RELAÇÕES INTERNACIONAIS NO MUNDO ATUAL

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THE INTERDEPENDENCE OF RESILIENCE AND NATIONAL SANITATION, FACING COVID – 19

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ABSTRACT

Even though it is a respiratory disease, many factors arise to accelerate the spread and part of the guidelines to protect yourself are directly linked to basic sanitation. These include: washing your hands frequently up to your wrists with soap and water; sanitize objects and keep environments clean; special care with solid waste; proper hygiene of homemade masks. Therefore, this communication proposal aims to discuss the relationship between resilience and sanitation in the context of Brazil, compared to Covid-19 based on data made available by the national health system and in the literature. The methodology consisted of collecting articles that related to Covid-19 with sanitation using the digital platform “Web of Science” and “Scopus” and relate the data provided by the Unified Health System (SUS) and the National Sanitation Information System (SNIS).

Keywords: Resilience; Sanitation; Covid-19; Universalization.

A INTERDEPENDÊNCIA DA RESILIÊNCIA E O SANEAMENTO NACIONAL, FACE À COVID -19

RESUMO

Mesmo sendo uma doença respiratória, muitos fatores surgem para acelerar a propagação e parte das orientações para se proteger estão diretamente ligadas ao saneamento básico. Essas incluem: lavar as mãos com frequência até a altura dos punhos com água e sabão; higienizar objetos e manter os ambientes limpos; cuidados especiais com os resíduos sólidos;

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higienização adequada das máscaras caseiras. Portanto, essa proposta de comunicação tem como objetivo discutir a relação entre resiliência e o saneamento no contexto do Brasil, face à Covid-19 com base nos dados disponibilizados pelo sistema nacional de saúde e na literatura. A metodologia consistiu em levantar artigos que relacionassem á Covid-19 com saneamento utilizando a plataforma digital "*Web of Science*" e "*Scopus*" e relacionar os dados disponibilizados pelo Sistema Único de Saúde (SUS) e pelo Sistema Nacional de Informação do Saneamento (SNIS).

Palavras-chave: Resiliência; Saneamento; Covid-19; Universalização.

1 INTRODUCTION

Many of the socio-environmental and health problems in the world today are due to the inadequate use of natural resources, the disordered occupation of the soil, and the precariousness in providing basic sanitation for the population. In Brazil, the relationship between water and health shows weaknesses from the springs compromised by the releases of domestic, industrial, and solid waste, as well as the inefficiency in the regulation of land use and occupation.

According to Rouquayrol *et al.* (1999), the high population concentration in areas without sanitation results in socio-environmental degradation processes, increasing exposure to risk and affecting human health, as the inadequate disposal of domestic sewage causes microbial contamination of soil and water courses, presenting public health risks, mainly regarding the spread of waterborne diseases.

In addition to the aforementioned problems, since the end of December 2019 there has been a pandemic that has been terrorizing the world population due to its high rate of mortality and spread. COVID-19 is an acute respiratory disease and arrived in Latin America on February 25, 2020, when the Brazilian Ministry of Health (2020) confirmed the first case of the disease. According to the Ministry of Health, transmission occurs from one infected person to another through touch, droplets of saliva, sneezing, and contaminated objects or surfaces.

Even though it is a respiratory disease, many factors arise to accelerate the spread and part of the guidelines to protect yourself are directly linked to basic sanitation. These include: washing your hands frequently up to your wrists with soap and water; sanitize objects and keep environments clean; special care with solid waste;

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proper hygiene of homemade masks. Indeed, there are other recommendations that may affect indirectly in sanitation.

In this context, for sanitation to be able to respond robustly in fighting the spread of this pandemic, it is necessary to build safe and resilient conditions in the sector. Resilience is a term used in several areas and by different authors. The United Nations International Strategy for Disaster Reduction (ISDR, 2004, p. 6) stands out, which defines resilience as “the capacity of a system, community, or society exposed to the dangers, of adapting, resisting, or transforming itself, in order to reach and maintain an acceptable level of functioning and structural safety”. And Nelson, Adger, and Brown (2007, p. 396) describe resilience as "the amount of change that a system can undergo and still maintain the same function and structure, maintaining options to develop".

