

Towards a new governance model for basic sanitation management in Amazonas state: A system of guarantees of rights-based approach

Por uma nova governança da gestão do saneamento básico no Amazonas: perspectivas baseadas na noção do sistema de garantias de direitos

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ABSTRACT The political dimension of basic sanitation management in Brazil, especially the principle of participatory and democratic management, is one of the main challenges to guaranteeing access to these services as a human right. This article describes a proposal for governance of basic sanitation management guided by the system of guarantees of rights. We used a theoretical and methodological framework drawing on Juan Samaja's theory of social reproduction. The study area comprises the municipalities that make up the Triangle and Upper Solimões River health regions in the state of Amazonas. The operability of the management governance model is based on a matrix of elements comprising the responsibilities and competency of state and non-state institutions. These are distributed across different dimensions of social reproduction, which represent the locus of action of each institution, respecting their respective missions. The matrix is made up of transversal and intersectoral components that strengthen joint work processes, with the various subjects involved in the process acting in solidarity within the scope of the committee for the ongoing monitoring of living conditions and health.

KEYWORDS Sanitation. Waterborne diseases. Health governance. Human rights. Amazonian ecosystem.

RESUMO A dimensão política da gestão do saneamento básico no Brasil, sobretudo no que tange aos princípios da gestão participativa e democrática, constitui um dos maiores desafios a serem vencidos para garantir o acesso aos serviços como um direito humano. O objetivo deste artigo foi descrever uma proposta de governança da gestão de saneamento básico orientada pela noção do sistema de garantias de direitos. O método foi do tipo teórico-metodológico, orientado pela teoria da reprodução social de Juan Samaja. A área de estudo correspondeu aos municípios das Regiões de Saúde do Triângulo e do Alto Solimões do Amazonas. A operacionalidade do modelo de governança da gestão foi baseada no matriciamento de elementos, que compreende as responsabilidades e competências das instituições estatais e não estatais. Essas foram distribuídas segundo as dimensões da reprodução social, a qual representa o locus de atuação de cada uma delas, respeitando as suas respectivas missões. O dispositivo possui componentes de transversalidade e de intersectorialidade, que fortalecerão o processo de trabalho de forma compartilhada, com os vários sujeitos implicados atuando de forma solidária no âmbito do comitê de monitoração permanente das condições de vida e saúde do local.

PALAVRAS-CHAVE Saneamento. Doenças transmitidas pela água. Governança em saúde. Direitos humanos. Ecossistema amazônico.



Introduction

The United Nations Children's Fund (UNICEF) and World Health Organization (WHO) estimated in 2015 that more than 660 million people do not have access to adequate water supply services¹. In Brazil, it was estimated that 35 million people were living without treated water in 2022 and around 100 million did not have access to sewage collection, resulting in preventable diseases².

The importance of the debate surrounding access to basic sanitation as a human right resonates particularly in the context of the COVID-19 pandemic. Lack of access to drinking water for handwashing was one of the main barriers to containing the pandemic, especially among poorer and more vulnerable segments of the population³.

The literature on public health highlights that low water and sanitation service coverage influences the morbidity and mortality profile of diseases associated with poor environmental sanitation (DAPES), which include: i) Diseases caused by fecal-oral transmission; ii) Insect vector-borne diseases; iii) Waterborne diseases; iv) Diseases attributable to lack of hygiene; and v) Helminthiasis and taeniasis⁴⁻⁸.

According to Aguiar et al., the state of Amazonas recorded the first and fourth highest rates of hospital admissions for DAPES caused by fecal-oral transmission and DAPES transmitted by insects, respectively, in the North region in 2016. The authors explain that fecal-oral transmission is directly related to sewerage system coverage. Basic sanitation services are therefore essential to health promotion⁵.

Other factors determining DAPES include infrastructure and the organization of sanitation services. Brazil's 1988 Federal Constitution decentralized public education, health, social, and sanitation services, warranted by deficiencies in basic sanitation, especially the lack of policies tailored to different local realities⁹.

