REFERENCE BUSINESS PLAN – BLOCK 2

PROJECT FOR REGIONALIZED CONCESSION OF WATER SUPPLY AND SANITATION SERVICES IN THE MUNICIPALITIES OF RIO DE JANEIRO STATE CURRENTLY SERVED BY CEDAE

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1. PRESENTATION

1 PRESENTATION

This document was prepared based on information provided by employees and collaborators from Cedae, BNDES, municipal governments and Rio de Janeiro State Government, in addition to primary and secondary sources of information gathered by the Consortium. Such information was considered truthful; therefore, the Consortium does not undertake any liability for the accuracy of the information from reports and/or other documents provided by the sources consulted.

The figures presented in this report may undergo updates and/or monetary corrections, leading to potential future changes in the information and projections presented herein.

2. INTRODUCTION

2 INTRODUCTION

This Report presents the project for the Regionalized Concessions of the water supply[1] and sanitation services[2] of all the municipalities in the state of Rio de Janeiro currently served by CEDAE, and, for municipalities served by large production systems in the Metropolitan Region of Rio de Janeiro, the concession of water supply will only be of the system called *"downstream"*, which covers the water distribution systems to end users from CEDAE's water macro meters, in addition to the sewage system.

Such delegations will be granted to private companies directly by the State of Rio de Janeiro, through public bidding and from a delegation originally received from the holders of the sanitation service. Water production in the municipalities where the private contractor will operate *downstream* will continue to be the responsibility of CEDAE. This Company will be responsible for the abstraction and treatment of raw water and the delivery of treated water at appropriate standards and quality levels. The relationship between CEDAE and the concessionaire will be governed by an Interdependence Agreement to be entered into between the parties, which will establish the water purchase price and the governance of the operation.

In all 35 municipalities to be granted, the commercial management of water and sanitation services will be the responsibility of the private contractor, except in those locations where this commercial management is already performed by some other concessionaire.

2.1 Territorial Characterization and Municipalities Served in the Project - Block 2

The study covers the economic and financial assessment of the water supply and sanitation systems of the urban areas of the 35 municipalities in which Cedae operates at least the water supply main system, including the districts of the municipalities, i.e., regardless of the concessionaire operating the system, except for the sanitation systems already under concession for private contractors in the following locations: Macaé, Rio das Ostras, São João do Meriti, Saquarema and the AP5 of the city of Rio de Janeiro, besides the sanitation system of the city of Maricá, which will be operated by its own municipality government. The following results refer to the municipalities and districts of municipalities of Block 2.

[1] Consisting of the services, infrastructure and facilities necessary for the public supply of drinking water, from abstraction to household connections and their measurement instruments.
[2] Consisting of the services, infrastructure and operational facilities for collection, transportation, treatment and final disposal of sewage, from the household connections to their final disposal into the environment, for a period of 35 (thirty-five) years.

Table 1 lists the municipalities of the study and includes the current contractor for each type of service and Figure 1 displays the spatial location of each municipality.

It is also worth mentioning that Saquarema's water supply system is restricted to the Jaconé neighborhood, since the rest of the municipality is also operated by a private concessionaire.

The Business Plan was based on the geographic separation by block, showing greater technical-operational feasibility, given that in some cases the operation of water and sanitation services can sometimes be limited to this geographic area. It is worth mentioning that CEDAE will continue to produce and treat water and sell to the respective concessionaire in the following municipalities: Rio de Janeiro; Nova Iguaçu; Duque de Caxias; São João de Meriti; Belford Roxo; Nilópolis; Mesquita; Itaguaí; Queimados; Seropédica; Japeri; Paracambi and Maricá, until the implementation of the new water production system.

The areas operated by CEDAE were divided into four blocks, with the municipalities in block 2 listed in the table below:

Table 1: List of municipalities in block 2 and list of current providers of Water and Sanitation Systems

No.	Municipality	Contractor	Contractor's acronym	Type of service	GE019 - Where it provides water supply	GE020 - Where it provides sanitation services
1	Miguel Pereira	Companhia Estadual de Águas e Esgotos	CEDAE	Water	Both	Does not serve
2	Paty do Alferes	Companhia Estadual de Águas e Esgotos	CEDAE	Water	Both	Does not serve
3	Rio de Janeiro	Companhia Estadual de Águas e Esgotos	CEDAE	Water and Sanitation	Municipal Main Region	Municipal Main Region except AP5

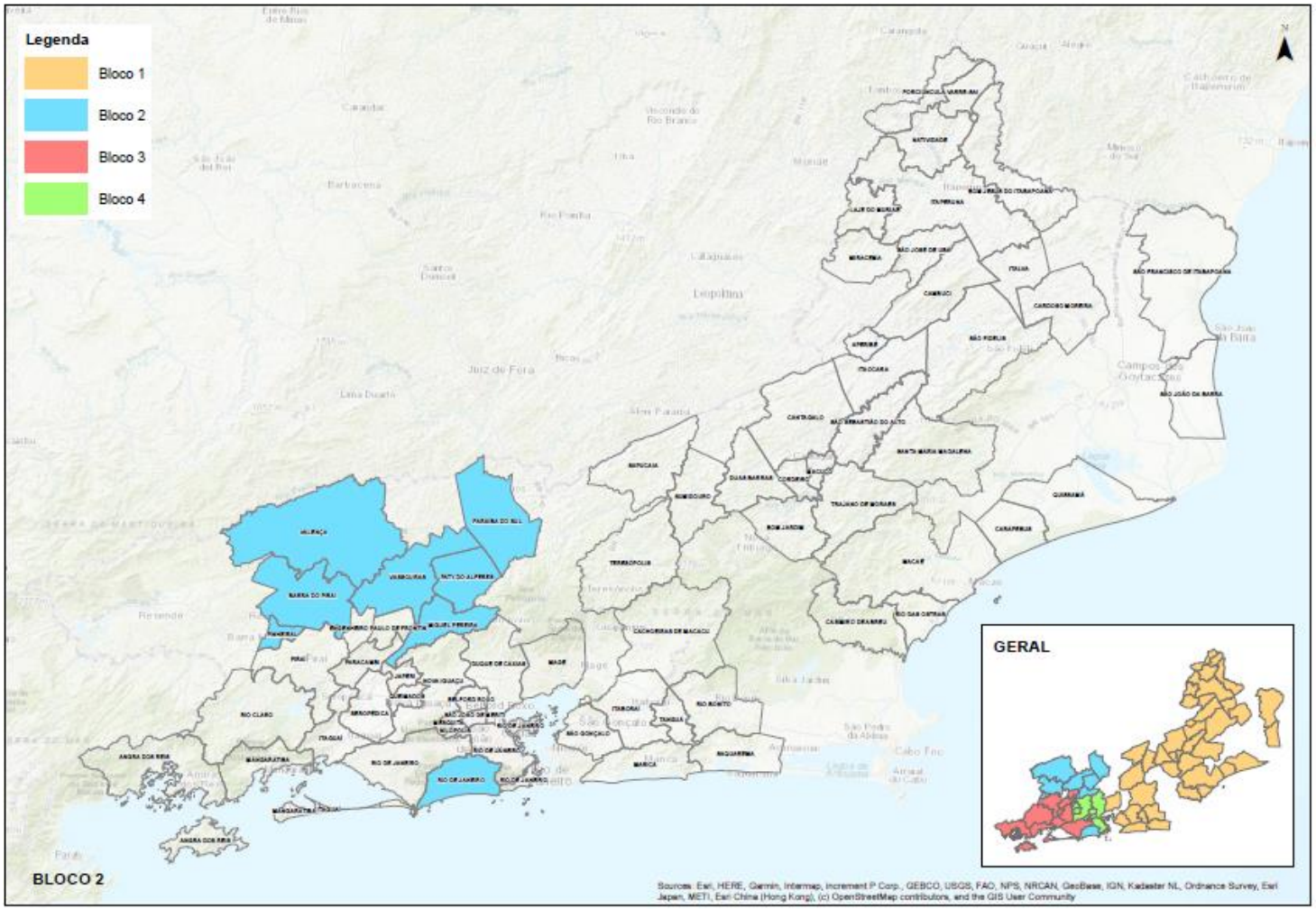
Source: SNIS, 2016 adapted by the Consortium

Shaded: Sanitation Systems granted to private contractors

Note: According to the SNIS classification, the service locations are classified into 03 types: (1: Municipal Main Region; 2: Locations; 3: Both):

- MUNICIPAL MAIN REGION: when the contractor provides services only to the main region of the municipality and does not provide services to locations other than the main region;
- LOCALITIES: when the contractor does not provide services to the municipality's main region, but it provides services to other locations, which do not include the main region;
- BOTH: when it serves both the main region and other locations.