Therefore, this work aims to discuss the relationship between resilience and sanitation in the context of Brazil, facing Covid-19 based on data made available by the national health system and in the literature. It is worth mentioning that the summary of this text was published, in the Proceedings of the 1st Sustainability Paradiplomacy Congress in Brazil and the 2nd International Congress on Sustainability Diplomacy, from 26 to 27 November 2020.

2 DEVELOPMENT: RESILIENCE LENSES AT THE SANITATION INTERFACE AND COVID-19 AND THE URGENCY OF UNIVERSAL SANITATION IN THE POST-COVID-19

According to data provided by the National Sanitation Information System - SNIS (2020), the country has a water supply rate of 83.6% and sewage services for only 53.2% of the Brazilian population. For the population that does not have these services, there may be an expansion of diseases related to water transmission and it does not allow them to comply with the minimum hygiene to prevent the proliferation of the corona virus. The World Health Organization (WHO) presents that poor sanitation is a threat to human health, being associated with the poorest, vulnerable to diseases due to lack of adequate food and hygiene.

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Figure 1 presents a thematic map that overlays the cases accumulated with Covid-19, made available by the Unified Health System (SUS), for every 1,000 inhabitants with the data of SNIS water attendance by state, generated with the software ArcMap 10.6.1. The numbers of confirmed cumulative cases collected are from May 18, 2020. The SNIS data is the information collected on sanitation in 2019 for the year 2018.

When observing several States with a low percentage of water supply services, a greater number of cases accumulated with the virus is noted. The United Nations-UN report (2020) comments that the lack of basic sanitation deprives people of the basic preventive measure against the virus: frequent hand washing. The disadvantage in relation to the most vulnerable population is notorious, since they do not even have accessibility to the essential element for the preventive measure that is water. Therefore, they must seek water outside their territories. Thus, they end up exposing themselves more frequently, which in theory would make them more susceptible to corona virus. It is noteworthy that the present investigation will not take into account the lack of sanitation as the only relevant factor for the spread of the disease. Meanwhile, when analysing the issue of cleaning both the environment and the population, it reinforces the idea that sanitation is the driving force in combating Covid-19.

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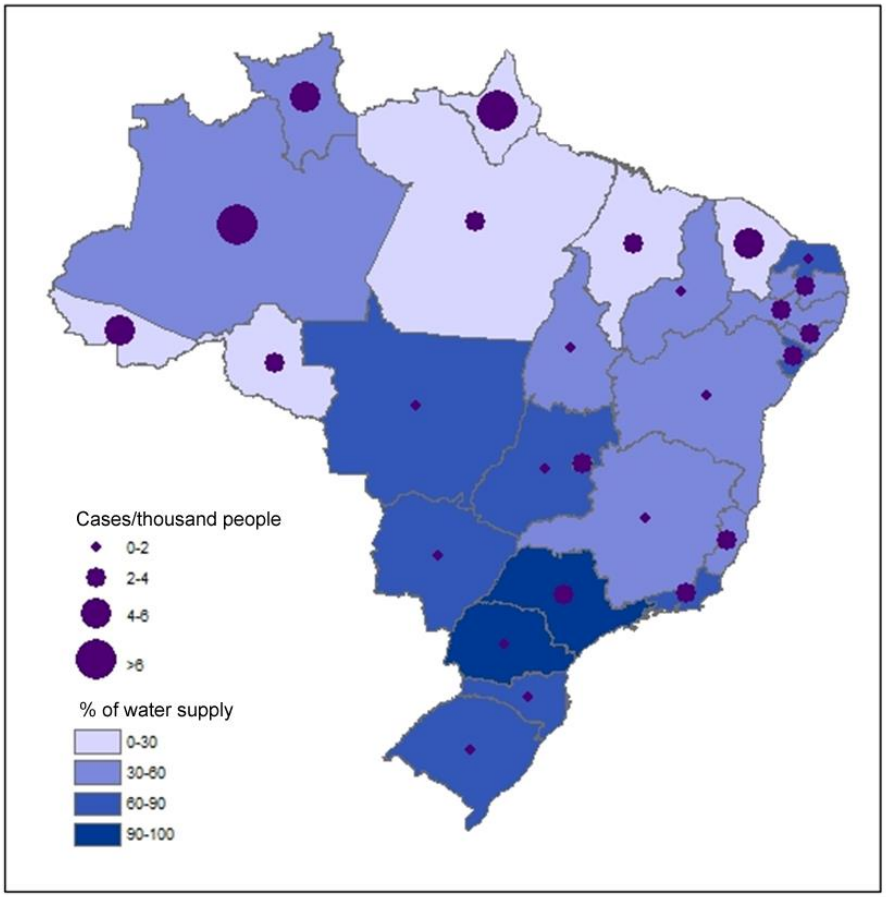
Figure 1: Thematic map with the numbers of cases accumulated with Covid-19 for every 1,000 inhabitants over the % of the population with a drinking water network by state.