As part of the decentralization process, municipal governments are tasked with developing sanitation policy and plans. This demands considerable technical and political effort and a shift in stance of state governments and state-run water and sewage utilities towards the creation of a new environment of interfederative cooperation, which has not materialized¹⁰.

There are several obstacles to change, such as the intermittent nature of disbursements from government programs and the varying political, administrative, and technical conditions at municipal government level, limiting the response to local social and sanitation needs, especially the expansion of basic sanitation service coverage¹⁰.

With regard to public participation, the Constitution created a public health system and states that the provision of health care is the duty of the state and a right for all, guided by the underlying principles of universality, equity, and comprehensiveness and the organizational principles of decentralization, regionalization, levels of care, and public participation. In contrast, this openness to public participation failed to materialize in the sanitation sector, becoming one of the main weaknesses of Law 11445/2007, which provides policy guidelines for basic sanitation service delivery, and Law 14026/2020, which reformed the legal framework for water and sanitation services in Brazil, making provision even more complex by introducing concession agreements with the private sector¹¹⁻¹³.

Souza reminds us that water and sanitation services can only be contracted out via a tender (concession) issued by the public water company. Thus, in contrast to telecommunication services for example, where different concessionaires may exist in a given location, in the case of sanitation services water is not supplied to our homes via different pipes, meaning there is a monopoly. Around the world, privatization has led to a rise in tariffs without necessarily

improving quality and expanding coverage, meaning that some local governments have backed out of privatization and reassumed services¹³.

These issues prompt reflection on the legal nature of public sanitation service provision, which in Brazil and around the world is at the mercy of a conjuncture imposed by the financialization of wealth, government reforms, the restructuring of productive systems, and public administration reform. Currently, the legal nature of services amounts to delegation to a municipal government department, state-owned water utility, or private company^{10,14-16}.

This issue warrants investigation since guaranteeing access to basic sanitation services is a prerequisite that expresses a philosophy of action geared towards meeting broader health, quality of life, and human development goals and a political commitment to meeting population needs. This action should be oriented by democratic values of justice, equity, and public participation, which underlie the notion of healthy territories¹⁷.

The objective of this study was to develop a proposal for the governance of basic sanitation management in the municipalities of Fonte Boa, Jutai, and Uarini in the state of Amazonas, applying the notion of the system of guarantees of rights.

Material and methods

We used a theoretical and methodological framework based on the examination of literature and analysis of primary and

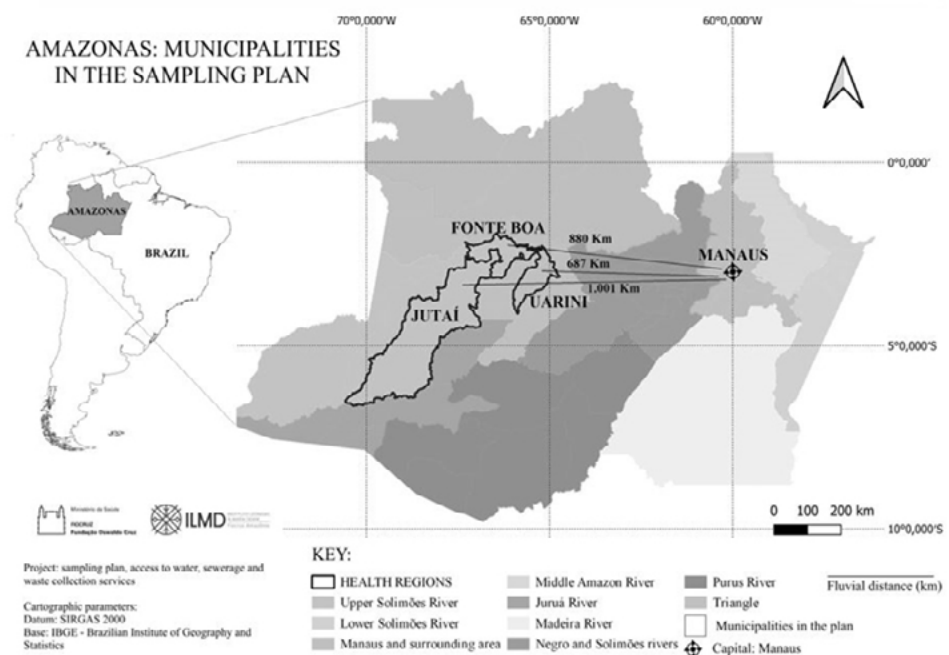
secondary data. The category of analysis was the notion of politics as guidance for decision and action, an approach employed to define and understand public policies. In general, this approach enables the researcher to go beyond the investigation of the state as an entity, functions, and legal and bureaucratic apparatus, exploring how it operates, decides, influences, and impacts problems by means of public policies^{18,19}.