Figure 1: Location of the municipalities and respective operational management of CEDAE



The city of Rio de Janeiro was divided into Regions, as shown in the table below. Region 2 was included in Block 2:

Table 1: Division of Regions of the City of Rio de Janeiro

Regions	Neighborhoods
Region 1	Botafogo, Catete, Centro (partial) Copacabana, Cosme Velho, Flamengo, Gávea, Glória, Humaitá, Ipanema, Jardim Botânico, Lagoa, Laranjeiras, Leblon, Leme, Rocinha, São Conrado, Urca, Vidigal
Region 2	Anil, Barra da Tijuca, Camorim, Cidade de Deus, Curicica, Freguesia (Jacarepaguá), Gardânia Azul, Grumari, Itanhangá, Jacarepaguá, Jardim Sulacap, Joá, Pechincha, Praça Seca (partial), Realengo, Recreio dos Bandeirantes, Tanque, Taquara, Vargem Grande, Vargem Pequena.
Region 3	Bangu, Barra de Guaratiba, Campo dos Afonsos, Campo Grande, Cosmos, Deodoro, Gericinó, Guaratiba, Inhoaíba, Jardim Sulacap, Magalhães Bastos, Paciência, Padre Miguel, Pedra de Guaratiba, Realengo, Santa Cruz, Santíssimo, Senador Camará, Senador Vasconcelos, Sepetiba, Vila Kennedy, Vila Militar
Region 4	Abolition, Acari, Água Santa, Alto da Boa Vista, Anchieta, Andaraí, Bancários, Barros Filho, Benfica, Bento Ribeiro, Bonsucesso, Brás de Pina, Cachambi, Cacuia, Caju, Campinho, Cascadura, Catumbi, Cavalcanti, Centro (partial), Cidade Nova, Cidade Universitária, Cocotá, Coelho Neto, Colégio, Complexo do Alemão, Cordovil, Costa Barros, Del Castilho, Enchanted, Engenheiro Leal, Engenho da Rainha, Engenho de Dentro, Engenho Novo, Estácio, Freguesia (Island), Galeão, Gamboa, Grajaú, Guadalupe, Higienópolis, Honório

Regions	Neighborhoods
	Gurgel, Inhaúma, Irajá, Jacaré, Jacarezinho, Jardim América, Jardim Carioca, Jardim Guanabara, Lapa, Lins de Vasconcelos, Madureira, Mangueira, Manguinhos, Maracanã, Marechal Hermes, Maria da Graça, Méier, Moneró, Olaria, Osvaldo Cruz, Paquetá, Parada de Lucas, Parque Anchieta, Parque Colúmbia, Pavuna, Penha, Penha Circular, Piedade, Pilares, Pitangueiras, Portuguesa, Praça da Bandeira, Praça Seca (partial), Praia da Bandeira, Quintino Bocaiúva, Ramos, Riachuelo, Ribeira, Ricardo de Albuquerque, Rio Comprido, Rocha, Rocha Miranda, Sampaio, Santa Teresa, Santo Cristo, São Cristóvão, São Francisco Xavier, Saúde, Tauá, Tijuca, Todos os Santos, Tomás Coelho, Turiaçú, Vasco da Gama, Vaz Lobo, Vicente de Carvalho, Vigário Geral, Vila da Penha, Vila Isabel, Vila Kosmos, Vila Valqueire, Vista Alegre, Zumbi, Ilha do Governador

The following is information on the geographical characterization, which includes information on territorial extension and population (total, served with the water service and served with the sanitation service).

Table 2: Territorial Extension and Population Served

Caracterização Geográfica Bloco 2 - 2020	
Extensão Territorial	896
População Total	1.125.190
População Atendida SAS	795.616
População Atendida SES	562.871

Source: GIS and Cedae

The table below presents the main water courses of each municipality, which serve the water supply system, not including any anomalies in the supply, as long as the criteria for water loss reduction and per capita water consumption are met and they are able to receive treated sewage.

Table 3: Water Catchments and Rivers

Município	Bacias Hidrográficas	Rios
Vassouras	RH II - Guandu	Rio Guandu
	RH III - Médio Paraíba do Sul	Rio Paraíba do Sul
Valença	RH III - Médio Paraíba do Sul	Rio Bonito, Rio das Flores, Rio São Fernando, Rio Indalá, Córrego Ponte Funda, Ribeirão Sant'Ana
Barra do Pirai	RH II - Guandu	Rio Paraíba do Sul, Rio Ipiabas, Rio das Flores, Rio Turvo
	RH III - Médio Paraíba do Sul	
Miguel Pereira	RH II - Guandu	Rio Santana
	RH III - Médio Paraíba do Sul	Córrego do Saco
Paraíba do Sul	RH IV - Piabanha	Rio Pardo, Rio Fagundes
	RH III - Médio Paraíba do Sul	Rio Paraíba do Sul, Ribeirão Grande, Rio Matozinhos, Ribeirão Santo Antônio, Córrego Santa Isabel
Paty do Alferes	RH IV - Piabanha	Rio Pardo
	RH III - Médio Paraíba do Sul	Rio Ubá, Ribeirão do Secretário, Córrego do Sertão
Pinheiral	RH III - Médio Paraíba do Sul	Rio Paraíba do Sul, Córrego Pau d'alho, Córrego Maria-preta
Piraí	RH II - Guandu	Rio Piraí, Rio Cacaria
	RH III - Médio Paraíba do Sul	Córrego Pau d'alho, Ribeirão do João-Congo
Rio de Janeiro Lote III	RH V - Baia de Guanabara	Rio Paineiras, Rio Grande, Rio Marangá, Lagoa de Jacarepaguá

2.2 Executive summary

The Business Plan presented herein is a reference, not binding on the future concession. Potential bidders should carry out their own studies and estimates in order to participate in the bidding process and may not claim that the estimates contained herein have not been achieved as a basis for contract rebalancing claims.

This document contains the following topics:

Opening of (i) Revenue, including Default, (ii) Investment; (iii) Operating Costs; (iv) Taxation; (v) Financing Structure.

Table 4: Units

The number of water and sewage units projected for the end of the plans is presented below:

Municipalities	Water Unit (End of Plan)	Sewage Unit (End of Plan)	Water + Sewage Unit (End of Plan)
Miguel Pereira	10.766	0	10.766
Paty do Alferes	11.731	10.665	22.396
Rio de Janeiro B3	303.998	276.362	580.360

Table 5: Main Results

The main indicators and financial figures of the Block are presented below:

R$ thousands except when indicated otherwise	Block 2
Investments	2.690.882
Water and Sanitation Revenue	43.087.520

R$ thousands except when indicated otherwise	Block 2
Investments	2.690.882
EBITDA	17.728.799
Water sale price by CEDAE (R$/m³)	1,70 (until year 4) and 1,63 (afterwards)

3. PROJECTIONS AND PREMISES - BLOCK 2

3 PROJECTIONS AND PREMISES - BLOCK 2

3.1 Revenue

The revenues generated from the provision of water supply and sewage collection and treatment services were taken into account.

In order to assess the sanitation service revenue, the same water tariff table was applied on the volume of sewage to be served.

The current average tariff in each municipality for each type of consumption (social, residential, industrial, commercial and public tariff) and the *per capita* consumption, hydrometration and served population values were taken into account in order to calculate the tariff revenue. For sanitation, an accession rate of 80% was employed.

Based on the studies carried out by the technical team, it was considered that the private partner would achieve a hydrometric index of 100% by the 5th year of Concession.

