

PARTICIPATION AND SOCIAL CONTROL IN SANITATION WITHIN THE CONTEXT OF THE REPARATION OF DAMAGE FROM THE DISASTERS IN MARIANA AND BRUMADINHO, MINAS GERAIS, BRAZIL

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Abstract

The disasters that occurred in Mariana and Brumadinho, in addition to the enormous loss of human lives and environmental damage, also generated impacts on the water supply, in the springs, thereby causing catchment to become unachievable, in some cases for a long period of time, and in the infrastructures, in the territories and municipalities along the basins of the Doce and Paraopeba Rivers. The impacts and damage resulting from disasters cause substantial disruption and may foster social mobilization and participation throughout these territories. This study seeks to analyze the perspectives of social participation and social control in basic sanitation in the agreements related to the reparation of damage resulting from the collapse of the Fundão dam, in Mariana, Brazil, under the responsibility of Samarco, and of the Córrego do Feijão dam, in Brumadinho, Brazil, under the responsibility of Vale. Inconsistencies and gaps have been identified in the strategies adopted by the government aimed at participation and social control in sanitation in both disasters, thereby potentially compromising the Human Rights to Water and Sanitation.

Keywords

Disasters; Public Policy; Sanitation Policy; Social Control; Human Rights.

PARTICIPAÇÃO E CONTROLE SOCIAL EM SANEAMENTO NO CONTEXTO DA REPARAÇÃO DE DANOS DOS DESASTRES EM MARIANA E BRUMADINHO, MINAS GERAIS, BRASIL

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Resumo

Os desastres ocorridos em Mariana e Brumadinho geraram, além da enorme perda de vidas humanas e danos ambientais, impactos ao abastecimento de água, nos mananciais, que tiveram captações suspensas, algumas por longo período, e nas infraestruturas, que inviabilizaram sua oferta nos territórios e municípios ao longo das bacias dos rios Doce e Paraopeba. Os impactos e danos resultantes de desastres causam grande comoção e podem fomentar mobilização e participação social nos territórios. Este trabalho busca analisar perspectivas de participação social e de controle social em saneamento básico nos acordos relacionados à reparação de danos decorrentes do rompimento da barragem Fundão, em Mariana, sob responsabilidade da Samarco, e da barragem Córrego do Feijão, em Brumadinho, de responsabilidade da Vale. Identificam-se inconsistências e lacunas nas estratégias adotadas pelo poder público voltadas à participação e ao controle social em saneamento em ambos os desastres, potencialmente comprometedores dos Direitos Humanos à Água e ao Saneamento.

Palavras-chave

Desastres; Políticas Públicas; Política de Saneamento; Controle Social; Direitos Humanos.

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Introduction

Over the last decade, the two main technological disasters in Brazil linked to the failure of mining dams occurred in the state of Minas Gerais, in the municipalities of Mariana and Brumadinho. These disasters directly impacted the river basins of the River Doce, in the states of Minas Gerais and Espírito Santo, and of the River Paraopeba, a tributary of the São Francisco River. In addition to the loss of human lives and a series of socioeconomic and health impacts, significant damage was also caused to the environment, as well as to the populations surrounding the water courses affected by the tailings and to the populations supplied by alternative water supply systems and solutions with catchment in these watercourses. The collapse of the Fundão tailings dam, located in the municipality of Mariana and operated by the company Samarco, under the control of BHP Billiton and Vale, occurred on November 5, 2015. A huge quantity of tailings from mining activities was thereby discharged along more than 650 km of the Doce river basin, one of the most important watercourses in Southeast Brazil. This event is considered to be the biggest socio-environmental disaster in Brazil and one of the biggest related to mining (HELLER; MODENA, 2016; LACAZ; PORTO; PINHEIRO, 2017).

