

Fundamentals and ethical consequences of applying the principles of universalization, sustainability and water safety contained in the Regulatory Framework for Sanitation in Brazil

Fundamentos e consequências éticas da aplicação dos princípios de universalização, sustentabilidade e segurança hídrica contidos no Marco Regulatório do Saneamento no Brasil

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Abstract

Based on the assumptions of the 2030 Agenda that the United Nations established for the universalization of water supply and sanitation, this study aims to present for reflection the evaluative elements in the Legal Framework of Basic Sanitation in Brazil, Law 14.026/2020, and recognize and derive its foundations and probable ethical consequences. It is an exploratory and reflective study with a qualitative and documentary basis. Based on the critical analysis, water security is considered fundamental to ensure the sustainability of humankind's survival on Earth in its multiple aspects. Indeed, implementing well-structured public policies can ensure universal access to the water supply. However, when analyzing the current change in the sanitation regulatory framework in Brazil, methodological, technical, and ethical detachments were detected, suggesting that economically weaker populations were not privileged regarding access to water, making them even more vulnerable.

Keywords: Public policies. 2030 agenda. vulnerability.

Resumo

Apoiando-se nos pressupostos da Agenda 2030 que a Organização das Nações Unidas estabeleceu para a universalização da água e saneamento, o presente estudo tem por objetivo apresentar à reflexão os elementos valorativos contidos no Marco Legal do Saneamento Básico no Brasil, Lei 14.026/2020, e, dessa maneira, reconhecer e derivar seus fundamentos e prováveis consequências éticas. trata-se de um estudo exploratório, reflexivo e de natureza qualitativa e de base documental. Mediante a análise crítica realizada, considera-se a segurança hídrica fundamental para garantia da sustentabilidade e perenidade do homem na Terra, em seus variados âmbitos. Estabelecer políticas públicas bem estruturadas, é uma das maneiras de acesso universal aos recursos hídricos, mas, ao analisar a atual mudança no marco regulatório do saneamento no Brasil, verificou-se a existência de distâncias metodológicas, técnicas e éticas, sugerindo o desfavorecimento das populações economicamente mais frágeis quanto ao acesso à água, tornando-as ainda mais vulneráveis.

Palavras-chave: políticas públicas. 2030 agenda. vulnerabilidade.

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1 Introduction

Regulatory Frameworks are so called because they refer to the approval of specific norms, laws and guidelines, which contain the entry, exit and tariff content rules for a set of goods and services offered to the population in a monopolistic manner or under State concession. With this set of regulations, we seek to reproduce the conditions of competition, offering society services with quality and prices and contributing to the investments necessary for economic development in the regulated areas (SALGADO, 2003).

Driven by State Reform and the rise of neoliberal thinking that legitimized the Minimal State ideology from the Washington Consensus of 1989, developing countries were required to reduce public expenditures and state investment and undergo a robust fiscal adjustment to put themselves in a position to obtain loans from international banks or refinance their heavy debts. Following this guideline, countries like Brazil engendered a series of privatization of public services, offering as a counterpart to society regulatory frameworks and creating regulatory agencies with powers to inspect these services. (WERNER, 2018; SOUZA and COSTA, 2016).

Concerning water resources, a monopoly of the Brazilian State, the authors, in this text, sought to critically reflect on the ethical implications of sustainability and water security contained in the guidelines that guided the writing of the regulatory framework for sanitation in Brazil. If water is an essential resource for maintaining life, water resources are finite, and in many areas, water is becoming increasingly scarce. This scarcity, combined with the many competing uses of water, creates complex choices about how water resources should be allocated (GRAFTON et al., 2013). Making choices in terms of managing scarce resources certainly implies establishing evaluative criteria for the inclusion or exclusion of access to water. It is, therefore, a problem of an ethical nature that deserves reflection. Knowing the guiding principles of the regulatory framework for managing water resources in Brazil also indicates who should bear the burden of socio-environmental sustainability and water security, whether the environment, the economy, society or State institutions.

In order to answer the proposed question, the text intends to present for reflection the evaluative elements contained in the Sanitation Regulatory Framework, provided for in Law 14.026/2020, to recognize and derive from it its foundations and probable ethical consequences. It is, therefore, a qualitative approach based on documents and literature, which proposes the exercise of a critical reflection on the themes and their analysis in the documents selected for the study. In addition to the Introduction, in the following pages, we provide the Theoretical Foundation, which weaves together concepts of sustainability, water security, and regulation and regulatory frameworks, the Methodological Approach, which synthetically presents the materials and methods employed, the Legal Framework for Sanitation in Brazil, where we critically and reflectively contemplate the subject, and Final Considerations, where we recover the proposed objectives and determine if the results of the study were achieved.

2 Theoretical Foundation

2.1 Sustainability and water security

The concept of sustainability, in some way, has always been present in our history (BOFF, 2016; VEIGA, 2015), but it was only from the warning given by experts and the dissemination of critical indicators that society became aware of the dimension of the impact of human activities on the environment. Recent phenomena, such as industrialization, spatial concentration, agricultural modernization, population growth and urbanization, have made up the main places of pressure and human awareness about the global environmental problem (IPEA, 2010).

