part of a contractual rebalancing process.

Said report and all the information contained therein will mandatorily undergo a verification process to be carried out by the INDEPENDENT VERIFIER, hired as established in the Agreement.

The revision of the indicators and their respective weights shall be provided for in the AGREEMENT, the first of which is scheduled to occur 4 years after the start of the AGREEMENT, aiming at best achieving the objectives of the Performance Measurement System.

4. Use of the General Performance Indicator for Regular Readjustments

Full compliance with the performance targets established for each indicator will result in an GPI equal to 1, which in turn will allow the CONCESSIONAIRE to receive the maximum readjustment possible in the year in question while the USERS benefit from the gains in quality of the service provided.

The procedure for calculating the tariff readjustment and applying the GPI to the readjustment are described in the items below.

4.1 Readjustment

In accordance with the AGREEMENT, the values of the TARIFFS, as well as of the SUPPLEMENTARY SERVICES, shall be readjusted every 12 months as from the date of the presentation of the bid. This readjustment will follow the parametric formula below:

$$\mathbf{TARIFF_b} = \text{TARIFF}_{b-1} * \text{CRI}$$

Where:

- **TARIFF b:** Base Tariff to be calculated.
- **TARIFF b-1** - Base Tariff in force in the previous year.
- **CRI**: - Contractual Readjustment Index;

The CRI, in turn, will be calculated as follows:

$$\mathbf{CRI=} [P1 \times (Ai/Ao) + P2 \times (Bi/Bo) + P3 \times (Ci/Co) + P4 \times (Di/Do) + P5 \times (Ei/Eo)]$$

Where:

- **P1, P2, P3, P4 and P5**: Weighting factors to be applied on the indices used in the formula, whose values are in Table *5*. The sum of the weighting factors shall be equal to 1.
- **Ai:** Index "ICC - Labor - labor index (column 56) published by Fundação Getúlio Vargas - FGV'', corresponding to the fourth month prior to the tariff readjustment date;
- **Ao**: Index "ICC - Labor - labor index (column 56) published by Fundação Getúlio Vargas - FGV'', corresponding to the fourth month prior to the last tariff readjustment date;
- **Bi:** It is the average of the values of the electric energy tariff for "Group A, Subgroup A4 (2.3 kV to 25kV)", off peak, consumption value in MWh, practiced by the local concessionaire, on the 1st day of the 12 months prior to the tariff readjustment date;

- **Bo:** It is the average of the values of the electric energy tariff for "Group A, Subgroup A4 (2.3 kV to 25kV)", off-peak, consumption value in MWh, practiced by the local concessionaire, on the 1st day of the 12 months prior to the date of the last tariff readjustment;
- **Ci:** It is the index "GPI - Origin - OG-DI - Industrial Products - Manufacturing Industry - Chemicals (1006820)", corresponding to the fourth month prior to the tariff readjustment date;
- **Co:** It is the index "GPI - Origin - OG-DI - Industrial Products - Manufacturing Industry - Chemical Products (1006820)", corresponding to the fourth month prior to the date of the last tariff readjustment;
- **Di:** It is the price of the water billed by CEDAE, corresponding to the month prior to the tariff readjustment date;
- **Do:** It is the price of the water billed by CEDAE, corresponding to the month prior to the date of the last tariff readjustment;
- **Ei:** It is the index "INCC - National Index of Construction Cost, column 1A of Conjuntura Econômica magazine of Fundação Getúlio Vargas", corresponding to the fourth month prior to the tariff readjustment date;
- **Eo:** It is the index "INCC - National Index of Construction Cost, column 1A of Conjuntura Econômica magazine of Fundação Getúlio Vargas", corresponding to the fourth month prior to the date of the last tariff readjustment. The following table shows the overall values and the cost item weighting factor in the tariff readjustment, which varies according to the year of the AGREEMENT.