Figure 1 shows the location of the municipalities in the study area and estimated distances from the state capital Manaus. The average passenger boat travel time from each municipality to Manaus is 84 hours for Jutai, 72 hours for Fonte Boa, and 43 hours for Uarini.

The primary data were obtained from experiences in the field. Open interviews were conducted during face-to-face and online meetings with government managers from the local government environment, public works, and health departments. The secondary data were taken from the 2000 and 2010 demographic censuses, conducted by the Brazilian Institute of Geography and Statistics, and the National Sanitation Information System (SNIS), run by the Ministry of Cities²⁰⁻²².

The design analysis plan for the management governance model was based on the premise that the organization and operation of state and non-state institutions should be integrated, thus fostering intersectorality. The latter aims to overcome models that lead to overlap across actions and fragmented management, promoting greater participation of all subjects involved in public policies, including service beneficiaries (the population), as proposed by Carmo and Guizardi and Inojosa^{23,24}.

Figure 1. Map showing the municipalities of Fonte Boa, Jutai, and Uarini within the context of the Triangle and Upper Solimões River health regions, state of Amazonas



Source: The authors.

This study was approved by the research ethics committee at the Aggeu Magalhães Research Center, Oswaldo Cruz Foundation (Certificate of Presentation of Ethical Appreciation [CAAE] 55463216.5.0000.5190, report reference N° 1.667.857), complying with the ethical norms and standards for research involving human subjects set out by the National Health Council^{25,26}. This study received support from the State of Amazonas Research Foundation (FAPEAM).

Results

Ecological, demographic, and organizational context of basic sanitation service provision in the Middle Solimões River region, state of Amazonas

The human ecology of the Amazon region is marked by its hydrological regime, which is

characterized by a flooding-high water-low water-dry season cycle, imprinting the pace of life of the local population, who have adapted their way of life to local ecological conditions. Traditional houses on dry land (*palafitas*) are built on 1.5-meter wooden stilts, which protect residents from snakes, alligators, insects, and other animals⁹.

People also live in floating homes, which provide better access to water, making it easier to perform household chores. The movement of these homes accompanies the ebb and flow of the waters, meaning residents are less affected by flooding, suffering less from the destruction of furniture and household utensils than those living in *palafitas* on dry land⁹.

The total population of the region in 2010 was 108,721. The most populous municipality was Fonte Boa (22,817 inhabitants), followed by Jutai (17,992), Maraã (17,528), Tonantins (17,079), Alvarães (14,088), Uarini (11,891), and Japurá (7,326). According to the IBGE, the population is predominantly brown (72.5%),

followed by white (12.4%), indigenous (9.9%), black (4.7%), and yellow (0.5%)^{20,21}.

The proportion of households with access to piped water from a water supply network increased between the two censuses (2000 and 2010) across all municipalities except Tonantins, where it decreased by 35.5%. This may be explained by a 104% increase in the population of urban areas in the latter^{20,21}.