As water is a scarce natural resource, the challenge of water security and sustainability is global and has been growing gradually as the population contingent increases. Its importance is crucial for all social, economic and environmental activities, and its supply is an indispensable condition for all life on the planet. It can thus be both a facilitating and limiting factor for social and technological development and a possible means of well-being or misery, cooperation or conflict (UNESCO, 2020). Vital to all social and economic sectors and with strong environmental implications, its importance was signaled when a Sustainable Development Goal (SDG) dedicated to water was included in the United Nations framework (GWP/OCDE, 2015).

The first intergovernmental pronouncement regarding water security took place in 2000, through the Ministerial Declaration of the 2nd World Water Forum, which listed: 1. Satisfying basic needs; 2. Ensuring food supply; 3. Protecting ecosystems; 4. Sharing water resources; 5. Managing risks; 6. Valuing water, and 7. Rationally controlling water (INPE, 2012), as the main challenges to achieving water security. In addition, the OECD (2013) states that in order to achieve water security, acceptable risk levels must be maintained, as shown: 1. Risk of scarcity, including droughts: considering an acceptable lack of water to meet the demands (the short and long term) in favor of multiple uses of water, such as families, companies and the environment; 2. Inadequate quality risk: covers the lack of water of adequate quality for a specific use or purpose; 3. Risk of excess, including floods: considering the possibility of overflowing the normal limits of a water system, whether natural or built, or destruction by excess water in areas that are not flood environments; 4. Risk of harming the resilience of freshwater systems: in terms of excess surface and groundwater capacity, considering bodies and their interactions; in addition to the possible crossing of inflection points, which causes irreversible damage to the system and its hydraulic and biological functions.

According to the INPE document (2012), water security has multiple dimensions, such as social, humanitarian, economic and ecological, where management and major water resource decisions must be based on a comprehensive view. For the National Water Agency (ANA, 2019), an ideal scenario for water security is possible where the infrastructure has planning, dimensioning, and is implemented and managed properly to meet the supply and demand of water in a balanced way, thinking in contingency situations, arising from vulnerability to extreme weather events.

The concept of water security encompasses different perspectives and realities. Given its complexity, analyzing the interrelationships between vulnerability, risk and resilience at scales, sectors and disciplines in the context of limited predictability, the challenges for this research become considerably interdisciplinary (BAKKER, 2012). In this study, water security guarantees sustainable access to adequate amounts of water, with acceptable quality for subsistence, human well-being and socio-economic development, to protect water resources against pollution and other disasters related to water and preserve ecosystems. Notably, the management of water risks is closely dependent on public policies (CEBDS, 2015). Therefore, the construction of "a transparent, reliable and responsible legal framework, concerning water, is vital to achieving water security" (INPE, 2012, p. 06).

2.2 Regulation and regulatory frameworks

The regulatory experiences that mark the trajectory of societies are essential political and economic tools for the control of certain areas of human activity, whose services, products and essential goods are linked to the supply of the State to meet its social, economic, institutional and environmental needs.

The main objectives of regulation are consumer welfare; the improvement of allocative efficiency (a situation in which the largest volume of economic transactions takes place with the generation of the highest possible aggregate income), distributive (defined as the ability to reduce, through competition or regulation, the appropriation of economic surpluses by the producer) and productive (understood as the use of the installed plant with maximum yield and lowest cost, given the market structure of the industry); the universalization and quality of services (to be provided at a price considered fair); interconnection between different providers (public network interoperability); and safety and environmental protection (GIANBIAGI & ALÉM, 2008).

In economics and competitive markets, regulation works as a containment measure for the emergence and consolidation of monopolies. According to CADE (2016), monopoly means the existence of only one provider of a particular good or service. Monopolistic firms can determine market prices by controlling the quantity supplied. Since it has no competitors, the monopolist can restrict production and thus raise market prices until it makes the maximum profit possible. Compared with a competitive market, monopolies will produce smaller quantities at higher prices than usually prevail in a competitive situation, with losses for the welfare of society.

At the same time, it is understood that regulatory action should serve as a driving force for the development process of emerging countries, as well as the maintenance of developed countries in their status quo. In this sense, countries mobilize great efforts to expand technological achievements and improve production processes and market development through the incessant search for innovation to meet human needs.

Therefore, the logic of regulatory activity depends on its connection with the structure of the State. It can occur in two ways: directly, through the provision of public goods and services by the State itself, via state-owned companies operating in natural or non-natural monopoly sectors, or through their traditional structure, such as ministries or bodies subordinate to them (CRUZ, 2009). However, in an indirect government system, management increasingly tends to be identified more with the regulation of third parties who provide goods and services than with responsibility and accountability for providing services (MAJONE, 1999).

On the other hand, Majone (1999) suggests that regulation largely depends on scientific knowledge of engineering and economics, politically and socially legitimizing regulatory agencies as a repository of specific knowledge and experiences. Thus, regulation is an appropriate element for societies' economic, social and technological development.

In this circumstance, it is possible to assume that the propelling activities and the particular initiatives of economic development are affected by the regulatory actions of the State. In general, markets that grow and end up projecting themselves as large monopolies need control measures to serve the needs of the State and not just its economic ends. Silva (2007) states that no market operates without legal, normative or social convention support, giving it its specific form and content. He argues that "there are no pure monopolies, so regulation should always consider some combination of rules and market mechanisms". Furthermore,

[...] regulation aims to influence and restrict the decisions of economic agents. For this purpose, it can act on one or more variables, namely: prices — individual values, thresholds, intervals or even a complete tariff structure; quantities — maximum or minimum; rates of return; the number of companies — market entry and exit conditions; quality — standards that the product or service must meet; investment — global or sectoral. (SILVA, 2007, p. 25)

According to the Economic and Social Committee (DARMANIN, 2003), regulatory movements emerged in Europe with force in the 1990s, whose bases were structured by the State. It was during the 1990s, in particular, that the change in the role of the State led to a

proliferation of various soft law instruments (guidelines, agreements, declarations, commitments, codes of conduct) of a non-binding and self-regulation and co-regulation, in particular, which aim to involve stakeholders in the legislative process in a binding manner.