On January 28, 2019, just over three years after the Mariana disaster, in the municipality of Brumadinho, there was a failure of the B1 tailings dam at the Córrego do Feijão mine, under the responsibility of the Vale company. This new disaster led to around 13 million m³ of tailings being expelled into the Paraopeba river basin, causing the death of 270 people (FREITAS et al., 2019; DEFESA CIVIL DE MINAS GERAIS, 2019; MINAS GERAIS, 2019b).

This article sets out to analyze the social participation and social control in basic sanitation, from the perspective of agreements related to reparation of the damage resulting from the disasters that occurred in Mariana and Brumadinho, with impacts on two of Brazil's major river basins. For this, official documents covering the subject have been analyzed and the results are discussed in the light of the conceptual theoretical framework that has amassed notes on social participation, social control and implementing the Human Rights to Water and Sanitation (HRWS).

1. Participation and social control within the context of the Human Rights to Water and Sanitation

Within a context related to disasters, it is necessary to understand the relationships between sanitation, public health and the environment as a step in developing a planning model for health promotion, identifying and analyzing the effects related to implementing systems for the water supply and collection, and for the treatment of effluents, plus establishing an order of priorities and direction of actions, in view of the specificities of the population served (AZEVEDO et al., 2020). With regard to the choice of technologies used in sanitation structures, the influence of the cultural and socioeconomic conditions may be highlighted, in addition to factors such as financial acceptability and accessibility, and the environmental and demographic constraints, which assimilate peculiarities associated with the way of life of populations so that the technologies may be incorporated into their daily lives (BRASIL, 2019).

Based on the consideration that access to water is both a human right and an obligation of the State, an instrument was created that enables individuals to make a legitimate claim for access (NEVES-SILVA; HELLER, 2020). Nevertheless, conflicts over water use in Brazil have intensified over the last two decades: in 2002 eight conflicts were recorded, while in 2020, this number had reached a total of 350 (CENTRO DE DOCUMENTAÇÃO DOM TOMÁS BALDUÍNO, 2021).

Thus, conflicts have gained prominence over recent years, revealing a contradiction with regard to implementing the HRWS, exemplified by encouraging the insertion of the private sector to provide essential services, such as those of sanitation. Hence, the permanence of inequalities is foreseen as a possible outcome, due to the incompatibility between market interests and the universalization of sanitation among the very poorest. This situation may be modified through contributions and subsidies from the public authorities, and also through policies capable of extending technological, organizational and managerial options aimed at favoring the expansion of services to populations living in vulnerable situations (SWYNGEDOUW, 2013).

In Brazil, from the 1990s onwards, a new non-state public space was developed, encompassing councils, forums, networks and articulations between the public authorities and civil society dedicated to social demands, in line with the laws and social programs following the 1988 Federal Constitution, resulting from social movements that had been active during the previous two decades. Spaces for social participation were expanded, with the formation of forums, networks and practices, tensioning political practices and indicating new possibilities for democratic alternatives. However, despite this, in many cases, meeting these demands is subject to public administration financial criteria, such as those aimed at fiscal adjustments and the payment of debts. Such decisions, therefore, occur in spaces inaccessible to social participation. From this viewpoint, the democratization of public policies is nothing more than an instrument that seeks to legitimize populations as targets of compensatory policies (GOHN, 2019).

The concepts of social participation and social control are confused with one another because they emerge from a common idea of citizenship, established according to precepts of popular sovereignty and the limitations of the public authorities to put it into effect. However, while social participation involves actors from different social circles and different levels of engagement, social control is established in recognized instances of power.

Attempts to explain what social participation is, what it means, in what context it emerges and under what conditions it is established, originate from an understanding of its breadth, given its dynamism. There are scales of social participation, which refer to its potential, particularly in articulating people in interaction networks (HURLBERT; GUPTA, 2015), and the steps that refer to levels of social participation, which are reached as engagement and participation increase (ARNSTEIN, 1969). Individual action and collective actions produce different levels of social participation. Greater engagement is generally proportional to understanding the complexity of the problems and the divergences between actors involved in the solutions employed. Engagement leads to social cohesion, based on the common goal. However, these relationships presuppose negotiations on the part of those involved, who seek to interpret the advantages and disadvantages of participation in the face of what is expected to be achieved (JONES, 2011).