IBGE data also show an increase in the proportion of rural households connected to the water supply network. These increases were more pronounced in Jutaiá (from 0.4% in 2000, to 10.0% in 2010), Japurá (from 6.0% to 7.0%), and Maraã (from 0.0% to 5.9%)^{20,21}.

Access to a private bathroom is the leading challenge in the region, as highlighted by the last two censuses. *Table 1* shows the proportion of households with a private bathroom

or lavatory according to the last two censuses. The number of households without a bathroom or lavatory dropped by 51.6% (standard deviation = 20.2). However, the proportion of households with a bathroom varies considerably across the seven municipalities, especially in urban areas. In Jutaiá, for example, most households only have lavatories (66.9%).

It is important to note that the 2010 census adopts different definitions of bathroom and lavatory. Bathroom is defined as a room inside or outside the house with a ceiling and walls containing a toilet and shower for the exclusive use of household members, while lavatory is a room outside the house with walls containing a toilet or pit where excreta are disposed, which may be shared by members of various households²¹.

Table 1. Bathroom and lavatory coverage by type of household (urban or rural) in municipalities in health regions in the T in the Triangle and Upper Solimões River health regions, state of Amazonas. Comparison 2000 and 2010 - Rate per 100

State/Municipality	Bathroom or lavatory	Year	
		2000	2010
Brazil - Urban	With bathroom	-	97.0
	With lavatory	-	2.4
	With bathroom or lavatory	97.4	-
	Without bathroom or lavatory	2.6	0.6
Brazil - Rural	With bathroom	-	70.9
	With lavatory	-	13.9
	With bathroom or lavatory	66.4	-
	Without bathroom or lavatory	33.6	15.1
Amazonas - Urban	With bathroom	-	87.7
	With lavatory	-	10.5
	With bathroom or lavatory	94.7	-
	Without bathroom or lavatory	5.3	1.7
Amazonas - Rural	With bathroom	-	27.2
	With lavatory	-	52.2
	With bathroom or lavatory	63.2	-
	Without bathroom or lavatory	36.8	20.6
Alvarães - Urban	With bathroom	-	74.2
	With lavatory	-	23.3
	With bathroom or lavatory	88.6	-
	Without bathroom or lavatory	11.4	2.5

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State/Municipality	Bathroom or lavatory	Year	
		2000	2010
Alvarães - Rural	With bathroom	-	18.8
	With lavatory	-	79.4
	With bathroom or lavatory	51.9	-
	Without bathroom or lavatory	48.2	1.8
Fonte Boa - Urban	With bathroom	-	74.5
	With lavatory	-	19.6
	With bathroom or lavatory	78.6	-
	Without bathroom or lavatory	21.4	5.9
Fonte Boa - Rural	With bathroom	-	16.8
	With lavatory	-	9.6
	With bathroom or lavatory	6.5	-
	Without bathroom or lavatory	93.5	73.6
Japurá - Urban	With bathroom	-	60.8
	With lavatory	-	35.1
	With bathroom or lavatory	91.1	-
	Without bathroom or lavatory	8.9	4.1
Japurá - Rural	With bathroom	-	21.0
	With lavatory	-	50.9
	With bathroom or lavatory	45.9	-
	Without bathroom or lavatory	54.1	28.1
Jutáí - Urban	With bathroom	-	28.1
	With lavatory	-	66.9
	With bathroom or lavatory	86.2	-
	Without bathroom or lavatory	13.8	5.0
Jutáí - Rural	With bathroom	-	5.1
	With lavatory	-	40.1
	With bathroom or lavatory	21.9	-
	Without bathroom or lavatory	78.1	54.8
Maraã - Urban	With bathroom	-	73.8
	With lavatory	-	23.7
	With bathroom or lavatory	89.2	-
	Without bathroom or lavatory	10.8	2.6
Maraã - Rural	With bathroom	-	2.9
	With lavatory	-	28.8
	With bathroom or lavatory	43.7	-
	Without bathroom or lavatory	56.3	68.4
Tonantins - Urban	With bathroom	-	55.3
	With lavatory	-	44.2
	With bathroom or lavatory	100.0	-
	Without bathroom or lavatory		0.5