In the United States, the courts largely shaped the decision-making process of regulatory agencies. Since the passage of the Federal Administrative Procedures Act (APA) in 1946, decision-making in regulatory matters has undergone a far-reaching judicialization process (MAJONE, 1999). In Europe, the growth of regulation has given the courts a new role in the policy-making process. This outcome is especially evident at the community level (MAJONE, 1999).

Also, in the UK, the legacy of the interventionist past is apparent in the design of agencies created to regulate privatized public services. Many notable regulatory powers were given directly to the government at the expense of the new agencies, whose operations solely depend on the minister's prior decisions as to the principles to be applied (MAJONE, 1999).

A small excerpt from the Inter-American Development Bank (IDB) report (CAVALLO *et al.*, 2020) stated that "increased efficiency in infrastructure sectors can boost economic growth. It can do so in ways that increase potential (long-term) growth because it supports the most dynamic economic sectors and helps the poor proportionately more than the rich because the poor spend a greater share of their income paying for infrastructure services". In this sense, based on regulation, the management process may be attractive to countries that adopt it to improve the provision of transport, energy, water and sanitation services.

3 Methodological Approach

The present study has an exploratory and reflective nature, with a qualitative approach to the researched sources, making it possible to explore the "nuances" and subjectivities that are not otherwise quantified or accessed directly or unequivocally but rather interpreted. Regarding data collection, the research used a documental and bibliographic basis. A procedure that, according to Gil (2012), is what allows exploring a topic from different angles and aspects.

The critical examination outlined in this study referenced the objectives and goals that deal with water and sanitation and are foreseen in the 2030 Agenda of the United Nations. It consisted of examining the principles and evaluative foundations inscribed in the Sanitation Regulatory Framework, considering Law 14.026/2020, the primary documentary source, and analyzing the previous legislative path concerning the Bill and presidential vetoes before their official publication.

Complementarily, the CAPES Scientific Journals database was used to construct the theoretical basis used in the analysis.

The verification of the applicability of the Regulatory Framework and its ethical implications has an objective the public competition for the concession to the private initiative of the water and sanitation services of the Metropolitan Region of Maceió, through analysis of the Bidding Notice, the challenges to the Notice and the reasons and, later, the Annex of the tariff policies adopted for the municipalities.

4 Legal Framework for Sanitation in Brazil

4.1 State responsibility for water and sanitation services

For Cruz (2009), the privatization policies of water and sanitation services in Latin America have been presented as a technical solution, devoid of political content, for the chronic problems that characterize this sector. However, it is observed in Table 1 that, in Brazil, the

legal provisions regulating the access and provision of these services undergo constant updates and, in general, are in line with the ideological guidelines of the government on duty.

In this chronology of facts relevant to the sanitation issue in Brazil, it is noted that the 1990s marked profound changes in the scope of regulation in the areas of control, production and supply of essential goods. Several initiatives emerged in the global scenario in which some had positive repercussions, and others not so much. The privatization model, generated from the regulatory processes for essential goods such as water, was described by Castro as follows:

The analysis of the process of privatization of water and sanitation services in Latin America reveals that it was the product of decisions guided by neoliberal ideology and not the result of the search for an effective solution to the crisis in the sector. Furthermore, this strategy has ignored the historical evidence that shows that the universalization of these services in Europe and the United States was the consequence of decisive action by the State. Nevertheless, although the privatization approach has failed, the institutional and political transformations that were put in place will continue to affect the ability of the region's governments to overcome the crisis of these essential services (CASTRO, 2007, p. 93).

In Brazil, the approval of Law 11,445/2007 did not innovate the sector and continued to favor state companies. According to Atlas Brasil — National Panorama of Urban Water Supply (ANA, 2010, p. 40), of the total water supply service providers, 69% correspond to state companies, followed by 27% under the responsibility of municipalities and 4% provided by private companies.

Service ownership, which could have been directed to the municipalities, as a service of local interest, became the subject of analysis by the Federal Supreme Court. The proposal for resources that would come from funds to primarily contribute to the universalization of access to sanitation was rejected and vetoed because it threatened the State's interests since the expansion plans would have decisions voted on by forums with the participation of various actors from civil Society and municipalities (SOUZA *et al.*, 2016).