Interactions that promote social participation resound in theories on social relations, relying largely on the discussion of networks that link actors interested in a common good. In the viewpoint of modernity theorists, forms of social interaction aimed at the common good are increasingly fluid (BAUMAN, 2001), as opposed to solid structures for maintaining social cohesion. Latour (2007) highlighted that modernity, as achieved by a developed society, is the result

of social participation, which leads to the legitimation of social interests. Elias (2008) echoes the networks of human interdependence in which individuality is overcome by relationships that establish the bases of social interaction, within a desired order. This interdependence creates networks that have been shown to be more dynamic in modern society, as highlighted by Bauman (ibid.). Within them, individuals hold the means to unify society, in which the power of some is amplified, as they become part of an institutionalized structure. If participation is limited to individuals who assume leadership roles, proactively manifesting themselves in the resolution of problems inherent to the collectivization of well-being, together with public authorities, it is up to the majority to follow the path established in the spheres of social control. For Bauman (ibid.), this is a dynamic of emptying the public space. In this perspective, despite the importance of a debate that legitimizes the interests of society, representatives of the established public authority are placed as protagonists in the process of social interaction aimed at the common good, thereby establishing social control.

What would the role of individuals be in building and changing social networks, with a view to establishing a network created according to institutionalized relationships? For Bourdieu (2007), the concept of social capital has a relevance in this discussion. Represented as a set of resources available for consolidating a durable network of relationships, more or less institutionalized, he refers to the link to a group united by permanent and useful ties. However, such a link presupposes the existence of delegated power and representation for the leadership. Thus, Castells (2019) reinforced the culture of autonomy that permeates the manifestation of interests, values and conflicts, in an environment that favors synergy between peers and has the potential to connect them to the resolution of complex problems, such as the global network of computers. In this universe, social participation is strengthened from an individual action plan that may gain supporters focused on common interests.

Kapucu and Garayev (2016) have been of particular note in the discussion on the formations of social networks in emergency situations, defining them in terms of collaborative actions (horizontal networks) and coordinated actions (vertical networks). The former are more informal and dynamic in nature; they are guided by bonds of friendship between actors and institutions, with a greater opportunity for interaction between actors and favoring information management and the allocation of resources. Furthermore, the division of tasks and responsibilities may be a limiting factor for its performance dynamics. In disaster situations, collaboration between social actors is even more relevant, requiring multi-organizational

coordination (ABBASI; KAPUCU, 2016). Thus, horizontal networks, with their greater dynamism, act more effectively in response to disasters, given the importance of the participation of different social actors, especially those affected by disaster responses.

Social participation provides for greater integration between the representative bodies of society and the State administration, in an institutionalized manner (GOHN, 2011). In this regard, social control may be understood as a formal mechanism of social participation, as in the case of councils. Based on this conception, the sanitation councils – in addition to the environmental, health and others – are inserted as spaces aimed at social control, by providing spaces for the discussion, mediation and deliberation of actions with an interface related to sanitation by different social actors.

From this perspective, Piterman, Heller and Rezende (2013) state that social control in sanitation should encourage dialogue between the parties that present effective representation, with accessible language for user representatives, who are often left out of discussions due to the excessively technical language that permeates these spaces. This last strategy dialogues with symbolic power, presented by Bourdieu (1989) as a form of symbolic struggle, in which the dominant fractions seek to impose their domination over others through the discourse of specialists, silencing and/or overlapping other opinions and questions from other representatives. It should be noted that the existence of the municipal sanitation council is not capable of making participation and social control become effective, as in the case of Belo Horizonte, where the lack of councilor representativeness, the poor quality of participation by the representations of civil society, in addition to the leading role played by representatives of the municipal public authorities in council discussions, have all pointed in this direction (MELLO; REZENDE, 2014).