Table 1. Bathroom and lavatory coverage by type of household (urban or rural) in municipalities in health regions in the T in the Triangle and Upper Solimões River health regions, state of Amazonas. Comparison 2000 and 2010 – Rate per 100

State/Municipality	Bathroom or lavatory	Year	
		2000	2010
Tonantins – Rural	With bathroom	-	5.9
	With lavatory	-	73.2
	With bathroom or lavatory	65.0	-
	Without bathroom or lavatory	35.0	20.9
Uarini – Urban	With bathroom	-	44.9
	With lavatory	-	49.5
	With bathroom or lavatory	87.2	-
	Without bathroom or lavatory	12.8	5.7
Uarini – Rural	With bathroom	-	11.2
	With lavatory	-	42.2
	With bathroom or lavatory	34.4	-
	Without bathroom or lavatory	65.6	46.6

Source: The authors based on data from the 2000 and 2010 demographic censuses^{20,21}.

The only municipality in the region where water supply services are provided by the public-private partnership COSAMA (Companhia de Saneamento do Amazonas) is Alvarães. According to the SNIS, in the other municipalities (Fonte Boa, Japurá, Jutaí, Maraã, Tonantins, and Uarini), water services are operated by a specially created local government department or directorate²².

In general, the water distributed to households connected to the public network is sourced from tube wells that have not undergone disinfection, a process recommended by Ministerial Order GM/MS 888²⁷ (4 May, 2021), which sets drinking water quality standards.

In Jutaí and Uarini, tariffs are not charged for water supply services or the installation of water meters. In Fonte Boa, a tariff of R\$13.00 is charged for families benefiting from the cash transfer program Bolsa Família (family allowance), who account for 70% of consumers. The tariff for other families is R\$ 40.00. These amounts are paid into the town council's bank account,

meaning that the Municipal Water Service (SEMAA) does not have administrative and financial autonomy.

With regard to the Drinking water Quality Monitoring Information System (SISAGUA), a health surveillance and water quality system coordinated by the Ministry of Health, Fonte Boa and Uarini are currently implementing the actions envisaged by the National Drinking water Quality Monitoring Program (VIGIAGUA).

VIGIAGUA coverage in the state of Amazonas is worrying given that only 10 of the state's 62 municipalities have provided drinking water quality data to the Ministry of Health²⁸.

It is important to note that municipal governments must provide data and information on water supply network characteristics and the organization of sanitation services to the SNIS. *Table 2* shows that only four municipalities have a technical team to carry out studies for the SNIS. Only 38 of the 62 municipalities in the state of Amazonas had complied with the information requirements. In practice, besides the fact that municipal governments

who fail to provide mandatory information become ineligible to receive public funding for the expansion of basic sanitation services, the lack of data and information makes them invisible to potential interest from the private

sector through concession contracts, as provided by Law 14026/2020, which reformed the legal framework for water and sanitation services in Brazil²².

Table 2. Water service provision in municipalities in the health regions in the Triangle and Upper Solimões River health regions, state of Amazonas, according to geographical characteristics, legal nature, staff numbers, extension of the water supply network, and water service coverage, 2021

Municipality	Legal nature	Number of staff	Extension of network (Meters/connection)	Coverage in the municipality's administrative center (Percentual)
Alvarães	Cosama	12	10.23	29.6
Fonte Boa	Municipal	17	25	100
Jutaí	Information N/A	Information N/A	Information N/A	Information N/A
Japurá	Information N/A	Information N/A	Information N/A	Information N/A
Maraã	Information N/A	Information N/A	Information N/A	Information N/A
Tonantins	Municipal	7	8	100
Uarini	Municipal	5	8.2	100

Source: The authors based on data from the National Sanitation Information System (SNIS), 2021²².