TABLE 1 - History of Relevant Facts for Sanitation in Brazil

YEAR	Relevant facts for the issue of sanitation in Brazil
1891	After the Proclamation of the Republic and the strengthening of federalism, the Constitution stated that states and municipalities would be responsible for public health and sanitation management.
1900	The great yellow fever outbreak impelled the Brazilian elites to manifest for federal intervention in health and sanitation, especially in states with scarce resources; however, there was no agreement on who should be responsible for the issues, whether municipalities, states or the federal government.
1919	At the time of the epidemic, the federal government created the National Department of Public Health that gave the Union a seal on the subject, but with agreements to offer resources to member states in the fight against diseases.
1924	Seventeen states had already signed rural health agreements with the federal government.
1930	The military coup suspended the 1891 Constitution, and the Ministry of Education and Public Health was created, which was also in charge of sanitation.
1934	A new Constitution reaffirmed the municipality as the entity responsible for sanitation as a service of local interest.
1950	A period of high industrialization and urban growth requires attention to investments in sanitation; however, 80% of Brazilian municipalities did not have a water supply during this period.
1960	State services supplied 37% of the population with water since, in the municipalities, there was a lack of resources for basic sanitation management and the issue became a priority on government agendas due to the rapid approach of a health crisis.
1964	President João Goulart's proposals for infrastructure investment, which opposed what foreign groups that participated in the country's economy wanted and added to conservative interests, culminated in the military dictatorship. Basic sanitation issues were subordinated to the housing and construction sectors during this period.

YEAR	Relevant facts for the issue of sanitation in Brazil
1971	Under an authoritarian regime, the Creation of the National Sanitation Plan relegated sanitation decisions to public service groups. This result created bureaucratic isolation that favored the removal of political interference with popular participation. State companies were not financially self-sufficient and relied on financial support from the Union, and the number of households with access to water, between 1971 and 1990, almost doubled.
1980	The 1980s were marked by the redemocratization process with the end of the institutionalized authoritarian apparatus, which was not enough to reverse the legacy of the National Sanitation Plan by strengthening the hegemony of sanitation companies in states in conflict with municipal interests.
1984	Municipalities already offering sanitation services came together to create the National Association of Municipal Water and Sewage Services.
1988	The Constitution reaffirms the importance of governments and local authorities (municipalities) and the provision of services in their interest. However, the struggle between states and municipalities ended up in the Federal Supreme Court and was the subject of discussion for many years. The result was that both entities should share management in an area of common interest.
1991	Formal extinction of the National Sanitation Plan.
2001	The National Water Agency displeased the interested parties who had been acting for two decades without regulation, control and accountability. The creation of the National Front for Environmental Sanitation, with majority participation of municipal representatives, dismantled the federal government's privatization intentions.
2003	The government of President Lula, with severe criticism of privatization, and expectations of stakeholders and supporters, created the Ministry of Cities as an articulator for the modernization of the sanitation sector.
2005	Law 5.296/2005 was sent to the Chamber of Deputies, which proved controversial for transferring the ownership of the provision of services to the municipalities.
2007	Law 11.445/2007 was approved, establishing guidelines for sanitation, and guaranteeing the states' hegemony in management.

Source: Prepared by the authors from Sousa et al. (2016).

In 2010, the United Nations General Assembly published Resolution 64/292, which formally recognizes that safe access to safe drinking water and basic sanitation are essential for the realization of all human rights. This Resolution also calls for international cooperation for universal access to safe drinking water and sanitation (ONU, 2010). In Brazil, the National Water Resources Policy, also known as the Water Law, defines water as a public domain good and a limited natural resource endowed with economic value. In situations of scarcity, human consumption and animal thirst are prioritized (BRASIL, 1997).

On July 15, 2020, Law 14.026 was published, which governs the basic sanitation sector in Brazil. The legislative process began in a left-wing government but culminated in a neoliberal one, marked by the defense of the minimal State and the reduction of public expenditure. However, Souza et al. (2016), when describing the historical trajectory of basic sanitation in Brazil, demonstrated how the hegemony of state sanitation companies was established after the period of the military regime.

World Bank data (2016) indicate that about 93% of water and sanitation services in cities around the planet are provided by public utilities, which justifies that most of the Bank's resources allocated to water treatment and sanitation are intended for the public sector. In Brazil, according to the National Basic Sanitation Survey (PNSB), 2017 from the Brazilian Institute of Geography and Statistics (IBGE, 2020), network water supply services are provided by municipal governments and public sanitation companies in 96.4% of the 5,570 Brazilian municipalities. Compared with 2008, there was an expansion of coverage by the public sector, mainly due to the renationalization movement promoted by the state of Tocantins in about 60% of the municipalities with privatized services.

The study by Fundação Getúlio Vargas, "Privatization of a State Sanitation Company: The Unique Experience of Tocantins — Lessons for New Arrangements with the Private Initiative" (FGV, 2017), indicates critical aspects to be considered in these public-private partnership processes. There is an expectation from society regarding the commitment of the public sector to the universalization of quality sanitation services.

4.2 Private responsibility for water and sanitation services

From the point of view of the private sector, which is a monopolistic and long-term market, the investor would prefer efficiency to maximize profit without necessarily considering improving the well-being of the population served. The State cannot exempt itself from its responsibilities as a regulatory and supervisory body. Another notable point is that, in the case of Tocantins, there was no active participation or consent of the municipalities for the contracts signed with the private sector, resulting in modest advances in sewage services and negligence in rural areas and smaller municipalities, which, later, forced the renationalization of services in some locations economically less attractive to the private operator (FGV, 2017).

Fujiwara (2005) notes that the disadvantaged population can directly benefit from water and sanitation services privatization. According to his study, a positive effect is evidenced by a ~12% reduction in infant mortalities caused by infectious or parasitic diseases in the municipalities in the states of São Paulo and Rio de Janeiro. On the other hand, if privatization has negative or null impacts on access to treated water and sewage, much is due to regulatory problems that do not favor the adequate use of the benefits of privatization. Another study suggests that the reduction in infant mortality is more associated with the water supply quality than with the service's universalization (FUJIWARA, 2005).