Table 6: Average Water and Sanitation Tariffs by Typology

	Water (R$/m³)				
Municipality	**Social Tariff**	**Residential**	**Commercial**	**Industrial**	**Public**
Miguel Pereira	n.d.	4,56	11,45	20,15	7,63
Paty do Alferes	n.d.	4,60	12,19	18,91	8,51
Rio de Janeiro – Region 2	3,26	5,02	16,03	23,40	11,41

The engineering team has adopted the premise of water consumption of 223 l/inhab/day in Rio de Janeiro (capital), 150 l/inhab/day in the other municipalities, 260 l/inhab/day in the irregular areas of the municipality of Rio de Janeiro. It is worth mentioning that the analysis was based on the current per capita informed by CEDAE and within 10 years the project per capita of the presented premises will be achieved. These estimates were considered for the following reasons: projected loss reduction, greater commercial control, alignment with the per capita already used by CEDAE in its projections, among others.

The target for the total water loss index in distribution is 25%, to be achieved in 10 years.

The following is a table with information on the current per capita consumption and loss index in the municipalities of Block 2, which should be linearly reduced to the mentioned project values.

Table 7: Current per capita and loss index

Municipality	Current per capita (L/inhab.d)	Current Losses
Miguel Pereira	258	60%
Paty do Alferes	194	50%

Rio de Janeiro Região 2	219	38%

Table 8: Water and sewage revenue - Block 2

Among the main levers for revenue growth in the first ten years, the main *driver* is the increase in the supply index.

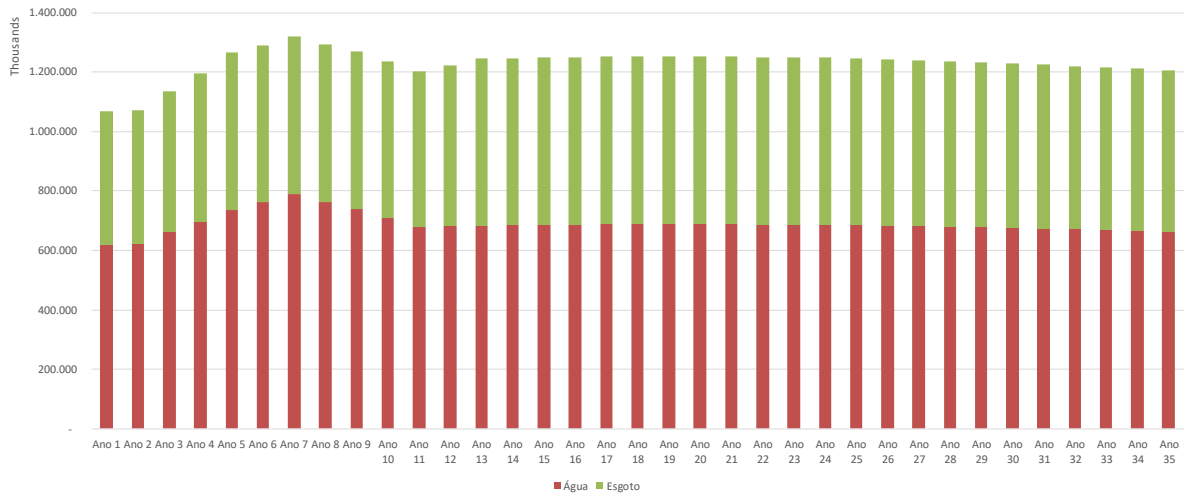
For the sake of caution and due to the difficulty in establishing a *driver* to project accessory revenues, the same were not taken into account.

Rio de Janeiro is the municipality that is the most relevant in terms of revenue throughout all blocks.

Receita (R$)	1	2	3	4	5	10	20	30	35
Água	620.353.529	623.441.458	662.325.297	696.276.028	737.556.800	709.584.884	688.749.946	676.153.713	662.956.091
Esgoto	447.081.049	449.273.226	474.094.302	498.661.320	527.595.435	526.502.929	564.769.878	554.468.104	543.655.102
Total	1.067.434.577	1.072.714.684	1.136.419.599	1.194.937.347	1.265.152.235	1.236.087.813	1.253.519.825	1.230.621.816	1.206.611.193

The graph below presents the annual water and sewage tariff revenue[3]:

Graph 1: Revenue - Block 2



3.1.1 Default

[3] Irregular areas are present only in the municipality of Rio de Janeiro

The initial projected default value considered the history of CEDAE in each municipality and was incorporated into the model to differentiate between invoiced and collected revenue.

Since practice demonstrates that the private partner has better ability to mitigate default, due to more effective commercial management, the economic and financial modeling considered a reduction of default to 10% by the 15th year of the Concession, established jointly with BNDES on the basis of *peers'* default[4].

The default values in 2019, per municipality of Block 2 are presented below:

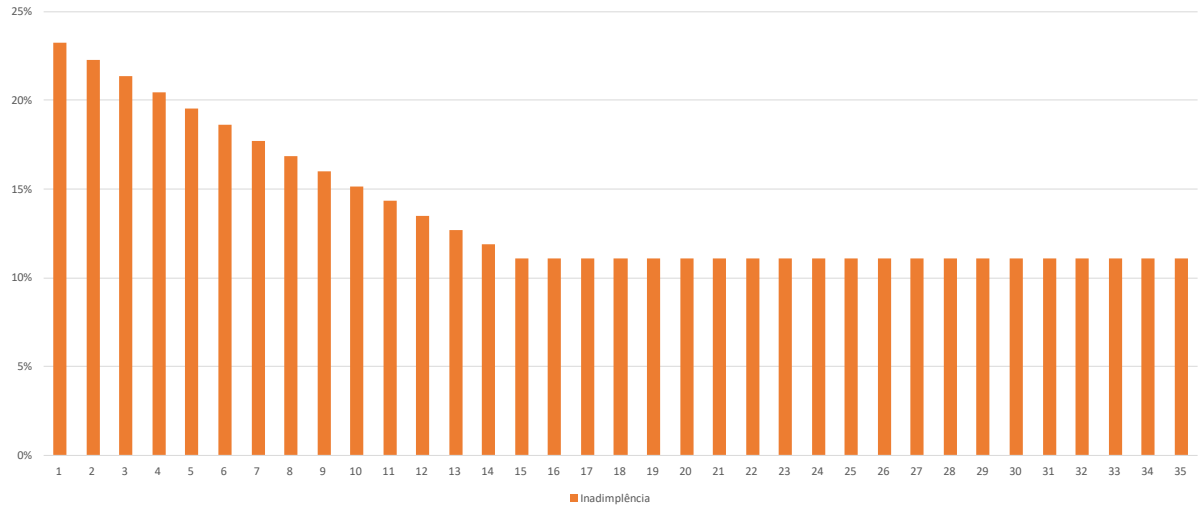
[4] Analyzing the default of state-owned companies (SABESP, COPASA, SANUPAR) and the main private sanitation companies (GS Inima, BRK, Águas do Brasil, AEGEA), as well as the historical difficulty of billing for sanitation in the downtown area, the assumption of 10% was adopted.

Table 2: Default

Municipality	Default
Miguel Pereira	22,0%
Paty do Alferes	30,6%
Rio de Janeiro	18,5%

Below is a graph with the expected curve of default reduction of the block, until it reaches 10% in year 15:

Graph 2: Evolution of Default



3.2 Investment

The investments needed to achieve the universalization targets of water supply and sanitation services were estimated as presented in the tables below, whose evolution is linear. It is worth mentioning that the municipalities of Miguel Pereira and Vassouras, located in the Guandu River catchment, have the target of reaching the universalization of water supply and sanitation in only 5 years, in order to ensure the quality of the water from the main source of water supply of the region. These projections and the methodology used in the investment estimates are detailed below.