Table 5 - Definition of the Weighting Factors

	Item	Years 1 to 3	Years 4 to 6	Years 7 to 9	Years 10 to 12	Years 13 to 15	16 to 18 years	Years 19 to 21	Years 22 to 24	Years 25 to 27	Years 28 to 30	Years 31 to 33	Years 34 and 35
P1	Labor[1]	10.3%	9.3%	17.7%	23.5%	24.0%	24.8%	26.6%	26.9%	27.1%	26.7%	26.9%	27.1%
P2	Electric Power	4.4%	3.8%	7.9%	12.1%	12.2%	12.6%	13.4%	13.5%	13.6%	14.2%	15.8%	16.0%
P3	Industrial Products[2]	2.5%	2.4%	4.9%	6.5%	6.6%	6.8%	7.3%	7.4%	7.4%	7.6%	8.1%	8.1%
P4	Water from CEDAE	37.6%	26.4%	40.4%	46.6%	45.9%	46.5%	48.8%	49.0%	49.4%	48.0%	46.7%	47.1%
P5	CAPEX (Civil Construction)	45.3%	58.1%	29.1%	11.4%	11.3%	9.3%	4.0%	3.2%	2.5%	3.5%	2.5%	1.7%

Source: Consortium

[1] Operational and administrative labor was taken into account.

[2] Expenditure on chemical products, laboratory analysis and sludge treatment were taken into account.

4.2 Application of Performance Indicators to the Tariff

The application of the GPI to the TARIFF shall occur from the third year of operation of the system and the EFFECTIVE TARIFFS will be determined annually, at the same time of the readjustment of the tariffs, from the application of the performance targets, which will be verified by the INDEPENDENT VERIFIER.

In the first two years of operation of the system, the value of the EFFECTIVE TARIFF will coincide with that of the TARIFF, duly readjusted. The EFFECTIVE TARIFFS shall be calculated on the basis of the following formula:

$$\textbf{TARIFF}_{e} = \text{TARIFF}_{b} * \text{GPI} + \text{TARIFF}_{b} * \text{STI}$$

Where:

- **TARIFF e:** Effective Tariff
- **TARIFF b:** Base tariff, readjusted according to item 7.1 of this document.
- **GPI:** General Performance Indicator, which will take on the role of financial reducer if the performance targets are not met.
- **STI:** Social Tariff Index, which will be explained below.

In order to consider a maximum limit for the GPI that does not make the private operation unfeasible in that year, so that it can recover in the following year, a minimum limit of 0.90 was established. Therefore, the GPI will be the result of the formula in section 3.1.5 or 0.90, whichever is higher.

On the other hand, for contractual purposes, it will also be considered that, if the CONCESSIONAIRE achieves a GPI below the minimum of 0.90 for two consecutive years or three nonconsecutive times within less than 5 years, the agreement may be declared terminated.

Finally, the Concessionaire will have the possibility to request, after 3 months of a tariff reduction as a result of the application of GPI, a new verification of the GPI and, if the performance failure has been remedied, the Effective Tariff will be recalculated in order to consider the new GPI assessed.

It is worth noting that the readjustment of the base tariff and the calculation of the effective tariffs will be approved by the REGULATORY AGENCY through a single administrative procedure, with the support of the INDEPENDENT VERIFIER. The calculation of the TARIFF_b shall be made by the REGULATORY AGENCY, while the effective tariff shall be prepared by the CONCESSIONAIRE, and the respective calculations shall be sent to the REGULATORY AGENCY, with a copy to the STATE, up to 60 days prior to the date scheduled for the readjustment, as established in the AGREEMENT.

4.3 Social Tariff Index (STI)

The purpose of the Social Tariff Index is to provide for an additional increase in the USERS' tariff if the percentage of units benefiting from the social tariff, according to the criteria established by state regulations, exceeds the limit established in the agreement, which is 5%.

Therefore, it will always be equal to zero if the percentage of social tariff beneficiary units in the scope of the concession is lower than 5%.

If the percentage is higher than the 5% limit, the STI will be calculated according to the formula below:

$$STI = \frac{0{,}5 * ST - 2.5\%}{97.5\%}$$

Where:

- **ST:** Percentage of Social Tariff beneficiary units in the scope of the concession.

To ensure the correct measurement of the percentage of units benefiting from the social tariff and that the TARIFF of the USERS does not receive an annual readjustment higher than strictly necessary, the CONCESSIONAIRE must carry out an annual re-registration of the beneficiaries 2 months before the date of readjustment.

The possible readjustment regarding the social tariff will only be obtained on the condition that this re-registration is carried out in advance.

Units benefiting from a social tariff located in IRREGULAR AREAS will not be included in the calculation of the STI

The above rationale was established on the basis that the average user tariff follows the composition below:

Average Tariff (AT) = 95% * Reference Tariff (RT) + 5.0% * Social Tariff (ST)

And that ST = 0.5 * RT, therefore:

AT = 95% * RT + 5% * 0.5 * RT = 97.5% * RT

For example, in a hypothetical case where the percentage of units benefiting from the social tariff reaches 10%:

AT = 90.0% * RT + 10.0% *RT 0.5 * RT = 95.0% * RT

Therefore, in this example, the Average Tariff was reduced by 2.5% x RT, which would represent:

$$\frac{2.5\% * RT}{97.5\% * RT} = 2.56\%$$

Using a variable in place of the percentage of the social tariff that is above the limit of 8.5% and making the appropriate mathematical operations, we arrived at the STI formula.