In light of the national literature, social control may be understood as a form of control by civil society over social policies since the redemocratization period in the 1980s, resulting from the political struggles for redemocratization in relation to the authoritarian State in force as a result of the civil-military dictatorship (BRAVO; CORREIA, 2012). From this viewpoint, it is the possibility of civil society intervening in State actions, in public spending, with the objective of directing them toward social purposes (CORREIA, 2000). The definition of social control brought about by an update of the Sanitation Legal Framework, represented by Law No. 14,026/2020 (BRASIL, 2020), consists of a “set of mechanisms and procedures that guarantee society information, technical representations and participation in the formulation processes of policies, planning and evaluation

related to public basic sanitation services”.¹ Despite this, the law does not define who the representatives would be in these spaces, nor how the participation in these instances would be instrumented.

In Brazil, institutionalized councils are the main spaces dedicated to social control. They may provide new opportunities for consolidating democratic spaces, in addition to generating impacts in the form of popular organization, in the forwarding of demands and in the results for the different actors of society that work in them (GOHN, 2011). On the other hand, on a global level, the democratization processes related to essential sanitation services have faced threats from intellectual and political traditions that defend societal models based on restricting citizenship. In public policies, this is manifested through programs aimed at privatization and the creation of water “markets”, which, despite the rhetoric of social inclusion, are essentially non-inclusive (CASTRO, 2016).

Full, free and meaningful participation in decision-making processes, by those who are affected by decisions, ensures the sustainability of any intervention, offering the possibility of social transformation (ALBUQUERQUE, 2014). In health emergencies, state actors must act to ensure full compliance with the HRWS (VICTRAL; HELLER, 2021).

Lastly, recognizing these impacts on the lives of residents in the affected areas permeates the understanding of violating the HRWS. The absence of State action in respecting, protecting and enforcing these rights results in non-compliance with international covenants. The State, through its actors in the Executive and Judiciary branches, must act to protect its citizens and guarantee the participation of those impacted by disasters by defining recovery and compensation measures, especially with a view to guaranteeing access to safe water, in sufficient quantity, physically and financially accessible to all.

The effectiveness of social control by the subordinate classes goes beyond acting in the institutional space of the councils, and is fundamental in articulating the political forces that represent them in favor of a project for society with an active position capable of opposing the interests of the dominant classes (BRAVO; CORREIA, 2012). In the conjuncture of sanitation management, the normative emphasis on participation and social control has been expanded, despite the gaps in the actions of the population on municipal councils in which the theme is present (PITERMAN; HELLER; REZENDE, 2013). To overcome such challenges, it is necessary to improve the legal frameworks and qualify the training of the most vulnerable segments of civil society, especially in areas with the greatest sanitation deficit, with the aim of fostering critical and democratic action (SOUZA; HELLER, 2019).

1. This and all non-English citations hereafter have been translated by the authors.

Discussion on the different strategies related to participation and social control in the affected territories has the potential result of improving the organization of society with regard to the demands of sanitation. As part of the search for the reparation of damage caused by the disaster in the municipality of Brumadinho, the existence of networks and cooperative relationships was confirmed, culminating in the articulation between the actors and the construction of a predominant narrative, supported by the negotiation of joint actions, as well as in the construction of common meanings in the narratives (CARVALHAIS, 2020).

From Bauman's (2001) perspective, modern society does not favor permanent agreements, including the protection of human rights, and social participation would be the instrument capable of containing or guiding the social flow. The HRWS imply that States have certain specific obligations, which need to progress as quickly and efficiently as possible to implement these rights, with the maximum use of available resources. Failure to do so results in non-compliance with the International Covenant on Economic, Social and Cultural Rights. All human rights impose three types of obligations onto States: to respect, protect and enforce them (ALBUQUERQUE, 2014). In the field of human rights, General Comment No. 15 (UNHRC, 2010) describes that States may not prevent people from enjoying the HRWS and must act to protect their citizens from actions by third parties that prevent them from doing so. In addition, they must ensure the creation of conditions for everyone to enjoy them.