Caruso & Freeman (2020) also warn about the facilities with shared toilets and that research is needed to understand whether sanitation contributes to the risk of infection. Projects and solutions within the sanitation sector must be enhanced by learning from this pandemic to allow sanitation to remain a public health solution and not a potential threat.

According to the technical report by the Center for Studies and Research in Emergencies and Health Disasters - CEPEDES (2020), the pandemic must be understood as a global disaster, which reveals new risk scenarios and worsens, above all, the health situation. Thus, it is necessary to build resilient conditions that allow the possibility of recovery and reconstruction of living and health conditions. The increase in the resilience of a system is directly linked to the efficiency with which risk management is dealt with (Porto & Porto, 2014).

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Obermaier and Rosa (2013) contextualize based on authors such as: Adger (2006), Folke, (2006), Nelson et al., (2007) and Cutteret al. (2008) that adaptation and vulnerability were inserted in the systemic analysis of socio-environmental resilience that deals with the capacity of socio-environmental systems to respond and recover from disasters and adds the inherent conditions that allow the system to absorb impacts and deal with events, as well as post-adaptive events and processes, which facilitate the system's ability to reorganize, change, and learn in response to threats. Resilience emphasizes the process of recovery, innovation and the ability to learn and transform, **focused** on future events, while vulnerability is a condition before the event.

Thus, for the sanitation sector, as well as society, to become serene, pressing measures need to be taken, which dialogue with the reduction of social vulnerabilities, strengthening for adaptation in the management of the risk of infection of the virus, especially governance.

In Brazil, basic sanitation is a right guaranteed by the Citizen Constitution, linked to the right to health and a healthy environment. The Magna Carta attributes to the Unified Health System (SUS) the participation in the formulation of policies and the execution of basic sanitation actions, in addition to collaboration in the protection of the environment. In addition, it is up to the State to protect the environment, improve basic sanitation conditions, and establish guidelines for urban development including housing, basic sanitation, and urban transportation (Brasil, 1988).

Other institutional instruments also regulate sanitation services in the country and highlight the interrelationships of basic sanitation with other sectors. The National Basic Sanitation Policy, is under the aegis of Law number 11,445 / 07, as well as sanitation services must be articulated with the policies of urban and regional development, housing, fighting poverty and its eradication, protection environments, health promotion, and others of relevant social interest, aimed at improving the quality of life, for which basic sanitation is a determining factor (Brasil, 2007).

Universal access to sanitation is one of the principles of Law 11,445 / 07 and must be observed in the country's development process. Since, considering the pandemic as a global disaster, we have conditions of vulnerability and susceptibility that amplify the problems in the living and health conditions of the poorest. Figure 3

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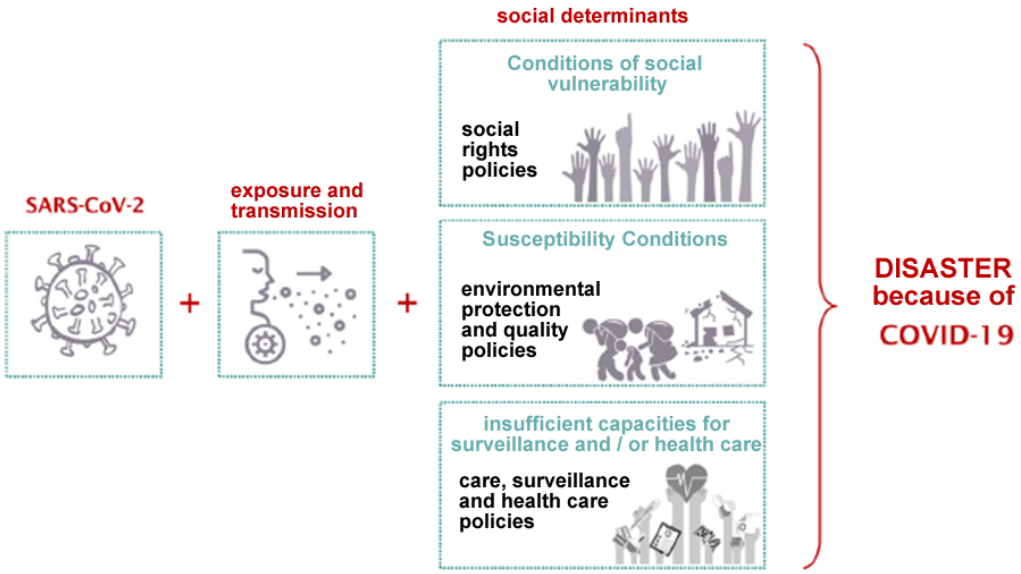
prepared by CEPEDES (2020) illustrates how this set of social determinants shapes the disaster by Covid-19:

Figure 2: Social determinants that configure the COVID-19 disaster (Elaborated by CEPEDES, 2020).



According to the study by Anseret *et al*. (2020), the increase in the spread of contagious diseases, including COVID-19, due to lack of sanitation largely affects the poorest. It is noteworthy in this context, that this issue is critical, considering the prediction that the poverty rates will increase in the post-COVID.

3 THE IMPORTANCE OF SUSTAINABLE DEVELOPMENT GOALS AND INDICATORS

Sanitation is an essential right, thus, universalization has repercussions that can influence several other sectors such as education, economics, water availability and others. In this context, the use of indicators is an alternative for monitoring and analyzing advances in the sector, as well as offering an overview for monitoring goals. Agenda 2030 is an example of a plan that has a set of indicators, which bring sanitation to the center of the discussion, including universalization.

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The 2030 Agenda, of the United Nations (UN), is an action plan for the planet, indicating 17 Sustainable Development Goals (SDGs) (Figure 3), and 169 goals to eradicate poverty and promote dignified life for all, being a plan for governments, society, companies, and people. The goals of each SDG are monitored by indicators and the results can be compared to follow the evolution of each country, state, or on a municipal scale (Agenda 2030, 2020).

Figure 3: The 17 SDGs of the 2030 UN Agenda.

Source: https://nacoesunidas.org/pos2015/agenda2030/

SDG 6 (Drinking Water and Sanitation) comprises 8 targets, which are monitored by 11 indicators. Within the scope of the thematic axis Water Supply and Sanitary Sewage, there are two goals, both aimed at the universalization of drinking water supply and sanitary sewage services:

- Target 6.1 - By 2030, achieve universal and equitable access to safe and affordable drinking water for all.
- Target 6.2 - By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

Goal 6.1 aims at universal access and is monitored by the indicator “Proportion of the population that uses Drinking Water Services Managed in a Safe manner”. According to the National Water Agency - ANA (2019), Brazil has evolved in the portion

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of the population which uses drinking water services. In 2009 the percentage was 92.1%, rising gradually to 97.2% in 2017.

It is necessary, however, to observe some reservations regarding this calculation. One of them is in relation to the availability of water, as having access to the public network does not essentially mean that water is always available to users (ANA, 2019).

Goal 6.2, from SDG 6, aims to universalize the collection and treatment of sewage in the countries by 2030. It is monitored by the Indicator “Proportion of the population that uses safe sewage services, including facilities for washing hands with water and Soap".

To focus on the urban area, the IN024 indicator is used[1], which brings the average of the urban population of Brazil that has sewage collection, which according to the SNIS (2020), is 60.9%.

The Brazilian Association of Sanitary and Environmental Engineering - ABES (2020) - used indicators to compose a ranking of universal sanitation, which was consolidated as an instrument for analyzing the sector. Based on indicators, the ranking determines the impacts of the lack or precariousness of sanitation and presents an overview of the municipalities. One of the indicators correlates access to sanitation, with diseases related to water transmission. As shown in Figure 4, the municipalities that were considered with commitment and towards universalization have the lowest incidence of hospitalizations[2].

[1] Indica a parcela da população urbana que foi efetivamente atendida por rede coletora de esgoto (com ou sem tratamento) em relação à população urbana residente dos prestadores que responderam o SNIS, no ano de referência.
[2] Média de pessoas internadas com doenças de veiculação hídrica no ano de 2019 nos municípios de cada categoria.