5. Bibliography

Sistema Nacional de Informações sobre Saneamento (SNIS) – Diagnóstico dos Serviços de Água e Esgoto – 2016.

Associação Brasileira de Agências de Regulação (ABAR) – Indicadores para Prestação de Serviços de Água e Esgoto - 2006.

Agência Reguladora de Águas, Energia e Saneamento Básico do Distrito Federal (**ADASA)** - Manual de Avaliação de Desempenho da Prestação dos Serviços de Abastecimento de Água e Esgotamento Sanitário do Distrito Federal.

Resolução ADASA nº 08/2016 - Provides a methodology for evaluating the performance of water supply and sewage services - 2016

Appendix I - Performance Indicators Table

The following tables present the performance indicators applicable to all BLOCKS, except the UWI - Urban Water Supply Service Index and USI - Urban Sewerage Service Index indicators, which will be addressed separately by BLOCK, in the following appendices.

Table 6- Performance Indicator Targets

Years 1 to 17

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
DLI	N/A	N/A	N/A	N/A	35%	33%	31%	29%	27%	25%	25%	25%	25%	25%	25%	25%	25%
SCI	N/A	N/A	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
WQI	N/A	N/A	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
STI	N/A	N/A	N/A	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
SQI	N/A	N/A	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
USI	N/A	N/A	N/A	N/A	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
RDR	N/A	N/A	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
DRI	N/A	N/A	N/A	N/A	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

100.0%

Years 18 to 35

	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
DLI	25%	25%	25.5%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%	25.0%
SCI	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
WQI	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
STI	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
SQI	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
USI	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%
RDR	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%	98%
DRI	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
DWC	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Appendix II - UWI - Urban Water Supply Service Index and USI - Urban Sewerage Service Index Targets - Block 1

WSI - Urban Water Service Index (%) - Block 1

Municipality	Start of the Concession	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14 onwards
Aperibé	92	93	94	95	96	97	97	98	99	99	99	99	99
BOM JARDIM	65	69	73	78	80	83	85	88	90	93	95	97	99
Bom Jesus do Itabapoana	86	88	90	92	93	94	95	96	98	98	99	99	99
Cachoeiras de Macacu	94	95	96	96	97	97	98	98	99	99	99	99	99
Cambuci	70	74	79	83	85	88	90	93	95	97	99	99	99
Cantagalo	75	79	82	86	88	90	92	94	96	97	99	99	99
Carapebus	26	35	44	53	58	63	69	74	79	84	90	94	99
Cardoso Moreira	64	68	73	77	79	82	85	87	90	92	95	97	99
Casimiro de Abreu	93	83	74	65	69	72	76	80	84	88	92	96	99
Cordeiro	96	96	97	98	98	98	99	99	99	99	99	99	99
Duas Barras	65	69	73	77	80	82	85	88	90	93	95	97	99
Itaboraí	76	80	84	88	91	93	95	97	99	99	99	99	99
Italva	78	81	84	87	89	91	93	94	96	98	99	99	99
Itaocara	83	85	88	90	92	93	94	96	97	98	99	99	99
Itaperuna	87	89	90	92	93	95	96	97	98	98	99	99	99
Laje do Muriaé	87	89	90	92	93	95	96	97	98	98	99	99	99
Macaé	73	78	82	87	89	92	95	97	99	99	99	99	99
Macuco	92	93	94	95	96	96	97	98	99	99	99	99	99
Magé	90	91	93	94	95	96	97	98	98	99	99	99	99
Maricá	52	58	63	69	73	76	79	83	86	90	93	96	99
Miracema	94	95	96	97	97	98	98	99	99	99	99	99	99
Natividade	79	82	85	88	89	91	93	95	96	98	99	99	99
Porciúncula	88	90	91	93	94	95	96	97	98	99	99	99	99
Quissamã	73	77	80	84	86	89	91	93	96	97	99	99	99
Rio Bonito	74	77	81	85	87	89	91	93	96	97	99	99	99
Rio das Ostras	89	91	93	95	96	97	98	98	99	99	99	99	99
Rio de Janeiro Lot II	95	96	97	98	98	99	99	99	99	99	99	99	99