The IBGE's National Basic Sanitation Survey (2020) indicates that 96.4% of the municipalities had some form of charge for the supply of water and sanitary sewage, with 72.6% of the municipalities granting some benefit, such as exemption or discount, using different criteria, benefiting 2.8 million families. Social programs, such as Bolsa Família, were used by 69.6% of the municipalities, while other criteria such as property characteristics were used by 63.2%, income by 56.8%, water consumption by 39.8%, electricity consumption by 21.5% and location by 7% of the municipalities. However, 71.1% of the municipalities reported having a system for charging a minimum tariff of 10 m³ for the residential category. The average tariff in Brazil for 10 m³ was R\$24.80, with the lowest in the Southeast at R\$20.90 and the highest in the North at R\$31.41 (IBGE, 2020).

Concerning sanitary sewage, in 2017, 57.6% of the municipalities offered sewage services through a collection network, with a very heterogeneous distribution. In the IBGE study (2020) context, a sewage collection network is defined as removing what is generated in households and establishments through closed pipes until reaching the treatment plant or final release point. In the Southeast region, 95.9% of the municipalities offered sewage services; in the other regions, it was below 50%: Northeast, 49.0%; South, 40.9%; Midwest, 38.1%; and North, 13.8%. In 98.9% of cases, sanitary sewage tariffs were proportional to water tariffs. The most frequently adopted values were 50%, 80% and 100% of the water tariff.

Universalization is the progressive expansion of access to water for all occupied households. Access refers to supply, that is, the total amount of water and sewage treatment and distribution services the market can offer for a certain price since expansion is conditioned to economic and financial feasibility (BRASIL, 2020). Consequently, the quantity demanded will depend on the consumer's willingness and ability to buy these services at the prices determined by the suppliers, even considering that these are natural monopolies.

From the market point of view, despite the National Water Resources Policy defining it as a public good, drinking water obtained by treatment is an industrial product and,

consequently, a private good produced by natural, public or private monopolies. In this context, as a private good, it is rival and exclusionary, that is, rival because a given amount of drinking water while consumed makes it impossible for others to consume it, and exclusionary because, after consumed, no one can consume it unless it is made their own again. However, water as a basic human right is not a tradable good common to market laws. At the same time, its peculiarity of being a private good and a basic human right makes it morally unacceptable that access to higher added value uses be prioritized over basic survival needs. However, once the basic needs are satisfied, it is understandable that their further use is not characterized as a basic human right that results in a differentiated price.

In the Brazilian experience, there are two distinct types of regulatory agencies: a first type, represented by government agencies (also called executive agencies) since they carry out government directives; and a second type, equivalent to the Anglo-Saxon model, which can be called State agencies, as they regulate the provision of public services through the application of specific legislation (SALGADO, 2003).

The new Legal Framework for Sanitation, Law 14.026/2020, reworded the principles established in the Law of National Guidelines for Basic Sanitation — Law 11.445/2007 — which must be observed in the regulation of services by the National Water and Sanitation Agency (ANA) in the formulation of norms for the management of water resources. As a first, Universalization stands out, a principle that carries one of the primary objectives of sanitation until the year 2033, but also the no less important and guides future actions of resource management such as integrality with maximizing the effectiveness of actions, efficiency and economic sustainability, transparency, social control, competitive selection of service providers and associated management among public entities through consortia and cooperation agreements (BRASIL, 2007; BRASIL 2020).

In this context, regulatory action within the scope of governmental actions supports the effective structuring of the infrastructures necessary for the supply of consumer goods essential to the functioning of human life. Cavallo, Powel and Serebrisky (2020) state that the most crucial objective of governments in infrastructure regulation is to ensure that services satisfy demand in terms of quantity and quality at affordable prices. It is also considered that financial and fiscal sustainability and, increasingly, environmental and social concerns are regulators' objectives. Indeed, governments want service providers to achieve the highest levels of operational efficiency so they can deliver services at the lowest possible cost (CAVALLO, POWEL and SEREBRISKY, 2020).

4.3 SDG 6 "drinking water and sanitation" and the regulatory framework in Brazil

According to the Platform for the 2030 Agenda, "water is at the heart of sustainable development and its three dimensions – environmental, economic and social". In this sense, the importance of this essential asset to life for human life is perceived. In this direction, we see that "water resources, as well as the associated services, support efforts to eradicate poverty, economic growth and environmental sustainability". Therefore, for the international proposal found within the UNDP, "access to water and sanitation matters for all aspects of human dignity: from food and energy security to human and environmental health".

In this sense, there is no denying that economic and social growth must be guided by mitigating the current gap in public policies that try to combat inequalities between individuals, usually fueled by ideological issues.

Finally, SDG 6 states that "water scarcity affects more than 40% of the world's population, a number that is expected to rise even further due to climate change and inadequate management of natural resources".

What are the State-built proposals to resolve the distance between the individual and access to an essential good like water? According to SDG 6, "it is possible to tread a new path that leads us to achieve this objective, through international cooperation, protection of springs, rivers and basins and sharing water treatment technologies".

Table 2 presents some excerpts from proposed Law No. 14.026, which is an update of the legal framework for basic sanitation in Brazil, and in line with the SDG 6, Drinking Water and Sanitation, to ensure availability and sustainable management of water and sanitation for all.