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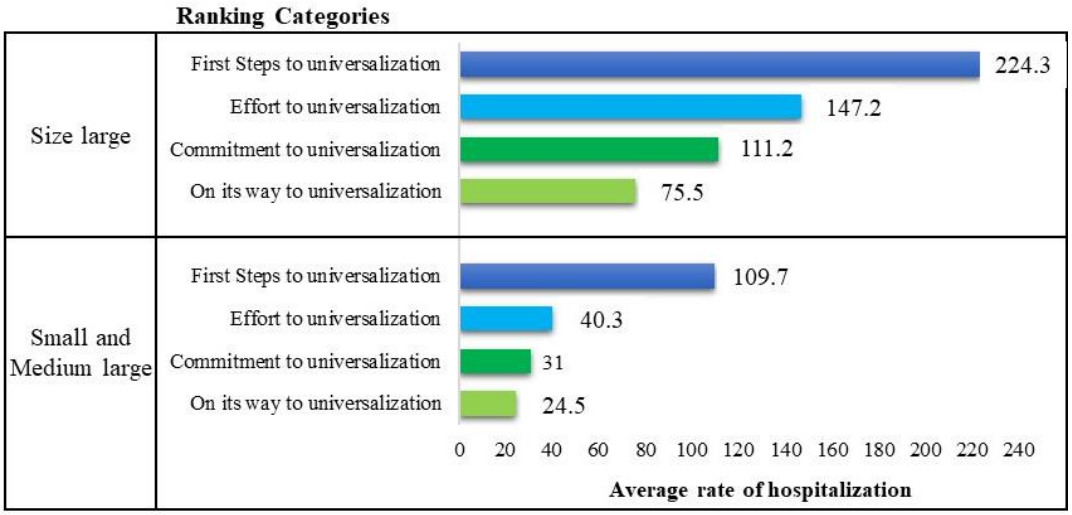
Figure 4: Correlation between universalization and the Average hospitalization rate.



Source: ABES, 2020.

The increased spread of contagious diseases, including COVID-19, due to lack of sanitation, largely affects the poorest, according to the study by Anser *et al*. (2020). Considering the prediction that poverty rates will increase in post-COVID, this issue is, in our view, critical.

In addition, keeping in mind that Brazil has high urbanization and poverty rates in irregular settlements, the indicators become essential in the challenge of generating public policies to bring universal access to sanitation, forcing us to know what are the areas of social and economic vulnerabilities and which portion of the population still suffers from the lack of drinking water and sewage collection.

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4 SECTOR STRATEGIES AND RESPONSES IN THE FIGHT AGAINST COVID-19

According to WHO guidelines, it is essential during this pandemic period that the population be guaranteed access to drinking water as a means of preventing COVID-19. Sanitation providers were faced with the challenge of guaranteeing the maintenance of their services for a population affected by the economic downturn and, therefore, unable to pay for the service. In this context, the players in the sector (service providers, providers, and regulators) started actions aimed at protecting their employees and users, especially the most economically vulnerable.

It is important to adopt convergent measures to guarantee access as a central element to health and to value water and sewage services.

The issue of basic sanitation in Brazil is the subject of controversies and debates between different spheres of researchers, social movements, and formulators of public policies. Considered a fundamental element for the quality of life and improvement in public health, about 35 million Brazilians do not have access to treated water, as well as sewage collection in Brazil is absent for 48% of the population. This fundamental theme takes on a new urgency in the face of the COVID-19 scenario, where these sanitary deficiencies deepen urban inequalities and corroborate the expansion of the pandemic, which has good sanitation conditions as one of the main prophylactic measures.

In addition, the issue of basic sanitation gained greater relevance under Law No. 14,026, enacted on July 15, 2020, establishing the New Legal Framework for Basic Sanitation in Brazil. What is really intended is to create a dialogue between the different aspects of the new law, under multiple perspectives on the theme from the perspective of urban planning, and to understand how the legal and economic aspects can influence the interest of the theme and obtain goals for the universalization of public basic sanitation services.

The Synthesis Center, Global Cities - IEA - USP, since mid-October 2020, realizing the extreme importance of bringing to light the new nuances of the new legal framework for sanitation, now under consideration in this paper, has been dealing with responsiveness and revealed through an Internal Seminar a debate and reflections on

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the theme: Challenges of Universal Sanitation in the context of the New Legal Framework.

When starting the work, Arlindo Philippi Jr, one of the coordinators of this Synthesis Center, which is Global Cities, reinforced the importance of these discussions, which had the moderation of Tadeu Malheiros and Thelmo Branco Filho, both organizers of this event.