The matrix model of the system of guarantees of rights

The system of guarantees of rights has its origins in the 1988 Federal Constitution, Article 227, which addresses the rights of children, adolescents, and young people, embodying the idea of comprehensive child protection. However, it was only with the creation of the National Council for the Rights of Children and Adolescents that the system of guarantees of rights began to be operationalized²⁹.

From this perspective, in relation to national basic sanitation policy, the structured system of guarantees of rights proposed by this study aims to comply with prevailing legislation safeguarding human rights. The participation of subjects in the system, be they governments, service providers, businesses, or residents, respects their place of action within

the ecological, political, technical-economic, cultural and bio-communal spheres.

Integrated action, or intersectorality, seeks to overcome models that lead to overlap across management actions and promote greater participation of all subjects involved in public policies, including service beneficiaries^{23,24}.

The operability that gives concreteness to the management governance model, ensuring it complies with the guiding principles of the sanitation policy framework, above all the principle of public participation, is based on the social reproduction data matrix proposed by Juan Samaja and adapted by Medeiros et al.^{9,30}.

Box 1 shows the matrix model of the system of guarantees of rights, arranged horizontally and vertically. The horizontal axis is titled 'units of analysis', where matrixing is represented by the level of anchorage of state and non-state institutions (context, anchorage, and subtext).

The vertical axis is titled ‘units of observation’, where matrixing is represented by the dimensions of social reproduction, representing: i) the locus of operation of each institution within the ecological, political, technical-economic, cultural, and bio-communal spheres; and ii) competency, responsibilities, and institutional mission.

The Ecological Reproduction dimension includes state and non-state institutions operating in the social space whose mission is to promote actions that value the way of life of rural, forest, and riverine communities. In general, their actions fall within political reproduction, since the latter is expressed in meeting (or not) the needs of the social environment.

The Techno-Economic Reproduction dimension encompasses legal and institutional safeguards, especially in commercial relations, to assess whether the latter are unequal or unfair or expose subjects to occupational or environmental risk, for example.

The Reproduction of Self-awareness and Conduct dimension encompasses the mission of all institutions. This dimension is often understated as it comprises the subjectivities of the actors involved in the research problem. This dimension also aims to contextualize the cosmology of rural, forest, and riverine populations in relation to human rights, for example.

Living conditions are expressed by Bio-communal Reproduction, which all state and non-state institutions strive for across the range of actions that comprise their competency, responsibilities, and missions. In short, this dimension concerns impacts on the material base of individuals, where access to social goods and services from the Political Reproduction and Techno-Economic Reproduction dimensions is essential to strengthen resilience to the hardships of living in forests.

Together with other public policies, access to basic sanitation can be a determinant of population health, which in turn can affect the performance of the daily activities necessary to sustain livelihoods.

It is also important to note for definition purposes that constitutional competency can be understood as the legal capacity of a federative entity or public body in relation to a given matter, while constitutional responsibilities refer to the roles and obligations of these entities and bodies in ensuring effective access to a right by a citizen or group³¹.

Thus, the system of guarantees of rights seeks to engage with systemic logic to address the complexity of the web of events involved in the management of public municipal services, focusing on basic sanitation services in inland areas of the state of Amazonas.