Municipality	Start of the Concession	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14 onwards
Santa Maria Madalena	73	73	73	73	76	79	82	85	88	91	94	97	99
São Fidelis	78	80	81	83	85	88	90	93	95	97	99	99	99
São Francisco do Itabapoana	75	78	82	85	88	90	92	94	96	97	99	99	99
São Gonçalo	81	84	88	91	93	94	96	98	99	99	99	99	99
São João da Barra	87	89	91	93	94	95	96	97	98	98	99	99	99
São José de Ubá	65	69	73	78	80	83	85	88	90	93	95	97	99
São Sebastião do Alto	60	65	70	74	77	80	83	86	89	91	94	97	99
Sapucaia	84	86	88	91	92	93	95	96	97	98	99	99	99
Saquarema	99	99	99	99	99	99	99	99	99	99	99	99	99
Sumidouro	35	43	50	58	63	67	72	77	81	86	91	95	99
Tanguá	63	67	72	76	79	81	84	87	89	92	95	97	99
Teresópolis	81	84	87	90	92	94	96	98	99	99	99	99	99
Trajano de Morais	50	56	62	68	71	75	79	82	86	89	93	96	99
Varre-Sai	52	58	64	69	73	76	80	83	86	90	93	96	99

- Urban Sewerage Service Index (%) - Block 1

Municipality	Start of the Concession	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 11	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20 onwards
Aperibé	60	63	65	68	69	71	72	74	75	77	78	80	81	83	84	86	87	89	90
BOM JARDIM	54	57	60	63	65	67	69	70	72	74	76	78	79	81	83	85	86	88	90
Bom Jesus do Itabapoana	20	26	32	38	41	45	48	52	55	59	62	66	69	73	76	80	83	87	90
Cachoeiras de Macacu	55	58	61	64	66	67	69	71	73	74	76	78	80	81	83	85	87	88	90
Cambuci	63	65	68	70	71	72	74	75	77	78	79	81	82	83	85	86	87	89	90
Cantagalo	75	76	78	79	80	81	82	83	83	84	85	86	87	88	88	89	90	90	90
Carapebus	26	32	37	42	45	49	52	55	58	61	65	68	71	74	77	80	84	87	90
Cardoso Moreira	20	25	31	37	41	44	48	51	55	58	62	65	69	72	76	79	83	87	90
Casimiro de Abreu	45	49	53	56	59	61	63	65	68	70	72	74	77	79	81	83	86	88	90
Cordeiro	42	47	52	56	59	61	63	65	68	70	72	74	77	79	81	83	86	88	90

Municipality	Start of the Concession	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 11	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20 onwards
Duas Barras	16	22	29	35	38	42	46	50	53	57	61	64	68	72	75	79	83	86	90
Itaboraí	5	7	9	11	17	23	29	35	41	47	54	60	66	72	78	84	90	90	90
Italva	78	79	80	81	82	82	83	84	85	85	86	87	87	88	89	89	90	90	90
Itaocara	83	84	84	85	85	86	86	87	87	87	88	88	89	89	89	90	90	90	90
Itaperuna	25	31	37	43	47	50	54	57	61	65	68	72	75	79	83	86	90	90	90
Laje do Muriaé	5	17	29	40	44	47	50	54	57	60	64	67	70	74	77	80	83	87	90
Macaé (*)																			
Macuco	50	53	57	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90
Magé	43	47	51	55	57	59	62	64	66	69	71	73	76	78	81	83	85	88	90
Maricá (*)																			
Miracema	40	44	48	53	55	58	60	63	65	68	70	73	75	78	80	83	85	88	90
Natividade	79	80	81	82	82	83	84	84	85	86	86	87	87	88	89	89	90	90	90
Porciúncula	9	16	23	29	33	37	41	46	50	54	58	62	66	70	74	78	82	86	90
Quissamã	38	43	47	51	54	56	59	62	64	67	69	72	75	77	80	82	85	87	90
Rio Bonito	74	75	77	78	79	80	81	82	83	84	85	85	86	87	88	89	90	90	90
Rio das Ostras (*)																			
Rio de Janeiro Lot II	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Santa Maria Madalena	58	61	63	66	68	69	71	72	74	76	77	79	80	82	84	85	87	88	90
São Fidelis	78	77	77	76	77	78	79	80	82	83	84	85	86	87	88	89	90	90	90
São Francisco do Itabapoana	2	10	17	24	29	33	37	42	46	51	55	59	64	68	72	77	81	86	90
São Gonçalo	17	23	29	35	39	43	48	52	56	60	65	69	73	77	82	86	90	90	90
São João da Barra	0	8	15	23	27	32	36	41	45	50	54	59	63	68	72	77	81	86	90
São José de Ubá	0	8	15	23	27	32	36	41	45	50	54	59	63	68	72	77	81	86	90
São Sebastião do Alto	0	8	15	23	27	32	36	41	45	50	54	59	63	68	72	77	81	86	90
Sapucaia	0	8	15	23	27	32	36	41	45	50	54	59	63	68	72	77	81	86	90
Saquarema (*)																			
Sumidouro	35	40	44	49	52	54	57	60	63	65	68	71	74	76	79	82	85	87	90
Tanguá	32	37	42	47	49	52	55	58	61	64	67	70	73	76	78	81	84	87	90
Teresópolis	0	8	17	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	99
Trajano de Morais	0	8	15	23	27	32	36	41	45	50	54	59	63	68	72	77	81	86	90
Varre-Sai	0	8	15	23	27	32	36	41	45	50	54	59	63	68	72	77	81	86	90