Table 0: Service Targets - Water (%)

Municipality	Year 5	Year 8	Year 10	Year 12
Miguel Pereira	99			

Paty do Alferes	90,2	94,0	96,5	99
Rio de Janeiro Região 2	98,1	99		

Table 11: Service Targets - Sewage (%)

Municipality	Year 5	Year 10	Year 12
Miguel Pereira	90		
Paty do Alferes	47	78	90
Rio de Janeiro Região 2	70	84	90

3.2.1 Investment Valuation Premises

3.2.1.1 Calculation Basis

The following reference spreadsheets were adopted to calculate the costs of engineering works and services:

- Bulletin EMOP - Empresa de Obras Públicas do Estado do Rio de Janeiro, base December/2019;
- SINAPI-RJ - Dec/19, exceptionally in the absence of any EMOP unit cost;
- CEDAE benchmark quotes.

For the Indirect Benefits and Expenses (IBE), the value of 24% was used, an average value admitted by the Federal Audit Court - TCU for basic sanitation works.

3.2.1.2 Parametric Costs and Cost Curves

Two methodologies were used for the preparation of the Capex: parametric cost calculation and cost curve elaboration.

The parametric costs were used for the following works: water distribution and sewage collection networks, water and sewage connections, internal household connections, replacement of hydrometers, deep wells, pipelines and discharge lines and operation in irregular areas.

Cost curves were drawn up for the following works: raw water abstraction, water and sewage treatment plants, water and sewage lifting stations and for water reservoirs.

3.2.1.3 Reinvestment

For reinvestment, which represents the disbursement with replacement of capital already invested, the following percentages were adopted in relation to assets, whether existing or to be built, which were established jointly with CEDAE:

Equipment : 5% a year

Telemetry and automation: 5% a year

3.2.1.4 Other Investments

For automation and telemetry, it was considered the cost equivalent to 5% of the CAPEX of civil works and related equipment (abstractions, treatment stations and lifting stations and reservoirs) and for studies and designs the value equivalent to 5% of the total cost of the work, which includes geotechnics and topographic registration services.

For expropriations, the unit cost of the land was obtained through internet research.

3.2.2 Projection of Investments

The Tables Table 12: Investment Water - Block 2 and

Note: The total investment in the non-urbanized irregular areas of the MRJ is considered in the water capex

Table 13: Investment present the investment projections for the 35 (thirty-five) years of concession of Block 2, with the opening of the projections by investment sector (water, sanitation and production systems) and details of each structure for the highlighted sectors.

Table 12: Investment Water - Block 2

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Abstraction (k R$)	0	0	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0
Water Lifts (k R$)	0	882	3.338	3.338	2.540	2.540	2.540	0	0	0	0	0	0	0	0	0	0	0
Water Pipelines (k R$)	0	6.753	11.852	24.228	43.512	31.660	21.796	2.512	2.512	0	0	0	0	0	0	0	0	0
WTP (k R$)	0	1.787	2.177	2.177	2.177	2.149	2.149	1.787	1.787	1.787	1.787	1.787	1.787	0	0	0	0	0
Reservoir (k R$)	0	0	3.252	3.252	5.756	7.854	10.668	7.509	7.509	4.692	2.501	0	240	240	240	209	209	0
Distribution Network (k R$)	0	5.374	10.779	10.612	10.724	10.250	8.235	6.734	6.789	4.742	3.123	3.139	3.153	2.610	2.610	1.216	1.216	1.216
Water Connections (k R$)	0	473	768	763	771	684	593	597	602	391	248	248	249	218	218	96	96	96
Hydrometers (k R$)	0	3.309	3.309	3.309	3.309	3.309	3.526	3.661	3.658	3.662	3.622	3.797	3.934	3.934	3.841	3.736	3.911	4.048
Systems, Designs, Customer Service (k R$)	0	24.415	25.078	25.687	26.835	26.436	26.092	24.795	24.799	24.351	24.052	23.802	23.823	150	151	79	79	60
Environmental (k R$)	0	0	434	474	475	481	462	17	17	17	13	13	16	12	12	8	8	5
Reinvestments (k R$)	0	0	0	0	0	0	0	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143
Total Water (k R$)	0	42.993	60.995	73.848	96.107	85.371	76.069	49.755	49.816	41.785	37.489	34.929	35.345	9.307	9.215	7.487	7.662	7.568

Year	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Abstraction (k R$)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Lifts (k R$)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Pipelines (k R$)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WTP (k R$)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reservoir (k R$)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Distribution Network (k R$)	1.216	1.216	244	244	244	244	244	57	57	57	57	57	0	0	0	0	0
Water Connections (k R$)	96	96	13	13	13	13	13	3	3	3	3	3	0	0	0	0	0
Hydrometers (k R$)	4.034	3.941	3.780	3.955	4.092	4.078	3.985	3.785	3.961	4.098	4.084	3.991	3.786	3.962	4.099	4.084	3.990
Systems, Designs, Customer Service (k R$)	60	60	12	13	13	12	11	2	2	1	1	0	0	0	0	0	0
Environmental (k R$)	5	5	2	2	2	2	2	1	1	1	1	1	0	0	0	0	0
Reinvestments (k R$)	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143	2.143
Total Water (k R$)	7.554	7.461	6.194	6.370	6.507	6.492	6.398	5.991	6.167	6.303	6.289	6.195	5.929	6.105	6.242	6.227	6.133

Note: The total investment in the non-urbanized irregular areas of the MRJ is considered in the water capex

Table 13: Investment Water - Sanitation 2

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Dry Weather Collector (k R$)	0	16.459	20.821	25.183	29.545	33.907	0	0	0	0	0	0	0	0	0	0	0	0
Sewage Connection (k R$)	0	3.324	8.667	4.950	5.031	4.093	16.084	16.340	16.600	16.856	15.812	15.968	16.127	2.082	2.089	900	907	904
Ligação intradomiciliar (Mil R$)	0	5.159	5.231	5.180	5.182	5.032	6.882	6.911	6.942	6.972	6.819	6.837	6.855	272	273	110	110	110
Connection Network (k R$)	0	13.696	44.524	53.523	20.607	32.915	47.800	47.800	47.800	47.800	47.407	47.407	47.407	4.700	4.694	2.123	2.118	2.118
Sewage Lifts (k R$)	0	1.963	2.861	6.568	5.382	8.075	8.075	6.072	0	0	0	0	0	0	0	0	0	0
Discharge Lines (k R$)	0	522	658	1.697	1.415	0	3.156	3.156	0	0	0	0	0	0	0	0	0	0
STP (k R$)	0	0	4.469	65.547	115.160	104.062	41.462	41.462	41.462	41.462	25.914	0	0	0	0	0	0	0
Systems, Designs, Customer Service (k R$)	0	859	2.846	7.121	7.796	7.758	5.169	5.071	4.462	4.462	3.664	2.369	2.370	236	235	105	104	104
Environmental (k R$)	0	0	445	528	519	491	459	14	14	14	13	13	13	4	4	2	2	2
Reinvestments (k R$)	0	0	0	0	0	0	0	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199
Total Sewage (k R$)	0	41.982	90.522	170.297	190.637	196.333	129.087	141.025	131.479	131.765	113.828	86.793	86.971	21.493	21.494	17.439	17.440	17.437

Year	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Dry Weather Collector (k R$)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sewage Connection (k R$)	907	907	106	109	109	109	109	31	31	31	31	31	0	0	0	0	0
Ligação intradomiciliar (Mil R$)	110	110	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
Connection Network (k R$)	2.118	2.118	317	317	317	317	317	62	62	62	62	62	0	0	0	0	0
Sewage Lifts (k R$)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discharge Lines (k R$)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STP (k R$)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Systems, Designs, Customer Service (k R$)	104	104	16	16	16	16	16	3	3	3	3	3	0	0	0	0	0
Environmental (k R$)	2	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0
Reinvestments (k R$)	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199	14.199
Total Sewage (k R$)	17.440	17.440	14.640	14.643	14.643	14.643	14.643	14.295	14.295	14.295	14.295	14.295	14.199	14.199	14.199	14.199	14.199

In the following locations it is provided for the construction of dry weather collectors, to be implemented within the first 05 years of the concession: Belford Roxo, Duque de Caxias, Mesquita, Nilópolis, Nova Iguaçu, Rio de Janeiro, Itaboraí and São Gonçalo and their respective districts.