TABLE 2- Comparative analysis of SDG 6 and the Brazilian Regulatory Framework

	2030 AGENDA – SDG 6	Brazilian Regulatory Framework
6.a	By 2030, expand international cooperation and capacity and build support for developing countries in water and sanitation-related activities and programs, including water collection, desalination, water use efficiency, wastewater treatment, recycling and reuse technologies	Art. 8 - About the financing funds for services and professionals of item II, of art. 2 of Law 13.529/2017: the fund's assets will be constituted "by donations of any nature, including from the States, the Federal District, Municipalities, other countries, international organizations and multilateral organizations"
6.b	Support and strengthen the participation of local communities to improve water and sanitation management	Art. 7 - On one of the fundamental principles of Item X, of art. 2 of Law 11.445/2007: social control: "set of mechanisms and procedures that guarantee information, technical representations and participation in the processes of policy formulation, planning and evaluation related to basic sanitation services".
6.1	By 2030, achieve universal and equitable access to safe and clean water for all	Art. 7 - On one of the fundamental principles of Item I, of art. 2 of Law 11.445/2007: "universalization of access and effective provision of services".
6.2	By 2030, achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, with particular attention to the needs of women and girls and those in vulnerable situations	Art. 7 - On one of the fundamental principles of Item VI, of art. 2 of Law 11.445/2007: "articulation with urban and regional development policies, housing, combating poverty and its eradication, environmental protection, health promotion, water resources and others of relevant social interest, aimed at improving the quality of life, for which basic sanitation is a determining factor".
6.3	By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing the release of hazardous chemicals and materials, halving the proportion of untreated wastewater, and substantially increasing recycling and safe reuse globally	Art. 7 - On one of the fundamental principles of Items XI and XIII, of art. 2 of Law 11.445/2007: "safety, quality, regularity and continuity" and "reduction and control of water losses, including in the distribution of treated water, encouraging the rationalization of its consumption by users and promoting energy efficiency, reuse of sanitary effluents and the use of rainwater".
6.4	By 2030, substantially increase the efficiency of water use in all sectors and ensure sustainable withdrawals and supply of fresh water to address water scarcity, and substantially reduce the number of people suffering from water scarcity	Art. 3 - The amendment of items XXIII and XXIV of Law 9.984/2000 reaffirms ANA's role in declaring water resources in a situation of scarcity and impacting the service to multiple uses, establishing and monitoring the rules in compliance with the criteria of the National Council of Resources water.
6.5	By 2030, implement integrated water resources management at all levels, including via cross-border cooperation, as appropriate	Art. 7 - On one of the fundamental principles of Items II and XII, of art. 2 of Law 11.445/2007: "comprehensiveness, understood as the set of activities and components of each of the various sanitation services that provide the population with access to them in accordance with their needs and maximize the effectiveness of actions and results" and the "integration of infrastructure and services with the efficient management of water resources".

	2030 AGENDA – SDG 6	Brazilian Regulatory Framework
6.6	By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	Art. 7 - On one of the fundamental principles of Item III, of art. 2 of Law 11.445/2007: "water supply, sanitary sewage, urban cleaning and solid waste management carried out adequately for public health, the conservation of natural resources and the protection of the environment".

Source: Prepared by the authors based on the 2030 Agenda and Brazilian Regulatory Framework (2020).

For Friedmann (1996), a new social contract attributes to economic theory a moral purpose, moving from a utilitarian to a deontological sphere, that is, the sphere that aims to judge the morality of an action and not only its purpose or consequence but your moral duty. He argues that social empowerment must rely on strategies that guarantee families the basic resources for their livelihood: housing, food, health and education, which are produced socially and not individually.

In the wake of the universalization of water and sanitation services, there is something contradictory, the danger of exclusion so present in current neoliberal models, which deserves a response from those who defend that sustainable development does not refer solely and exclusively to environmental factors, but also social and economic ones. In this way, it should ensure access to what is considered the common good for the neediest, expanding their substantive freedoms and removing the sources of deprivation and lack of public services (FRIEDMANN, 1996; SACHS 2009; SEN, 2010).

Friedmann (1996), Sen (2010), and Sachs (2009) also consider the freedom to participate in new forms of democratic governance as an expansion of capabilities, but it requires the State as an articulator between the market and members of society in democratic deliberations. It is about maintaining the balance between corporate forces dominated by finance capital, large companies, and those excluded from rentier objectives. Amartya Sen (2010, p. 34) names the one who participates as "the agent", acting and causing changes based on personal values while simultaneously participating in economic, social and political decisions.

International cooperation, which is included in SDG 6.a, is compatible with the social production of sustenance and provision of water and sanitation to families and should not have the purpose of giving the economy a supposed and apparent humanitarian character but truly egalitarian and supervisory of its purposes. Water supply and basic sanitation services, essential to the life and health of people and whose ownership belongs to the State, when delegated to the private sphere, must have mechanisms, guided by ethical values and principles, aimed at protecting, in society, the most vulnerable and most susceptible to inequalities: the poor, women, children and the elderly. Interestingly, a May 2020 survey related high rates of mortality and incidence of COVID-19 to the low percentage of coverage of removal and sewage treatment services in Brazilian states (SILVA *et al.*, 2020).