The HRWS will only be fully implemented with the operationalization of regulations and principles in the different spheres of the State. It is essential to discuss its role in fulfilling social participation, with the aim of providing changes in the social determinants of health of vulnerable populations. Thus, when recognized as a human right, access to water and sanitation becomes an obligation of the State toward its citizens, through an instrument with which they are allowed to demand, within the law, that it is fulfilled and guaranteed (UN, 2010; NEVES -SILVA; HELLER, 2016; 2020). On the other hand, participation and social control are linked to the limitations of citizenship-oriented participatory education, essential for effective participation in these decision-making arenas (ASSUMPÇÃO et al., 2017).

2. Methodology

This paper presents an exploratory analysis of the scenario surrounding the damage reparation related to the disasters in Mariana (2015) and Brumadinho (2019), anchored in a perspective of participation and social control through the lens of the HRWS, and configured as sets of themes. Thus, research was conducted in secondary sources with the aim of identifying assessments of the affected populations in terms of the mechanisms indicated in the judicial agreements, the

legislation pertinent to sanitation and the human health risk assessment study. To this end, a content analysis of the documents described in Box 1 was undertaken, with reference to the reparation of damage caused by the aforementioned disasters, in addition to the participation and social control in sanitation.

Document/Acronym (as used in the original language)	Year	Responsible entity
Law No. 11.720 – State Policy on Basic Sanitation (Pesb)	1994	State Government of Minas Gerais
General Assembly Resolutions – A/RES/64/292 and A/HRC/RES/15/9 – Human Rights to Water and Sanitation (HRWS)	2010	United Nations (UN)
Transactional Conduct Adjustment Term (TTAC)	2016	Federal Government, State Government of Minas Gerais, State Government of Espírito Santo and the mining companies - Samarco mineração S/A, Vale S/A and BHP Billiton Brasil Ltda.
Preliminary Adjustment Term (TAP)	2017	Federal Public Prosecutor's Office (MPF), Samarco Mineração S/A, Vale S/A, BHP Billiton Brasil Ltda.
Governance Conduct Adjustment Term (TAC Governança)	2018	Federal Public Prosecutor's Office (MPF), Public Prosecutor's Office for the State of Minas Gerais (MPMG), Public Prosecutor's Office for the State of Espírito Santo (MPES), Federal Public Defender's Office (DPU), Public Defender's Office for Minas Gerais (DPMG), Public Defender's Office for Espírito Santo (DPES), The Union, Brazilian Institute for the Environment and Renewable Natural Resources (Ibama), Chico Mendes Institute for Biodiversity Conservation (ICMBio), National Water Agency (ANA), National Mining Agency (ANM), The National Indigenous People's Foundation (Funai), State Government of Minas Gerais, State Forestry Institute of Minas Gerais (IEF-MG), Minas Gerais Institute for Water Management (Igam), Minas Gerais State Department for the Environment (Feam), State Government of Espírito Santo, Espírito Santo State Institute for the Environment and Water Resources (Iema-ES), Espírito Santo Institute for Agricultural and Forestry Defense (Idaf-ES), Espírito Santo State Water Resources Agency (Agerh-ES), Samarco Mineração S.A., Vale S.A., BHP Billiton Brasil Ltda., Fundação Renova
Constitutional document of the Pro-Brumadinho Management Committee	2019	State Government of Minas Gerais
Federal Law No. 14.026, of 2020 (New Sanitation Framework)	2020	Federal Government
Judicial agreement on full reparation for the failure of dams B-I, B-IV and B-IVA/Córrego do Feijão (ARI)	2021	Court of Justice of Minas Gerais
State Policy for Those Affected by Dams (Peab)	2021	State Government of Minas Gerais
Detailed Project: Human Health Risk Assessment Study. Public health. Paraopeba River Basin (HHRAS)	2022	EPA Group