For these locations, the proposal is to postpone the extension of the sanitation system (*delay*) for 5 years, maintaining only the inertial growth while the dry weather collector system is under implementation.

The dry weather solution to be adopted shall consider the regional particularities and shall be proposed by the Concessionaire, in order to establish the investments in agreement with the granting authority. A possible solution for the dry weather collector is to establish a structure for collecting (or intercepting) sewage in the stormwater galleries and in water courses that receive the sewage in natura, followed by screening of the coarse material and routing to the nearest sewage treatment plant, through existing or to be built sewer mains, lifting stations and discharge lines.

The sewage interception structures are sized to collect water flow in dry weather periods and when it rains any excess follows the normal course of the mains or watercourses.

The implementation of the dry weather collector system is planned in order to, in the short term, minimize the pollution of Guanabara Bay and its effluent bodies and to improve the balneability of the beaches.

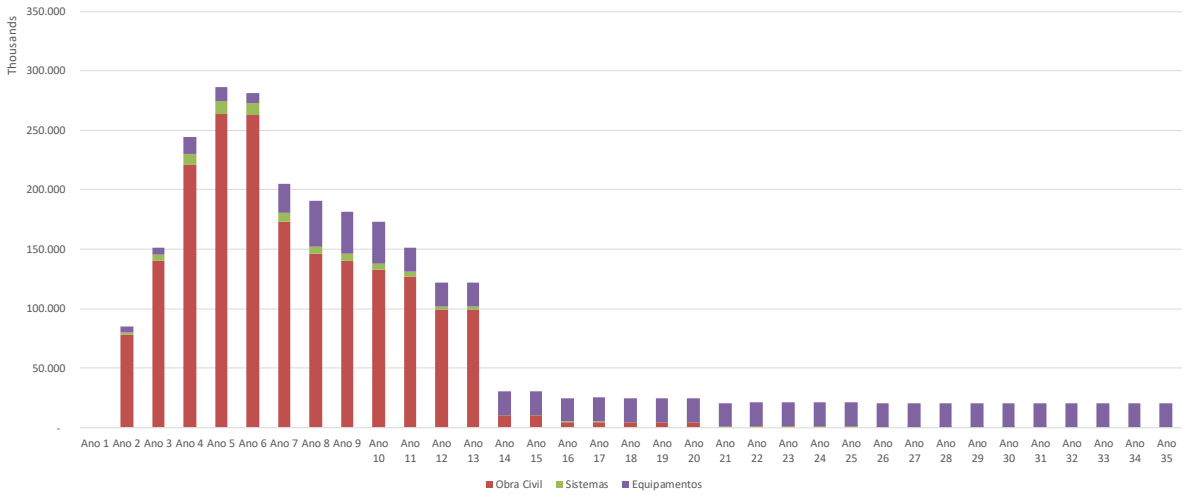
The site and the most suitable technical solution for the implementation of the dry weather collector structures should be the one resulting from the joint analysis of all the available information on the area reserved for this purpose.

The investments planned for the municipalities of Block 2, including the respective districts, for the performance of the dry weather collector works, are limited to the following:

Block 2: Rio de Janeiro Region 2: R$ 125,9 million.

The graphs below present the annual investments in water and sanitation:

Graph 3: Investment - Block 2



3.3 Operating Costs

3.3.1 Operating Cost Assessment Premises

Significant operating expenses are human resources, electric power, chemical products and sludge transportation, in addition to others such as maintenance of civil works, equipment and miscellaneous.

3.3.1.1 Chemicals

The following consumptions of chemicals were admitted, information received from CEDAE, as summarized in the table below.

Table 14: Water and sewage chemicals

Chemicals - Water	
Aluminum Sulfate	40 mg/L
Lime	20 mg/L
Chlorine	3 mg/L
Sludge polymer	5 kg/ton. sludge
Fluosilicic acid	1 mg/L

Chemicals - Sewage	
Chlorine	8 mg/L
Sludge polymer	5 kg/ton. sludge

3.3.1.2 Energy (kW)

The average unit tariff was provided by Cedae, considering that the cost of demand is included in consumption, at the value of 0,98 R$/kWh

- Annual consumption: $Consumo\ médio\ x\ 24h\ x\ 365\ dias$

3.3.1.3 Human Resources

Operational Cost spreadsheets were prepared for the economic model of Concession of sanitation services of CEDAE, except for the Producer System composed by the Guandu, Lajes, Acari and Imunana-Laranjal Systems.

The average unit cost of labor updated to Dec/2019 is R$123.265,00[5]/employee, regardless of position or type of employment (own or outsourced), to be in force from year 1.

As far as productivity is concerned, a rate of 643 units[6]/employee was proposed, based on the productivity of the Sanepar (Paraná) and Copasa (Minas Gerais) concessionaires, which have a size compatible with CEDAE, regardless of position or employment link.

3.3.1.4 Sludge transportation

The sludge generated in the WTPs and STPs will be transported to the nearest licensed outlet. The average distance considered for transportation is 40 (forty) kilometers.

The estimated sludge production volume for the water and sewage treatment plant are as follows:

- WTP sludge: $\frac{Q_{m^3}}{ano}\ x\ \frac{1}{10.000}\ t/ano$
- Activated sludge with drying bed: 95 g/inhab.day;
- Centrifuge activated sludge: 127 g/inhab.day
- UASB + Filter with drying bed: 27 g/inhab.day;

[5] SNIS (Copasa and Sanepar)
[6] SNIS

The unit cost of sludge transport and disposal are as follows, updated to Dec/2019:

- Transport cost: 3.97 R$/ton*km (EMOP base);
- Disposal cost: 71,03 R$/ton. (CEDAE basis)

3.3.1.5 Maintenance of Civil Works and Equipment

For the maintenance cost, the parameter of 136,00 R$/connection for the municipality of Rio de Janeiro and 28,60 R$/connection for the other municipalities was used, based on CEDAE's balance sheet and CEDAE recommendations.

3.3.1.6 Miscellaneous

The main costs considered as miscellaneous are: concession fees, rentals and machinery, equipment and vehicles, real estate rentals, insurance costs, advertising and publicity, communication and data transmission, advertisements and notices, laboratory services, graphic services, bank fees, mobility (vehicles), materials (administrative and cleaning), permits, licensing, etc.

The rate used is 56,49 R$/connection (CEDAE base).

3.3.1.7 Performance Guarantee Costs

There are performance guarantee costs that represent the costs associated with hiring construction, operation insurances, System Works and System Operation, Maintenance and Conservation Performance Guarantees.

A cost of 2.0% in relation to the value of the policy, calculated on the basis of practices in similar contracts, was used to measure these values.

3.3.1.8 Water Purchase Costs

It is projected that in some municipalities, as specified above, the Concessionaire will purchase water that will be produced by CEDAE, at a price of R$1.70/m³ for the first 4 years and R$ 1,63 m³ afterwards.

3.3.1.9 AGENERSA and INEA Fees

Expenses with the AGENERSA (Rio de Janeiro State Energy and Basic Sanitation Regulatory Agency) and INEA (State Environment Institute) fees were projected, estimated at 0.5% and 0.25% of revenues, net of PIS and Cofins taxes, respectively.

3.3.1.10 Contingency

Contingency costs were inserted as a form of protection against small fluctuations in the main items of the Concessionaire's operating costs. For this purpose, a value of 0.5% was provided for on operating costs (Treatment Materials, Energy, Personnel, Maintenance, Other Operating Costs, Water Purchase from CEDAE, Surety-bond and Insurance).