Box 1. Matrix model of the system of guarantees of rights to access to basic sanitation to guide the proposal for governance of the management of public municipal services in the Triangle and Upper Solimões River health regions, state of Amazonas

Units of analysis of anchorage	Units of observation of interaction				
	Ecological reproduction	Political reproduction	Techno-Economic Reproduction	Reproduction of Self-awareness and Conduct	Bio-communal Reproduction
Contexts	State and non-state institutions are participants who act in the social space whose mission is to promote actions that value the way of life of populations.	In general, actions in sphere of ecological reproduction comprise programs and initiatives of political reproduction, since the latter is expressed in meeting (or not) the needs of the social environment.	Encompasses legal and institutional safeguards, especially in commercial relations, to assess whether the latter are unequal or unfair or expose subjects to occupational or environmental risk, for example.	This dimension is often understated as it comprises the subjectivities of the actors involved in the research problem. This dimension aims to contextualize the cosmology of rural, forest, and riverine populations in relation socioenvironmental diversity in water consumption and understanding water as a public good and human right, for example.	This dimension focuses on understanding the material conditions of peoples and communities in the Amazon region and associated implications for their health. This dimension therefore cuts across the entire social structure in space and time. When solving problems anchored in a specific dimension without considering the others and the types of social interactions and sociability produced (distance and proximity), we are doomed to reproduce health inequities and environmental (in)justice.
... Territorial					
... Political					
... Federal					
... State					
... Municipal					
Anchorage					
... Economic activities					
... Domestic activities					
... Spiritual activities					

Source: The authors.

Discussion

The universalization of basic sanitation, in particular the right to access to drinking water at the home, the construction of bathrooms inside the home, and the proper disposal of sanitary waste and solid waste (garbage), is essential to strengthen the resilience of forest cities located in and around the main channel of the Solimões and Amazon rivers in the state of Amazonas³²⁻³⁴.

The main economic activities in cities in the Amazon region are mining, extractivism, timber production, and agriculture, leading to a rural exodus, high rates of urbanization, and poor sanitation. It is important to note that these activities were driven by the state, based on the notion of 'frontier economics' to justify the role of Brazil and other Latin American countries on the periphery of the capitalist world-economy as producers of commodities at the expense of environmental (in) justice^{35,36}.

The debate on basic sanitation therefore cuts across various dimensions of social reproduction, or the processes that act on the determinants of social and sanitation problems, including the living conditions and health of people and communities in the Amazon, whose livelihoods and social reproduction are largely bound to rural areas, forests, riverine environments, agriculture, and extractivism, and have historically been excluded from public policies^{9,28,37}.

With regard to the political dimension, Britto reminds us that most of Brazil's municipalities (56%) have yet to adopt public participation mechanisms for the implementation of basic sanitation services. Among those that have, the most common mechanisms are debates and public hearings (62.4%), followed by city conferences (41%), collegial bodies (24.1%), and public consultations (22.7%)¹⁰.

In a study charting the history of sanitation improvements in communities in the region, Medeiros observed that these improvements

did not stem from state programs but rather initiatives developed by the Prelature of Tefé and Mamirauá Institute for Sustainable Development (IDSM). The improvements began with the installation of manual ground-water pumps by the Catholic Church in the early 1980s funded by the Dutch government. The pumps were later abandoned for technical (poor drinking water quality) and financial (high cost) reasons⁹.

Beginning in 2000, the IDSM developed pilot solar rainwater harvesting and distribution projects with support from the Floodplain Forest-Suitable Technology Program, which receives funding from national and international organizations. By 2014, the project had covered 200 of the 1,873 households across 200 communities in the Mamirauá Sustainable Development Reserve⁹.

In 2023, the Amazonas state government received a notification from the public prosecutor's office and State Accounting Court regarding the low coverage of water supply services and lack of treatment and monitoring of drinking water quality. As a result, the government implemented o Programa Água Boa (the good water program) aimed at rural communities using the water treatment technology Salta-Z³⁸.

This debate therefore also requires an understanding of the reproduction of self-awareness and conduct, or social representations, of subjects involved in the research problem, as these encompass socioenvironmental diversity in access to and the use of water by local populations and the development of floodplain forest-suitable social technologies to improve sanitation by state and non-state institutions operating in the region.