In order to compose the “conversation circle”, they relied on the participation of researchers specialized in the area of basic sanitation, in an interdisciplinary way, namely: Rubens Filho, from TrataBrasil - communication; Wladimir Ribeiro, from the legal field, André Castro, from FIPE – economist, and Luiz Roberto Pladevall, from ABES - engineer.

The meeting contributed to the intellectual training of specialist researchers in various segments of urban areas, including sanitation, water supply, sanitary sewage, urban drainage, and solid waste. During the internal seminar some questions were raised, such as: How is the situation of Universal Sanitation? What are the main challenges? How will the goals and investments be foreseen in the Basic Sanitation Plans and in the concession contracts signed between the Municipalities and the operators, with the New Legal Framework of Sanitation? How will the contracts behave under the New Sanitation Legal Framework? What technological innovations can be applied to accelerate the goals of Universalization?

To clarify what will be this new scenario of sanitation in Brazil, Thalita Fagundes *et al*, present some reflections on how the new legal framework for sanitation took place, that is:

> The New Legal Framework for Basic Sanitation, sanctioned on July 15 of this year, under the aegis of Law No. 14,026, has been discussed in different ways since 2016, when former president Michel Temer began to adopt neoliberal measures in his government. The Civil House of the Presidency of the Republic was responsible, at the time, for initiating this discussion and formulating the first draft of the sector's reform. Provisional Measure No. 844, of July 6, 2018, caused astonishment in the sector when it was published for its emblematic changes, mainly in the change in the regulation of the sector and in inducing the participation of the private sector in the management and operation of services. As a result of the mobilizations and opposition in Congress, or due to the slowness of the Legislative, MP 844/2018 expired on 11/19/18, being resurrected by Provisional Measure nº 868, on 12/27/2018, culminating in the Bill. No. 4,162 / 2019 sanctioned last month by the president. In this essay, it is intended to expose the most controversial and most influential changes in the sector, and for that, a division was made

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> according to the subjects covered: changes in regulation, in the provision of services, among them, the regionalized provision and Program Contracts (FAGUNDES, 2020).

And the authors summarize pointing out that:

> Law No. 11.445/2007 was not replaced, but amended by Law No. 14.026/2020, and continues to establish national guidelines for basic sanitation. In the regulatory aspect, Brazil currently has several regulatory entities, which operate at different levels (municipal, regional, state), each with its economic-financial, technical, and operational regulations. The Brazilian Association of Regulatory Agencies created the Technical Chamber of Sanitation in order to deepen discussions on methodologies adopted throughout Brazil. Even so, the agencies still act independently from each other in creating their standards. Even though the choice of the regulatory entity is the holder of the services (Municipal Executive Branch), Article 24 of Law No. 11,445 / 2007 [3] allows the regionalized provision to be regulated by a single entity, as it occurs in the municipalities where SABESP provides services, which are regulated by ARSESP. When the provision of sanitation services is carried out by private companies, it does not work in the same way, as it is not understood as a regionalized provision of services. Therefore, the same private company can be regulated by different regulatory entities if it has, for example, Concessions in different States, or municipalities whose mayors have chosen different regulatory entities (FAGUNDES, 2020).

Continuing the work developed by the Synthesis Center - Global Cities, on March 11, 2021, the long-awaited UrbanSus happened, named: “New Legal Framework for Basic Sanitation: what would be its contribution to the development of the Country?”, This event which aimed to contribute to the intellectual training of researchers specialized in various segments of urban areas, including sanitation, water supply, sewage, urban drainage, and solid waste management.

One of the interesting points was the speech by Thiago Marrara who brought reflections on Law No. 14.026 / 2020, which he unduly considers as a new legal framework because it did not revoke Law No. 11.445 / 2007. He points out that what happened was a wide-ranging update of the 2007 Sanitation Law.

The aforementioned author does not see the new framework as a facilitator of private participation, but it aims to tighten the goals, that is, it came to collect what Law 11.145 / 2007 failed to deliver, that is, to make the provider of service actually delivered the service. For André Castro, the sanitation framework is very important and has advanced goals, also carrying out a discussion work on regulation and its improvement. ANA is given a role not only as a specific contractual regulator, but also

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as an advisor, creating general frameworks for this. So, in this sense, the new framework is really an improvement over what was legally based.