3.3.1.11

3.3.2 Cost Projection

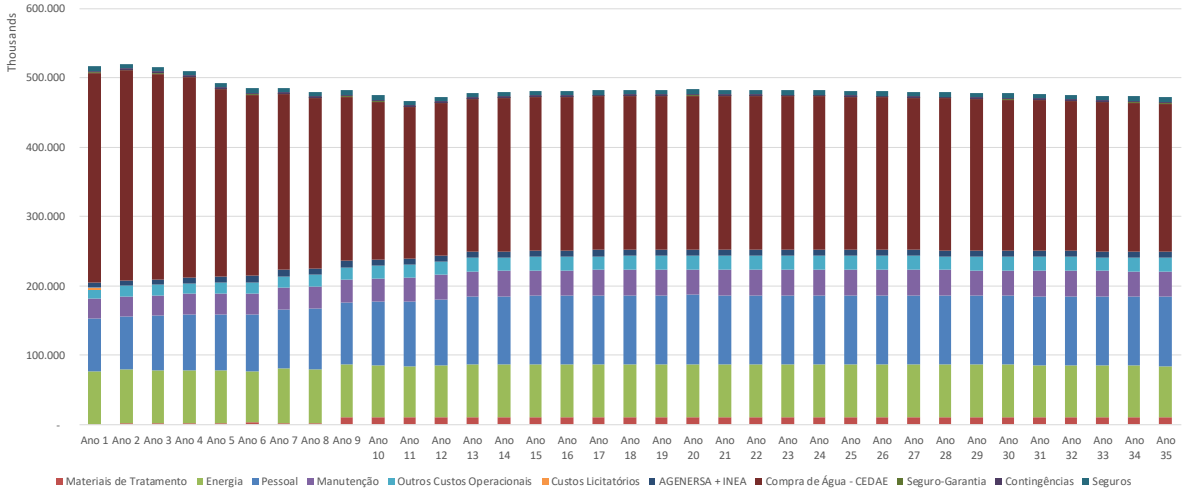
The estimated annual operating cost figures are presented in Table 15: Operating Cost, with details of the main items.

Table 15: Operating Cost

Custo Operacional (R$)	1	2	3	4	5	10	20	30	35
Materiais de Tratamento	371.000	1.546.000	1.871.000	2.381.000	2.564.000	10.523.000	10.237.000	10.184.000	10.119.000
Energia	76.710.000	77.703.000	76.647.000	76.466.000	75.265.000	74.892.000	77.364.000	76.019.000	74.536.000
Pessoal	76.369.000	77.298.000	78.666.000	79.938.000	81.218.000	91.699.000	99.286.000	99.330.000	99.330.000
Manutenção	28.452.000	28.797.000	29.298.000	29.768.000	30.244.000	34.136.000	36.952.000	36.966.000	36.966.000
Outros Custos Operacionais	12.572.000	14.654.000	14.968.000	15.219.000	15.468.000	17.873.000	19.798.000	19.801.000	19.776.000
Custos Licitatórios	2.704.655	-	-	-	-	-	-	-	-
AGENERSA e INEA	7.695.876	7.798.587	8.259.371	8.660.649	9.136.943	8.891.844	8.926.542	8.735.078	8.622.885
Compra de Água - CEDAE	302.181.646	302.796.558	296.108.238	288.184.754	269.712.318	227.407.352	221.792.276	217.629.068	213.341.798
Seguro-Garantia	672.721	672.721	672.721	672.721	672.721	480.875	108.538	51.013	672.721
Contingências	2.518.116	2.548.811	2.522.629	2.494.622	2.407.195	2.316.531	2.359.163	2.331.375	2.305.182
Seguro	6.294.873	6.294.873	6.294.873	6.294.873	6.294.873	6.294.873	6.294.873	6.294.873	6.294.873
Total	516.541.886	520.109.549	515.307.833	510.079.619	492.983.049	474.514.474	483.118.392	477.341.406	471.964.458

The graph below shows annual water and sewage costs:

Graph 4: Operating Cost - Block 2



3.4 Working Capital

The average payment and receipt terms adopted for the project were considered 30 days for costs and revenues as practiced in the Sanitation market.

3.5 Taxation

3.5.1 Tax Immunity

In September 2015, CEDAE filed a Civil Action before the Brazilian Supreme Court, claiming recognition of the reciprocal tax immunity provided for in art. 150, item VI, paragraph 'a' of the Federal Constitution, as well as the right to the refund of the amounts paid by way of federal taxes in the five years preceding the action, and also of those paid during the course of the action.

In 2017 the decision was challenged by appeals from the Federal Government and CEDAE. CEDAE saved, since 2018, only on Corporate Income Tax and due to the change from the non-cumulative regime to the cumulative regime of PIS/COFINS taxes, around R$ 476.7 million (R$ 165.9 million of Corporate Income Tax and R$ 310.8 million of PIS/COFINS taxes), considering the amounts paid by the Company in 2017.

Finally, it is clarified that immunity has not been considered in this business plan since a private contractor will not be entitled to such tax benefit.

3.5.2 Taxation on Revenue

The regulatory framework establishes that COFINS (Social Security Financing Contribution), PIS (Social Integration Program) and ISS (Services Tax) taxes are levied on the revenues of the Company or of the Specific Purpose Entity.

According to Supplementary Law No. 7/1970, private legal entities are PIS taxpayers, and the calculation of such contribution is based on the revenues earned in accordance with Law No. 9718/98 and at different rates according to the revenue profile as provided for by Law No. 10673/2002.

COFINS, likewise PIS, is currently governed by Law No. 9718/98, which establishes that all legal entities and their equivalents in relation to income tax legislation are CONFINS taxpayers, and its calculation is based on revenues and differentiated rates, in accordance with the terms of the rule that regulates the tax.

In the case of these projects, the SPE is subject to the payment of PIS and COFINS at the rates of 1.65% and 7.60% respectively, over its revenues.

The ISS, substitute of the ISSQN (Tax on Services of Any Nature), is a competence of the municipalities and Federal District and is levied on the provision of services, having as taxable event the list of services set out in Law No. 11.438/1997, and is governed by Complementary Law 116/2003.

Environmental sanitation services, including purification, treatment, sewerage and similar services, as well as water treatment and purification services are not subject to ISS, as described in Message No. 362 of 31 July 2003, which explains the reasons for the Veto on the application:

> *The application of the tax on environmental sanitation services, including purification, treatment, sewerage and the like, as well as on water treatment and purification services, does not serve the public interest. Taxation could undermine the government's objective of universal access to such basic services. The disincentive that taxation would bring to the sector would have as a long-term consequence an increase in expenses in serving the population affected by the lack of access to basic sanitation and treated water. In addition, Bill no. 161 - Complementary expressly revoked art. 11 of Decree-Law no. 406, of December 31, 1968, as amended by Complementary Law no. 22, of December 9, 1974. Thus, the hydraulic and civil construction works hired by the Federal, States, Federal District, Municipalities Governments, independent agencies and concessionaires, previously exempt from the tax, would be taxed, impacting the Government expenses with investments.*
>
> *Therefore, the taxation of these services does not serve public interest, and the veto of items 7.14 and 7.15, included in the List of Services of this*

Complementary Bill, is recommended. As a result, for reasons of legislative technique, clauses X and XI of art. 3 of the Bill should also be vetoed.

The Concessionaire is subject to payment of ISS on services not related to the activity of water supply and sanitation.

Table 16: Taxation on Revenue

TAXATION ON REVENUE	
Tax	**Rate (%)**
ISS	0,00%
COFINS	7,60%
PIS	1,65%

3.5.3 Taxation on Profit

The SPE shall also pay tax over the Project Profit - Corporate Income Tax (IRPJ) and Social Contribution on Net Profit (CSLL).

For the calculation of Corporate Income Tax, the economic-financial modeling used the tax return in the Regime of Real Profit calculated annually, under the terms of the current federal legislation, in compliance with art. 14 of Federal Law No. 9718/1998, which requires legal entities whose total gross revenue, in the previous calendar year, is higher than R$ 78.000,000.00 (seventy-eight million BRL), or R$ 6,500,000.00 (six million five hundred thousand BRL), multiplied by the number of months of activity in the previous calendar year, when less than 12 (twelve) months (limit established by Federal Law no. 10,637/2002) to declare Income Tax on the basis of Real Profit.

On Income before tax (LAIR), Corporate Income Tax is levied at a rate of 15% when the real profit portion is lower than the amount resulting from the multiplication of R$ 20,000.00 (twenty thousand BRL), by the number of months of the respective calculation period. However, when the results of the SPE point to a value higher than this amount, the legislation provides for an additional 10% to be charged on the excess value. However, due to the divergences between real and nominal model projections, which make it impossible to effectively absorb the benefits of differentiating rates according to the minimum level, highlighted by the fact that this level represents little on the annual result of the project, the choice was to mitigate possible inconsistencies by establishing the rate of 25% for Corporate Income Tax.