Logically the latter (non-state institutions) should produce a type of social interaction that assimilates the ecology of floodplain forests, taking into account both water abundance and scarcity and forms of sociability to address the extremes of the region's hydrological cycle with creativity and adaptability. According to Santos and Santana, alternative sanitation

solutions in rural areas and isolated communities are of utmost importance to rural, forest, and riverine communities in the Amazon region³⁹.

With regard to the environmentally sound final disposal of solid waste, Law 12305 (August 2010) provided that all open dumpsites should be closed within a period of four years (by 2014). However, little progress has been made in this respect in the 62 municipalities that make up the state of Amazonas and in others across Brazil.

The following actions in the political and administrative spheres have been implemented since 2017: proposal by the Amazonas state legislature to create a special commission to conduct a study on the environmentally sound disposal of solid waste, considering the Amazonas State Solid Waste Policy; the creation of a working group by the state of Amazonas public prosecutor's office to monitor the status of municipal dumpsites using digital maps; and the creation of a working group by the Amazonas Association of Municipalities to provide assistance in inputting data into the SNIS⁴⁰⁻⁴².

It is important to remember that the 1988 Federal Constitution states that health care is a right for all and duty of the state and should be guaranteed through social and economic policies aimed at reducing the risk of disease and other health problems. Public service delivery systems can be defined as a coherent set of a diverse range of interrelated components that produce an effect on the population. The configuration of a given system is influenced by its objectives and underlying values⁴³.

From this perspective, basic sanitation service provision is not just a list of organizations and people but rather a set of structured relations across two main (sectoral and intersectoral) components that produce an effect on the population. A number of factors may explain the increase in direct and indirect social interactions between subjects participating in public service provision systems since the introduction of Law 9637/1998⁴⁴,

which states that public education, health, social, and environmental services may be contracted out to non-state public organizations. Thus, the complexity of a system is determined not only by the heterogeneous nature of its elements (or subsystems) but by the number and types of interactions between these elements⁹.

It is understood that, as a model to guide the proposal for service management governance, the matrix of the system of guarantees of rights to access to basic sanitation enables managers to introduce uncertainties in the organization and functioning of the system resulting from these two types of social interaction, whether it is close to or far from meeting service goals^{9,43}.

Thus, the notion of policy adopted by the system of guarantees of rights refers to the approach employed to define and understand public policies, which is explored by scientific research. In general, the analysis of the political dimension enables researchers to go beyond the study of the state as an entity, functions, and legal and bureaucratic apparatus, exploring how it operates, decides, influences, and impacts problems by means of public policies^{18,19}.

Final considerations

The governance of the municipal management of basic sanitation service provision can be understood as a fundamental social mechanism that enables the identification of the competency and responsibilities of state and non-state institutions in order to safeguard the

right to access to goods and services, preventing conflicting actions in a given territory.

The model recovers the political dimension of the management of basic sanitation, especially the principles of participatory and democratic management. We therefore encourage state and non-state institutions to promote the construction of a public agenda of healthy territories in the state of Amazonas, acting in solidarity within the scope of the committee for the ongoing monitoring of living conditions and health, which is another stage of the present research project.

We also understand that the debate on basic sanitation as a human right revisits the notion of water as a common good transformed by capitalism first into a 'natural' resource and then into a commodity.

Collaborators

Medeiros MS (0000-0002-7116-6097)* contributed to study conception, design and coordination, data analysis, and to the drafting and final approval of the manuscript. Silva Filho EC (0000-0001-7170-0213)* and Torquato CCA (0000-0001-8902-7565)* contributed to study coordination, data analysis, and the drafting and final approval of the manuscript. Silva LA (0009-0002-4981-4059)*, Souza RF (0009-0004-3397-6381)*, and Cruz JR (0000-0003-3123-5112)* contributed to data collection, data georeferencing, and the references. Medeiros ZM (0000-0002-4434-955X)* contributed to the literature review, data interpretation, and the drafting of the manuscript. ■

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