Box 1. Documents analyzed within the context of the reparation of damage caused by disasters, and the participation and social control in sanitation

The development of the analysis was based on a reading of these documents, on the selection of significant passages for a discussion on the subject, as well as on the creation of analytical categories to facilitate identification of the mechanisms of participation and social control due to the demands arising from the disasters. Thus, the operation to classify the elements was conducted through the constitution of the categorical sets “social participation and social control” and “Human Rights to Water and Sanitation”. Supported by these categories, a discussion was thereby promoted, bearing in mind the relevance of the strategies defined in the aforementioned documents in meeting the HRWS within the context of the reparation of damage caused by the disasters in Mariana and Brumadinho.

3. Results and discussion

The state of Minas Gerais, through Law No. 11,720 of 1994, provided for the State Policy on Basic Sanitation (MINAS GERAIS, 1994). The aforementioned law also provided for the creation of the State Council for Basic Sanitation by means of a specific law – however, this council has not yet been implemented.

In 2010, the United Nations General Assembly recognized the Human Rights to Water and Sanitation (HRWS) as essential human rights, approved in the General Assembly resolutions – A/RES/64/292 (UN, 2010) – and in the United Nations Human Rights Council – A/HRC/RES/15/9 (UNHRC, 2010). For these rights to be ensured, it is necessary to comply with its regulations and principles: equity and non-discrimination; access to information and transparency; participation; accountability; sustainability; availability; physical accessibility; quality and safety; affordability and acceptability; dignity and privacy.

Due to the disasters, a conflict of actions and narratives became established that postponed, disregarded and underestimated aspects related to a fair reparation for those affected. The disaster in Mariana resulted in a Public Civil Action (ACP), filed by the Union, the states of Minas Gerais and Espírito Santo and entities of the Indirect Public Administration, against the companies that owned the breached dam, under the responsibility of Samarco. Given the complexity of the case, within the scope of this action, a Transactional Conduct Adjustment Term (TTAC) was proposed and signed in order to hasten the jurisdictional provision and provide compensation and mitigation measures more quickly (ROLAND et al., 2018).

The TTAC, entered into in 2016 between the parties involved and the public authorities, constituted an unprecedented arrangement that led to the creation of a foundation responsible for the development of socioeconomic programs – the Renova Foundation – in view of the demand to characterize the damage and respective forms of mitigation. Among these programs, the section on “Social

Organization” is included, one of the planned seven, which addresses issues related to communication, participation, dialogue and social control (TTAC, 2016)., The operational areas of this foundation were established through the TTAC, funded by Samarco and its owners, Vale and BHP Billiton.

This document became the object of harsh criticism by civil society, the Federal Public Prosecutor’s Office (MPF) and the states of Minas Gerais and Espírito Santo, since it was prepared and negotiated without the participation of those affected. In addition, it provided for the creation of a foundation governed by private law, autonomous from a managerial and financial viewpoint, in relation to the companies responsible for the disaster, with the aim of managing, funding and executing all the measures provided for in socio-environmental and socio-economic programs related to the disaster – the Renova Foundation (LOPES, 2016).