The payment of Social Contribution on Net Profit-CSLL is regulated by Federal Law No. 7689/1988, which establishes it with the same rules for calculating Corporate Income Tax, having its calculation basis defined in the provisions of Federal Law No. 10684/2003, which determines the application of a rate of 9% on companies using the Real Profit tax return system.

Table 17: Taxation on Profit

TAXATION ON PROFIT	
Tax	**Rate (%)**
IR	25,00%
CSLL	9,00%
TOTAL	**34,00%**

3.6 Financing Structure

Since the projects have the potential to use Third Party Capital resources, it is necessary to have a financial structure based mainly on loans that match the debt cash flow with the Project cash flow, in order to provide an adequate debt service [7]coverage ratio.

Thus, this item includes studies and considerations about the Bridge and Long-Term Financing structure, in which disbursements with investments are financed.

The credit lines taken into account are those usually practiced by financial agents and there is no commitment from these agents to guarantee this credit structure for the concession.

3.6.1 Bridge Financing

The Bridge Financing (short-term loan) may be obtained from a private financial institution that should provide the resources to cover part of the investment expenditure.

For the purposes of economic and financial modeling, we considered obtaining Bridge Financing with a term of one year, with a grace period for amortization for the same period.

The amount foreseen for the bridge loan has been estimated at 70% of the value to be invested in the first two years of the Concession. The interest on the short-term loan is charged on the outstanding balance owed to the financial institution, and is established at the CDI rate + 4%, an amount considered appropriate by the Economics Department of Banco Fator in view of the practice by the banks offering short-term credit and is paid monthly.

In addition, interest expenses included the payment of Structuring Charges and Commissions in the amount of 0.5% of the amount raised, an amount considered appropriate by the Economics Department of Banco Fator, for projects of this size, and the payment of IOF (Tax on Credit Operations, Foreign Exchange and Insurance) expenses on the amount raised.

[7] The Debt Service Coverage Ratio (DSCR) is calculated by dividing operating cash generation by debt service, based on information recorded in the Financial Statements, in a given period.

The repayment system considered for the short-term loan was the *bullet*, whose grace period is equal to the term of the loan and settlement occurs via a single tranche, with the first *tranche* of the long-term loan as *funding*.

3.6.2 Long Term Financing

The Long-Term Financing represents the main instrument of funding of the SPE, providing the financial leverage necessary for the bridge financing *swap*, thus allowing the reduction of financial expenses of the Project, and is obtained from public or private financial institutions.

It was considered obtaining a Long-Term Financing from a private institution in the *Project Finance* modality, with a term of 12 years (as from the start of the financing - second year of Concession).

Together with the financial institution, the Concessionaire shall raise the amount equivalent to 70% of the investments. For the preliminary analysis, the leverage of the investments of the first two years of concession was considered.

The interest on the long-term loan is charged on the outstanding balance with the financial institution, and is established at the IPCA rate + 9%, as practiced in the capital market for incentive papers (incentive debentures) with similar risk, according to the Economics Department of Banco Fator, and its payment occurs monthly.

In addition, interest expenses included the payment of Structuring Charges and Commissions in the amount of 0.5% of the amount raised, and the payment of IOF (Tax on Credit Operations, Foreign Exchange and Insurance) expenses on the amount raised. The amortization system used in the financial modeling of the long-term loan was the SAC (Constant Amortization System).

The re-leveraging aims at exactly aligning the projection with the premise of a capital structure stipulated in 60% of equity and 40% of debt. The premise of raising funds from third parties with public banks (25% with BNDES and 25% with CEF) and market issues (50%) reflects a trend already evidenced by private companies in the sector of sanitation of diversification of their debt sources.

3.6.3 *Covenants*

The following *covenants* were considered for the projected financing:

(i) DSCR (Debt Service Coverage Ratio): is characterized by the ability to pay the Concession debt and is calculated through the generation of operating cash net of taxes divided by the debt service of the company (installments to be amortized for a given period). The *benchmark* used is that the DSCR could not be less than 1.3;

(ii) NE / Asset: is determined by dividing Net Equity by Assets. The *benchmark* used was that the percentage shall not be lower than 20%;

(iii) Net Debt / EBITDA: estimated by dividing net debt (calculated by subtracting gross debt from cash and cash equivalents) by EBITDA (*earnings before interest taxes depreciation and amortization*). The *benchmark* used is that net debt should be not greater than three times the EBITDA.

3.6.4 *Tax Shield*

Considering that the Concessionaire's financial expenses are deductible from the Corporate Income Tax and Social Contribution on Net Profit tax bases, the addition of leverage to the Project reduces the expense with Income Tax, generating benefits for the Project.

In the finance, we call this tax benefit *Tax Shield*, which is calculated as the difference between the Tax on Not Leveraged Project Result (Project) and the Tax on Leveraged Project Result (Leveraged).

The *Tax Shield* was incorporated into the Project in the preparation of the Financial Statements (Income Statement, Leveraged Cash Flow and Balance Sheet) in order to incorporate the tax benefits of interest expenses into the project, matching the Tax on Not Leveraged Project Result (Project) with the Tax on Leveraged Project Result (Leveraged)e, thus reflecting all aspects arising from the leverage of the Project.

4. ATTACHMENTS

4 ATTACHMENTS

4.1 Active Water Units Projections

Economias Ativas - Água	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Miguel Pereira	7.905	8.039	8.498	8.902	9.314	9.901	10.019	10.137	10.255	10.374	10.449	10.524	10.600	10.675	10.750	10.789	10.827	10.866
Paty do Alferes	7.044	7.270	7.607	7.951	8.301	8.615	8.935	9.260	9.591	9.927	10.203	10.483	10.767	10.916	11.064	11.154	11.245	11.335
Rio de Janeiro - Bloco II	267.857	271.061	275.913	280.804	285.734	289.734	293.761	297.815	301.897	304.250	305.616	306.982	308.347	309.714	311.080	311.625	312.170	312.714
Total	282.806	286.370	292.018	297.657	303.349	308.250	312.715	317.212	321.743	324.551	326.268	327.989	329.714	331.305	332.894	333.568	334.242	334.915

Economias Ativas - Água	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Miguel Pereira	10.904	10.943	10.952	10.961	10.971	10.980	10.989	10.976	10.963	10.949	10.936	10.923	10.891	10.860	10.829	10.798	10.766
Paty do Alferes	11.425	11.515	11.560	11.606	11.651	11.696	11.742	11.754	11.765	11.777	11.789	11.801	11.787	11.773	11.759	11.745	11.731
Vassouras	313.259	313.803	313.679	313.554	313.429	313.304	313.180	312.492	311.803	311.115	310.427	309.739	308.591	307.443	306.294	305.147	303.998
Total	335.588	336.261	336.191	336.121	336.051	335.980	335.911	335.222	334.531	333.841	333.152	332.463	331.269	330.076	328.882	327.690	326.495

4.2 Active Sewage Units Projections

Economias Ativas - Esgoto	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Miguel Pereira	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paty do Alferes	511	527	2.561	3.190	3.852	4.524	5.222	5.948	6.699	7.478	8.229	9.000	9.788	9.923	10.059	10.140	10.222	10.304
Rio de Janeiro - Bloco II	197.368	199.729	202.089	204.449	206.809	208.472	218.713	229.089	239.601	250.248	260.192	270.215	280.316	281.558	282.800	283.295	283.790	284.286
Total	197.879	200.256	204.650	207.639	210.661	212.996	223.935	235.037	246.300	257.726	268.421	279.215	290.104	291.481	292.859	293.435	294.012	294.590