(*) - The Sanitation System of these locations is excluded from the scope of the concessionaire

- Weight of the municipalities of Block 1 for the composition of the Consolidated GPI

Municipality	Weight
Aperibé	1
Bom Jardim	1
Bom Jesus do Itabapoana	1
Cachoeiras de Macacu	1
Cambuci	1
Cantagalo	1
Carapebus	1
Cardoso Moreira	1
Casimiro de Abreu	1
Cordeiro	1
Duas Barras	1
Itaboraí	2
Italva	1
Itaocara	1
Itaperuna	1
Laje do Muriaé	1
Macaé	2
Macuco	1
Magé	2
Maricá	2
Miracema	1
Natividade	1
Porciúncula	1
Quissamã	1
Rio Bonito	1
Rio das Ostras	1

Municipality	Weight
Rio de Janeiro Lot II	3
Santa Maria Madalena	1
São Fidelis	1
São Francisco do Itabapoana	1
São Gonçalo	2
São João da Barra	1
São José de Ubá	1
São Sebastião do Alto	1
Sapucaia	1
Saquarema	1
Sumidouro	1
Tanguá	1
Teresópolis	2
Trajano de Morais	1
Varre-Sai	1

Appendix III - UWI - Urban Water Supply Service Index and USI - Urban Sewerage Service Index Targets - Block 2

WSI - Urban Water Service Index (%) - Block 2

Municipality	Start of the Concession	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14 onwards
Angra dos Reis	90	91	93	95	96	97	98	98	99	99	99	99	99
Barra do Piraí	96	96	97	98	98	98	99	99	99	99	99	99	99
Miguel Pereira	94	96	97	99	99	99	99	99	99	99	99	99	99
Paraíba do Sul	94	95	96	97	97	98	98	99	99	99	99	99	99
Paty do Alferes	67	71	75	79	81	84	86	88	91	93	95	97	99
Pinheiral	89	90	92	94	94	95	96	97	98	99	99	99	99
Rio de Janeiro Region 2	95	96	97	98	98	99	99	99	99	99	99	99	99
Valença	88	89	91	93	94	95	96	97	98	98	99	99	99
Vassouras	91	94	96	99	99	99	99	99	99	99	99	99	99

- Urban Sewerage Service Index (%) - Block 2

Municipality	Start of the Concession	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 11	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20 onwards
Angra dos Reis	3	12	21	30	34	38	42	46	50	54	58	62	66	70	74	78	82	86	90
Barra do Piraí	82	83	84	85	85	86	86	87	87	88	88	89	89	90	90	90	90	90	90
Miguel Pereira	49	63	76	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Paraíba do Sul	0	8	15	23	27	32	36	41	45	50	54	59	63	68	72	77	81	86	90
Paty do Alferes	23	29	34	40	43	46	50	53	57	60	63	67	70	73	77	80	83	87	90

Municipality	Start of the Concession	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 11	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20 onwards
Pinheiral	0	8	15	23	27	32	36	41	45	50	54	59	63	68	72	77	81	86	90
Rio de Janeiro Region 2	70	70	70	70	72	74	76	78	80	82	84	86	88	90	90	90	90	90	90
Valença	45	49	53	56	59	61	63	65	68	70	72	74	77	79	81	83	86	88	90
Vassouras	74	79	85	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90