According to the IBGE's definition, a subnormal agglomeration is a form of irregular occupation of land owned by others - public or private - for housing in urban areas, typically characterized by an irregular urban pattern and a lack of essential public services and located in urban areas or areas with restricted occupation (IBGE, 2020). Popularly, these subnormal agglomerates are referred to as favelas, invasions, grotas, lowlands, communities, irregular subdivisions, mocambos and stilt houses, among others (IBGE, 2020).

Preliminary data from the 2019 Census estimate indicated 13,152 subnormal clusters located in 734 municipalities, in all states and the Federal District, in a total of 5,127,747 households (IBGE, 2020). Compared to the 2010 Census, these data indicate a 108% increase in the number of subnormal agglomerations and 60% more households. Additionally, compared

to the 2010 Census, there was a 127% growth in the number of municipalities with subnormal agglomerations (IBGE, 2020).

The state of Amazonas, with 34.6%, has the highest proportion of households in subnormal agglomerations. Moreover, Mato Grosso do Sul was the lowest, with 0.7%. Concerning cities, Belém (PA), Manaus (AM) and Salvador (BA) have the highest rates of occupied households in subnormal agglomerations, 55.5%, 53.3% and 41.8%, respectively. In contrast, Rio de Janeiro and São Paulo have only 12.6% and 7.1% of households in this condition (IBGE, 2020). Compared to the 2010 Census, the topographic data indicated that 52.5% of the households in the subnormal agglomerates were on flat surfaces (with up to 5% slope), 26.8% on moderate slopes (between 5 and 30%) and 20.7% on steep slopes (equal to or greater than 30% slope) (IBGE, 2020). Of the 3,224,529 households in subnormal agglomerations in the 2010 Census, 88% had access to water through the general distribution network. As for sanitary sewage, 56% had access to the general sewage or rainwater network, and 27% had a septic or rudimentary tank (IBGE, 2020).

Decree 10.531/2020 of the Presidency of the Republic establishes the federal development strategy for Brazil in the period from 2020 to 2031 (BRASIL, 2020). Table 3 presents the indicators and targets established for the environmental axis. For this axis, the guiding principle is based on promoting conservation and sustainable use of natural resources. It is recognized that environmental quality is one of the fundamental aspects of people's quality of life, as well as the need to reconcile the preservation of the environment and economic and social development. Concerning water and sanitation, three key indices were established. The first refers to the control of losses in the distribution network, with a target of reducing the base value from 37% to 25% in the reference (or probable) scenario and 18% in the transforming (or optimistic) scenario by 2031. The second refers to the removal of sewage by the collection network or septic tank, with a target of the evolution of the base value from 66.3% to 81% in the reference scenario and 92% in the transforming scenario. Last but not least, the treatment of collected sewage, with a target of progression of the base value from 46% to 77% in the reference scenario and 93% in the transforming scenario (BRASIL, 2020).

Table 3: Key indices and respective target targets for the environment for 2031

Key Index	Last available value	Unit	Year	Source	Target 2031 (Reference scenario)	Target 2031 (Transforming scenario)
Environmental Performance Index - EPI	51.2	Index	2020	Yale Center for Environmental Law and Policy	56.1	58.6
Adjusted Net Savings	3.35	% p.a. in relation to Gross National Income – GNI	2018	World Bank	7.03 (annual average)	7.45 (annual average)
Ecological surplus	5.9	Global hectare per capita	2016	Global Footprint Network	5.9	6.8
Losses in the water distribution system	37	%	2015	IBGE (CEAA)	25	18
Households served by a collection network or septic tank	66,3	%	2018	PNAD Contínua/IBGE	81	92

Treatment of collected sewage	46	%	2018	SNIS	77	93
Number of dumps and controlled landfills in operation	2.402	Units	2017	CNM - Observatório dos Lixões	0	0
Waste Recovery Index - WRI	3	%	2014	ABRELPE	15	27

Source: Prepared by the authors from Brazil (2020)

On the infrastructure axis, a key index was established related to households with a satisfactory condition of well-being, with a target of progression of the base value from 55.4% to 65% in the reference scenario and 75% in the transforming scenario. Among the identified challenges related to the improvement in urban and rural infrastructure are the expansion of the basic sanitation system, the expansion of access to decent housing for low-income families and improvement of the living conditions of precarious settlements, the increase in the supply of urban infrastructure in areas of greater social vulnerability and the promotion of public policies and investments that reduce the population's exposure to risk areas (BRASIL, 2020).

According to the São Paulo City Hall, about 30% of the total area of the Guarapiranga watershed is occupied by about 200 irregular subdivisions and 176 slums, responsible for the excess sewage and garbage carried into the streams, compromising the quality of the waters of the basin. Furthermore, this puts the spring, the water source for the most populous city in the country and the fourth largest in the world, at risk. It is estimated that 200,000 homes are installed in the basin, and at least 40,000 pour sewage directly into the Guarapiranga dam. (SÃO PAULO (SP), 2020).

However, the regulatory framework for basic sanitation conditions, both for the public service and concessionaires, the tariff regulation and the universalization goals to the economic and financial viability of the expansion of the service provision. It is important to note that the collected water quality directly impacts treatment costs. Basic sanitation is a fundamental condition for preserving the ecological quality of springs as viable sources for water treatment systems by reducing the pollution load. The pollutant load and the profile of pollutants from sources are decisive for water tariffs, as they impact the choice of technology and the operational costs of treatment and final disposal of waste, as they can be classified as hazardous. (ACHON; BARROSO; CORDEIRO, 2013).