The governance system instituted by the TTAC established the Inter-federative Committee (CIF) as a space for analyzing the actions and goals of the programs developed by the Renova Foundation. To this end, CIF created eleven Technical Chambers to assist in the guidance, follow-up, monitoring and inspection of the measures imposed by the TTAC. However, the design and execution of the programs were under the responsibility of the Renova Foundation. As a result of this model, conflicts ensued between the Foundation and those affected, thereby amplifying the difficulty of communication between the parties and the tardiness in executing the programs (SILVA; CAYRES; SOUZA, 2019). The government failed to encourage participation and social control, which could have involved those affected in the decision-making, questioning the model that had centralized them in a foundation that was linked to the company responsible for the disaster. The ACP, initially proposed by the Union and by the states of Minas Gerais and Espírito Santo to judicialize the entire case, proved to be limited as the investigations moved forward and demonstrated great complexity, and which therefore required a detailed, cautious, and unhurried judicial process. As a result, government bodies opted for the negotiated solution mechanism, and signed the TTAC with the aim of speeding up the provision of jurisdiction.

The TTAC provides for the cost of actions to improve the water supply systems whose operation was made impracticable due to the disaster in the cities of Alpercata, Governador Valadares, Tumiritinga, Galileia, Resplendor, Itueta, Baixo Guandu, Colatina and Linhares, and in districts of the municipalities of Mariana, Barra Longa, Santana do Paraíso, Belo Oriente, Periquito, Fernandes Tourinho, Governador Valadares, Tumiritinga, Aimorés, Baixo Guandu, Marilândia and Linhares. The proposal was to reduce by 30% the volume of water collected directly from the Doce River, with the possibility of reaching up to 50% in municipalities with

more than 100,000 inhabitants. According to the document, the Renova Foundation would also be responsible for providing 500 million BRL to fund the preparation of plans for municipal basic sanitation, projects and works related to sanitary sewage systems, the eradication of dumping grounds and the implementation of regional sanitary landfills. However, the responsibility for carrying out the actions would lie with the municipalities (TTAC, 2016; ROLAND et al.; 2018).

With regard to sanitation, no incentive has been given for participation and social control, since, although funding for various actions by Renova has been provided for, such as municipal sanitation plans and the implementation and/or improvement of structures linked to water supply and sanitation, there is no mention of any measure to encourage the strengthening or implementation of mechanisms for participation and social control. It should be noted that, from a legal viewpoint, this respect has been provided for in the construction of municipal plans. However, the agreements associated with the disaster have not focused on these issues, leaving them to city halls and sanitation service providers. Thus, the Renova Foundation is responsible for funding actions and programs, without relating or acting in terms of participation and social control in sanitation in the affected territories.

After this, the Preliminary Adjustment Term (TAP) was established, with the aim of organizing the hiring of the technical staff that would assist the Federal Public Prosecutor's Office in providing a diagnosis of the damage. An additive term was later created for the TAP, in which there was a reformulation of the damage diagnosis system and the structuring of technical assistance for those affected (TAP, 2017; ROLAND et al., 2018). Later, the Governance Conduct Adjustment Term (TAC Governança) was created, ratified in 2018, with the purpose of covering issues overlooked by previous agreements (ROLAND et al.; 2018). This agreement included new elements of control and activities for Renova, such as the creation of spaces for the participation of those affected by the implementation of local commissions. In these, those affected and technical advisors have the opportunity to formulate proposals, criticisms and suggestions related to the performance of CIF, the Technical Chambers and Renova (TAC GOVERNANÇA, 2018; ROLAND et al., 2018; MOREIRA; MENDES, 2020). This case highlights the dilemma created by the terms, because, given the complexity, speeding up the damage mitigation process could weaken the representation of those affected and the possibility of restoring their dignity in the face of the damage (ROLAND et al.; 2018). In 2019, the Pro-Doce River Management Committee was established, which assumed the duties of the Executive Secretariat of the CIF in Minas Gerais (MINAS GERAIS, 2019c).

Thus, in the documents related to the disaster and the activities of Renova – the TTAC, TAP and TAC Governança – there is no mention of actions related to participation and social control in the context of sanitation. However, the Communication, Participation, Dialogue and Social Control Program is provided for, with the intention of ensuring participation in the processes of identifying and detailing information programs for those affected (TTAC, 2016). Nevertheless, despite the inclusion of this program in the term, compliance with the principles of the HRWS, such as access to information and transparency, participation, accountability, sustainability, economic accessibility and acceptability, is not evident, thereby proving to be ineffective, even more so when we consider the updates provided by TAP and TAC Governança. The latter carried an important contribution for social participation, with the inclusion of local commissions and the structuring of Independent Technical Advisory Services (ATIs), to operate across the territories. However, there is no mention of issues related to sanitation.