- Weight of the municipalities of Block 2 for the composition of the Consolidated GPI

Municipality	Weight
Angra dos Reis	2
Barra do Piraí	2
Miguel Pereira	1
Paraíba do Sul	1
Paty do Alferes	1
Pinheiral	1
Rio de Janeiro Region 2	3
Valença	1
Vassouras	1

Appendix IV - UWI - Urban Water Supply Service Index and USI - Urban Sewerage Service Index Targets - Block 3

WSI - Urban Water Service Index (%) - Block 3

Municipality	Start of the Concession	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14 onwards
Eng. Paulo de Frontin	52	68	83	99	99	99	99	99	99	99	99	99	99
Itaguaí	81	87	93	99	99	99	99	99	99	99	99	99	99
Mangaratiba	80	83	86	89	90	92	93	95	97	98	99	99	99
Paracambi	70	80	89	99	99	99	99	99	99	99	99	99	99
Piraí	90	93	96	99	99	99	99	99	99	99	99	99	99
Rio Claro	62	75	87	99	99	99	99	99	99	99	99	99	99
Rio de Janeiro Region 3	95	96	97	98	98	99	99	99	99	99	99	99	99
Seropédica	65	76	88	99	99	99	99	99	99	99	99	99	99

- Urban Sewerage Service Index (%) - Block 3

Municipality	Start of the Concession	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 11	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20 onwards
Eng. Paulo de Frontin	0	30	60	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Itaguaí	5	33	62	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Mangaratiba	0	8	15	23	27	32	36	41	45	50	54	59	63	68	72	77	81	86	90
Paracambi	34,3	53	71	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Piraí	42.4	58	74	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Rio Claro	0	30	60	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Rio de Janeiro Region 3*																			90
Seropédica	37,8	55	73	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90

(*) - The Sanitation System of these locations is excluded from the scope of the concessionaire

- Weight of the municipalities of Block 3 for the composition of the Consolidated GPI

Municipality	Weight
Eng. Paulo de Frontin	1
Itaguaí	2
Mangaratiba	2
Paracambi	1
Piraí	1
Rio Claro	1
Rio de Janeiro Region 3	3
Seropédica	2

Appendix V - UWI - Urban Water Supply Service Index and USI - Urban Sewerage Service Index Targets - Block 4

WSI - Urban Water Service Index (%) - Block 4

Municipality	Start of the Concession	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14 onwards
Belford Roxo	78	81	85	89	91	93	96	97	99	99	99	99	99
Duque de Caxias	84	86	89	92	94	95	97	98	99	99	99	99	99
Japeri	71	80	90	99	99	99	99	99	99	99	99	99	99
Mesquita	96	97	98	98	98	99	99	99	99	99	99	99	99
Nilópolis	97	98	98	99	99	99	99	99	99	99	99	99	99
Nova Iguaçu	90	92	93	95	96	97	98	99	99	99	99	99	99
Queimados	80	86	93	99	99	99	99	99	99	99	99	99	99
Rio de Janeiro Region 4	95	96	97	98	98	99	99	99	99	99	99	99	99
São João de Meriti	91	93	94	96	97	97	98	99	99	99	99	99	99

- Urban Sewerage Service Index (%) - Block 4

Municipality	Start of the Concession	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 11	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20 onwards
Belford Roxo	20	20	20	20	25	31	36	42	47	52	58	63	68	74	79	85	90	90	90
Duque de Caxias	14	21	28	35	39	43	48	52	56	60	65	69	73	77	82	86	90	90	90
Japeri	0	30	60	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Mesquita	20	20	20	20	25	31	36	42	47	52	58	63	68	74	79	85	90	90	90
Nilópolis	13	15	18	20	25	31	36	42	47	52	58	63	68	74	79	85	90	90	90
Nova Iguaçu	25	25	25	25	30	35	40	45	50	55	60	65	70	75	80	85	90	90	90
Queimados	0	30	60	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Rio de Janeiro Region 4	66	66	66	66	68	71	73	76	78	80	83	85	88	90	90	90	90	90	90
São João de Meriti*																			

(*) - The Sanitation System of these locations is excluded from the scope of the concessionaire

- Weight of the municipalities of Block 4 for the composition of the Consolidated GPI

Municipality	Weight
Belford Roxo	2
Duque de Caxias	2
Japeri	1
Mesquita	1
Nilópolis	1
Nova Iguaçu	2
Queimados	1
Rio de Janeiro Region 4	3
São João de Meriti*	2