Item XV was included in Law 14.026/2020 in Law 11.445/2007, which establishes the competition for the concession of public sanitation services, which obliges the entities, holders of the services, to sign, in accordance with the Bidding Law, contracts with private companies that guarantee the universalization of water supply and sanitation by 2033. Prior to the Regulatory Framework, these contracts could be carried out precariously as program contracts and, according to Bill 4.162/2019, in its art.16, vetoed by the President of the Republic (PRESIDÊNCIA DA REPÚBLICA, 2020), could be renewed until March 31, 2022.

The justification for the veto by the President was due to the disincentive to free competition (PRESIDÊNCIA DA REPÚBLICA, 2020); however, in smaller municipalities and with a greater number of needy people, it will be difficult for private companies to want to participate in some competition for the provision of services, in addition to the insecurity brought about by tariff policies and the effect on those the most in need.

For the competition in the Metropolitan Region of Maceió - AL (ALAGOAS, 2020), there were three requests to challenge the public notice, and all were rejected based on the supremacy of the public interest. However, emphasis should be given especially to allegations sent by the Autonomous Service of Barra de Santo Antônio (SAAE) and the municipality of

Barra de Santo Antônio itself, which included: illegality in the area covered by the concession, loss of quality of services and increase in tariff. Specifically, regarding tariffs, it can be seen that the new guidelines regarding the concession brought users insecurity with respect to the values that will be gradually adjusted, over 5 years, to the value practiced by the operator CASAL- Companhia de Saneamento de Alagoas, which today it is R\$4.97/m³ for consumption ranges of up to 10 m³, against R\$3.00/m³ practiced by the SAAE in Barra de Santo Antônio.

5 Final Considerations

Throughout the text, the authors intended to present, for reflection, the evaluative elements contained in the Sanitation Regulatory Framework, provided for in Law 14.026/2020, in order to recognize and derive from it its foundations and probable ethical consequences. The results achieved are based on the water security concept, which was used as a reference for the analysis.

As one of the pillars of sustainability, water security stems from the certainty of water availability for all uses, users and sectors of society, boosting the various productive sectors, bringing significant benefits to the agents of a country, from the ordinary citizens to the owners of the capital. Through numerous initiatives, public policies and actions, constant improvements in access to drinking water are forged, under the responsibility of specialized bodies, also taking into account acceptable risk levels. The challenges in water security, in turn, engender constant advances towards achieving sustainable economic growth, wealth and well-being, incessant pursuits guided by the advancement of human development indices.

In this context, water security, with its multiple dimensions and concepts, allows a comprehensive view of the water management process through numerous purposes, one of the most important being the subsistence of the human species in its different realities and contexts. Water risk management has extreme adherence to public policies, reflecting, in many situations, the ideological discourse of society's political leaders.

Therefore, knowledge of the extent and value consequences that regulatory frameworks induce in different parts of the world, including Brazil, promotes a critical reflection on the destination of Brazilian sanitation services and provides an essential element for a greater understanding of water supply in line with the scarcity situations that are increasingly present in society. Regulation is shown to be an efficient tool, from different perspectives, for consumer well-being, improving allocative, distributive and productive functions in different categories of services. However, the relevant facts that involve basic sanitation in Brazil, accompanying the country's political, economic and social development, corroborate a notable reflection on the destination of these services in our country. In several periods and attempts, a strategic atavism is perceived that prevented the advancement of such an essential service and significantly impacted public health.

Currently, the discussion of the privatization process of sanitation services is on the agenda, the object of the Regulatory Framework for Sanitation in Brazil provided in Law 14.026/2020, which also presents the scope of universalization of access to this service to the entire population. However, the experiences of other countries and, in the case of Brazil, that of Tocantins, have shown that the State should not exempt itself from its responsibilities as a regulatory and supervisory body in this process, keeping constant vigilance over what the private sector does within the scope of management of water and sanitation in urban and rural fields. On the other hand, gains can be seen in this process for the economically disadvantaged population, improving some indicators of human development. Therefore, universal access to drinking water and the sewage treatment system (improving public health as a result) should be a guideline for public policies for cities' social and economic development in their vast unequal structures.

When we critically analyze the Brazilian Sanitation Regulatory Framework, even correlating it with SDG 6, we can still see a methodological, technical and ethical distance from the most disadvantaged strata of society. For example, at various points of the Goal, it can be seen that universalization actions are linked to the economic function of its implementation and that it leaves places in Brazil where there is a significant social gap in great vulnerability.

The reflections presented here are also expected to contribute to water resource managers, public sanitation and supply policymakers, researchers, academics, and consumers perceiving water in its finitude and potential scarcity. Water is an essential good for life and must not be subjected to the laws of the market, which place those deprived of purchasing power in an unequal position. Governments need, even in the long term, to develop mechanisms that allow equitable access to sanitation services for all citizens and, also, quality drinking water in adequate quantities for human subsistence, in sustainable infrastructure, using technologies that allow the control of services and promote the conscious consumption of water to balance and meet the needs of our generation and future generations. Thinking about this promotes an ethical transformation, a political regeneration and a direction towards a more just and less unequal society.

Finally, the limits of generalization of the reflections presented here are recognized, and the continuity of high-level studies and debates in the political, academic and social spheres about such a sensitive topic and object are encouraged.

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