Economias Ativas - Esgoto	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Miguel Pereira	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Paty do Alferes	10.386	10.468	10.509	10.551	10.592	10.633	10.674	10.685	10.696	10.706	10.717	10.728	10.715	10.703	10.690	10.677	10.665
Vassouras	284.781	285.276	285.162	285.049	284.935	284.822	284.708	284.083	283.457	282.832	282.206	281.581	280.537	279.493	278.449	277.406	276.362
Total	295.167	295.744	295.671	295.600	295.527	295.455	295.382	294.768	294.153	293.538	292.923	292.309	291.252	290.196	289.139	288.083	287.027

4.3 Water Revenue Projection

Receita - Água (R$ mil)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Miguel Pereira	9.528	9.571	9.560	9.519	9.391	9.297	8.817	8.289	7.860	7.423	6.910	6.948	6.986	7.023	7.061	7.079	7.098	7.117
Paty do Alferes	7.385	7.500	7.526	7.617	7.621	7.582	7.533	7.520	7.504	7.479	7.403	7.572	7.742	7.815	7.887	7.929	7.970	8.011
Rio de Janeiro - Bloco II	603.440	606.370	645.240	679.140	720.545	746.690	772.272	746.758	724.501	694.684	666.316	667.764	669.211	670.658	672.106	672.385	672.665	672.944
Total	620.354	623.441	662.325	696.276	737.557	763.570	788.622	762.567	739.866	709.585	680.630	682.283	683.938	685.496	687.054	687.393	687.732	688.072

Receita - Água (R$ mil)	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Miguel Pereira	7.135	7.154	7.156	7.159	7.162	7.164	7.167	7.156	7.146	7.135	7.125	7.114	7.093	7.072	7.050	7.029	7.008
Paty do Alferes	8.052	8.093	8.111	8.128	8.146	8.163	8.181	8.180	8.180	8.179	8.179	8.179	8.164	8.149	8.135	8.120	8.105
Rio de Janeiro - Bloco II	673.224	673.503	672.728	671.952	671.176	670.401	669.625	667.873	666.120	664.367	662.614	660.861	658.257	655.654	653.050	650.446	647.843
Total	688.411	688.750	687.995	687.239	686.484	685.728	684.973	683.209	681.445	679.681	677.917	676.154	673.514	670.875	668.235	665.595	662.956

4.4 Sewage Revenue Projection

Receita - Esgoto (R$ mil)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Miguel Pereira	446	448	2.745	4.828	6.726	8.367	7.935	7.461	7.074	6.680	6.219	6.253	6.287	6.321	6.355	6.371	6.388	6.405
Paty do Alferes	1.995	2.026	2.533	3.026	3.501	3.942	4.359	4.782	5.189	5.577	5.912	6.435	6.968	7.033	7.099	7.136	7.173	7.210
Rio de Janeiro - Bloco II	444.640	446.800	468.817	490.808	517.368	514.403	517.479	516.987	517.501	514.246	510.554	529.007	547.536	548.720	549.905	550.133	550.362	550.591
Total	447.081	449.273	474.094	498.661	527.595	526.712	529.773	529.229	529.764	526.503	522.685	541.696	560.791	562.074	563.358	563.640	563.922	564.205

Receita - Esgoto (R$ mil)	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Miguel Pereira	6.421	6.438	6.441	6.443	6.445	6.448	6.450	6.441	6.431	6.421	6.412	6.403	6.384	6.365	6.345	6.326	6.307
Paty do Alferes	7.247	7.283	7.299	7.315	7.331	7.347	7.363	7.362	7.362	7.361	7.361	7.361	7.347	7.334	7.321	7.308	7.295
Rio de Janeiro - Bloco II	550.820	551.048	550.413	549.779	549.144	548.510	547.875	546.441	545.007	543.573	542.138	540.705	538.574	536.444	534.314	532.183	530.053
Total	564.488	564.770	564.153	563.537	562.921	562.304	561.688	560.244	558.800	557.356	555.912	554.468	552.305	550.143	547.980	545.817	543.655

4.5 Default Projection

Inadimplência (%)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Miguel Pereira	21%	20%	20%	19%	18%	17%	16%	16%	15%	14%	13%	12%	12%	11%	10%	10%	10%	10%
Paty do Alferes	29%	28%	26%	25%	24%	22%	21%	20%	18%	17%	15%	14%	13%	11%	10%	10%	10%	10%
Rio de Janeiro - Bloco II	19%	18%	17%	17%	16%	16%	15%	14%	14%	13%	12%	12%	11%	11%	10%	10%	10%	10%

Inadimplência (%)	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Miguel Pereira	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Paty do Alferes	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Vassouras	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%

4.6 Water and Sanitation Investment Projection

Investimento (R$ mil)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Miguel Pereira	-	1.761	23.657	34.548	30.370	21.387	3.551	2.848	2.843	2.844	2.226	2.195	2.225	2.192	2.188	1.635	1.599	1.629
Paty do Alferes	-	3.259	14.185	16.562	18.853	11.267	8.040	7.671	7.767	7.858	7.527	7.616	7.958	2.742	2.750	2.028	2.059	1.838
Rio de Janeiro - Bloco II	-	79.955	113.675	193.035	237.521	249.050	193.565	180.261	170.685	162.848	141.564	111.911	112.133	25.866	25.771	21.263	21.444	21.538
Total	-	84.975	151.517	244.145	286.744	281.704	205.156	190.780	181.295	173.550	151.317	121.722	122.316	30.800	30.709	24.926	25.102	25.005

Investimento (R$ mil)	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Miguel Pereira	1.624	1.625	1.173	1.142	1.172	1.167	1.167	1.002	971	1.001	996	996	1.002	971	1.001	996	996
Paty do Alferes	1.828	1.829	1.284	1.312	1.325	1.312	1.313	907	932	944	932	933	749	774	787	774	775
Rio de Janeiro - Bloco II	21.542	21.447	18.377	18.559	18.653	18.656	18.561	18.377	18.559	18.653	18.656	18.561	18.377	18.559	18.653	18.656	18.561
Total	24.994	24.901	20.834	21.013	21.150	21.135	21.041	20.286	20.462	20.598	20.584	20.490	20.128	20.304	20.441	20.426	20.332

4.7 Non-exhaustive Reference List of Assets

Lista de Ativos do Bloco 2		
Município	**Unidade**	**Local**
Rio de Janeiro	ADUTORA DE ÁGUA TRATADA	Cx Transição do Catonho - ponte canal
Rio de Janeiro	ESTAÇÃO DE TRATAMENTO DE ESGOTO	ETE Barra
Rio de Janeiro	ESTAÇÃO ELEVATÓRIA DE ESGOTO	Elev Parafuso
Rio de Janeiro	ESTAÇÃO ELEVATÓRIA DE ESGOTO	E André Azevedo
Rio de Janeiro	ESTAÇÃO ELEVATÓRIA DE ESGOTO	E Epitácio Pessoa
Rio de Janeiro	ESTAÇÃO ELEVATÓRIA DE ESGOTO	EE Jd Oceânico
Rio de Janeiro	ESTAÇÃO ELEVATÓRIA DE ESGOTO	Alvorada
Rio de Janeiro	ESTAÇÃO ELEVATÓRIA DE ESGOTO	EE Marapendi
Rio de Janeiro	ESTAÇÃO ELEVATÓRIA DE ESGOTO	EE Recreio
Rio de Janeiro	ESTAÇÃO ELEVATÓRIA DE ESGOTO	EE JACAREPAGUA
Rio de Janeiro	RESERVATÓRIO	Reservatório Cx Nova
Rio de Janeiro	RESERVATÓRIO	Reservatório do Outeiro
Vassouras	CAPTAÇÃO DE AGUA BRUTA SUPERFICIAL	Captação de Vassouras - Rio Paraíba do Sul
Vassouras	ESTAÇÃO DE TRATAMENTO DE ÁGUA	ETA Vassouras - Sistema Sede
Vassouras	ESTAÇÃO ELEVATÓRIA DE ÁGUA BRUTA	EEAB Vassouras - Sistema Sede
Vassouras	ESTAÇÃO ELEVATÓRIA DE ÁGUA TRATADA	EEAT Vassouras - Sistema Sede
Vassouras	RESERVATÓRIO	Reservatório Vassouras - Sistema Sede (principal)