Other issues were raised, such as the publication in the Official Journal of the Union of Resolution No. 64 / ANA, on March 1, 2021, which approves Thematic Axis 5 - Reference Standards for Sanitation and updates ANA's Regulatory Agenda, for the 2020/2021 period, clarifying that for the year 2022, those with an asterisk, the proposed agenda contains some parameters, namely: rate readjustment for water and sewage, as well as guidelines for the progressive reduction and control of water losses, as shown in Table 1:

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Table 1: Themes raised by the New Regulatory Framework

REGULATORY AGENDA 2020/2021/2022*	
THEMATIC AXIS	**THEME**
5 - Reference Standards for Sanitation	Procedures for the development of standards.
	Economic and financial rebalancing for water and sewage in the concession contracts tendered.
	Institution of rate / tariff for solid urban waste.
	Restitution of assets for water and sewage.
	Minimum program and concession contracts content for water and sewage.
	Standards and indicators of quality and efficiency and assessment of efficiency and effectiveness.
	Organizational model of sub-national regulatory agencies, transparency, and accountability.
	Procedures for mediation and arbitration.
	Guidelines for violations and penalties of the provider of water and sewage services.
	Risk matrix for water and sewage contracts.
	Guidelines for progressive water and sewage coverage targets and assessment system.
REGULATORY AGENDA 2020/2021/2022	
THEMATIC AXIS	**THEME**
5 - Reference Standards for Sanitation	Procedures for verifying the adoption of the reference standards.
	Guidelines for defining the regulation model for water and sewage.
	Parameters for determining expiry.
	Criteria for private regulatory accounting for water and sewage services.
	General conditions for the provision of services, attendance to the public and measurement, billing, and collection, of water and sewage services.
	General inspection procedures for water and sewage services. *
	Guidelines for defining a model for regulating drainage and urban stormwater management. *
	General conditions for the provision of solid urban waste services. *
	Definition of security, contingency, and emergency measures, including rationing. *
	Rate readjustment for water and sewage. *
	Rate review for water and sewage. *
	Guidelines for progressive reduction and control of water losses. *

Source: BRASIL. Diário Oficial da União, Brasília, March 2021.

Other relevant topics were mentioned by the current Director of the National Water and Basic Sanitation Agency - ANA (2018 -. 2022), Oscar Cordeiro Netto, as

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the perception of the Federal Government, regarding the placement of private resources, which does not detract the public aspect from sanitation, especially public financial participation with a scope in the Universalization of Sanitation.

That, in his belief, there must be public involvement so that Universalization of Sanitation can be achieved and that the key to this in fact happening is REGULATION.

Furthermore, according to current legislation, every municipality must prepare a Basic Municipal Sanitation Plan (PSMB), covering four basic services: drinking water supply; sanitary sewage; solid waste management; drainage and management of urban rainwater. The authors Castro and Koga (2019) in their article on municipal plans for basic sanitation, teach us that:

> […] the evolution of the percentage of municipalities that declared that they had a PMSB (Basic Municipal Sanitation Plan), which, from 10.9% in 2011, quadrupled to 41.5% in 2017. However, this evolution does not seem to have affected the management indicators, proving the very low effectiveness of the elaborated PMSB. It can also be observed that all management indicators evolved in the period according to the respective linear trend lines, denoting that the enactment of the LDNSB in 2007, its regulation in 2010 and the approval of the National Basic Sanitation Plan (PLANSAB) in 2013 little or nothing influenced the evolution of management indicators for water supply and sewage services, also demonstrating the low achievement of the LDNSB itself.

What the graph below represents (Figure 5) presented by the authors:

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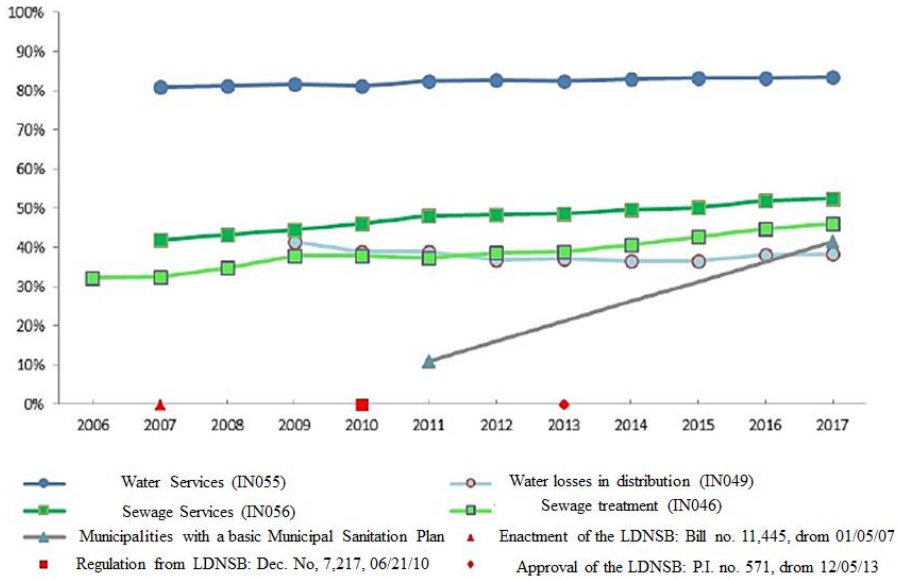
Figure 5: List of basic sanitation services provided by municipalities with municipal basic sanitation plans.



Source: Castro & Koga, 2019.

Therefore, it is crucial to reflect on the municipal management regarding the PMSB, since these problems discussed in this essay are immanently interconnected and only with a joint analysis of these factors will we be able to walk and tread new paths, towards the Universalization of basic sanitation services in the national territory.

According to Santos (2020), States, City Halls and service providers have already taken initial measures, also indicated by the Public Ministry, mainly to prohibit the cutting of water for ninety days (as of mid-March 2020), as a way to ensure the health of the population and also signaling concern with the reduction of economic activity. Ceará and Maranhão took other steps, such as the exemption of the water bill for low-income users, for three months, in the first state, and two months, initially, in the second. In the Federal District, as a result of a district law of 2019, the minimum consumption of water charge was removed, as of June 2020, for a large part of the low-income population.

The aforementioned Law No. 11,445 / 2007 allows tariff and non-tariff subsidies for users and locations which are not able to pay or where the economic scale makes commercial services impossible. Access to sanitation services requires moving towards citizenship rights, with a view to socially just water management.

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Plansab emphasizes that it is “fundamental to discuss effectively inclusive tariff models or forms of subsidies to ensure continuity of access to services” (Brasil, 2019, p. 124). This is a concept in line with the 2010 United Nations (UN) decision on water as an essential human right to health and life. In times of pandemic, all of this must be reinforced, for example, there is no room for legislative changes that reduce the possibility of universalization and solidarity mechanisms with this objective.

As a measure of protection for users, the postponement of the application of the rate readjustments was determined not to increase rates in such economically difficult times. According to Capodeferro & Smiderle (2020), this measure was adopted in the state of Paraná, as determined by the regulatory agency, which “froze” the rates for all regulated services (Paraná Regulatory Agency [Agepar], 2020), as well as in state of Sergipe, by decision of the Government of Sergipe (2020), and in the Federal District, through Resolution ADASA n. 03 (2020).

In addition, measures to facilitate payment of the water and sewage bill were also adopted. Some states have adopted the possibility of paying the amounts charged in installments, and the company from Paraná has postponed the charge for 90 days only for users who pay the social tariff (Sanepar, 2020).

The tariff exemption was granted to the social residential category by numerous companies, including Companhia Espírito Santense de Saneamento (Cesan, 2020), the Basic Sanitation Company of the State of São Paulo (Sabesp) (Deliberation ARSESP n. 979, 2020) and the State Water and Sewage Company of Rio de Janeiro (CEDAE, 2020). CEDAE accepted the determination of State Decree no. 46,990 (2020), which allowed the exemption of customers classified in the social tariff and in the small business category.

5 FINAL CONSIDERATIONS

The pandemic will generate huge changes in the short-, medium-, and long-term investment scenario in the sanitation sector as this sector is one of the pillars in the fight against the negative impacts of Covid-19. The “Gordian knot” is related to the least favoured, that is, the rampant inequality present in society. Therefore, the policy

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of universalization will serve as a motto to cure this wound. The new regulatory framework for Brazilian sanitation, under discussion by congressmen, attributes to municipalities the obligation to universalize water and sewage services by 2033. In the economic context, it was already considered a complex task, perhaps with the implications due to Covid-19, the proposal becomes even more enigmatic.

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