The low participation rate of those affected by the disasters is also noted in the Recovery Programs generated by the TTAC and undertaken by the Renova Foundation. Although a large number of meetings have been held, with mediation, the nature of the agreed measures are common to any licensing. It should be noted that the technical discourse and formal rites within these arenas were not part of the daily lives of a large number of those affected. Hence, this has hindered, on the one hand, the understanding and appropriation of the elements discussed in these spaces by those affected, and, on the other, the assimilation of the claims of those affected by those involved in the discussions (ZUCARELLI, 2018).

The Pro-Brumadinho Management Committee, set up by the State Government of Minas Gerais, is made up of representatives from various bodies of State Authority, in addition to establishing the ATIs as representatives of those affected across the territories. According to the decree with which it was instituted, its competencies are to identify and propose measures for mitigating, repairing and compensating damage; to plan and coordinate the execution of activities to diagnose impacts and of the socio-economic and socio-environmental reparation; to share information regarding projects and actions; and to promote synergy between the components of the state public authorities, those affected and civil society (MINAS GERAIS, 2019a).

It should be noted that the Committee, for example, has no representatives from civil society in Brumadinho, excluding the direct participation of those affected in decision-making arenas. Moreover, its actions are limited due to judicial developments (CARVALHAIS, 2020). Thus, an indirect model of representation of those affected was created, channeled by entities elected by the residents of the

affected areas, for action based on five sets of previously delimited territories. However, social participation mediated by the ATIs may provide gains and losses in this different arrangement. Although there may be greater technical support, a convergence of claims and amplification of the discourse by those affected from different territories, there is a risk that these advisors may appropriate the discourse and representation of those affected, in political terms.

Updating the Sanitation Framework (BRASIL, 2020) maintained the definition of social control, which was present in the Sanitation Law (BRASIL, 2007). However, this update instituted the possibility of including “collegiate bodies of an advisory nature, national, state, district and municipal, particularly the National Council of Water Resources” (BRASIL, 2020) in the context of participation and social control in sanitation. Thus, while the discussions may be broadened, there may also be a disincentive for constituting the sanitation councils. Another important observation may be made regarding the advisory character, which may limit the actions of social control in sanitation.

The judicial agreement for full reparation with regard to the collapse of dams B-I, B-IV, and B-IVA/Córrego do Feijão (ARI), signed between the State Government and Vale, relating to the disaster in Brumadinho, provides for the participation of those affected in socioeconomic reparation, respecting their ways of life and autonomy, in the stages of conception, formulation, execution, monitoring and assessment of plans, projects and actions related to the demand projects of the affected communities (TJMG, 2021). However, the hearings for the construction of this agreement did not even include the participation of those affected, nor the ATIs that represent them (CANOFRE; PAMPLONA, 2021), which demonstrates an obvious contradiction when considering the final text of the ARI.

Nevertheless, the continuous monitoring of groundwater for human consumption in the affected areas and the installation of technologies for the treatment of these waters, already underway, were planned (TJMG, 2021). However, there is no mention of the technology selection process, or any other mechanism of participation and social control in this sense, which contradicts the excerpt of the aforementioned agreement, which assumes the participation of those affected in all stages of projects and actions related to attending to their demands.

The State Policy for Those Affected by Dams (Peab), instituted in 2021, describes impacts as being events that “may cause the loss or restriction of the supply or collection of water and damage to the quality of life and health” (MINAS GERAIS, 2021, p. 2). The policy also provides for: the right to information for those affected in a series of processes, studies and implementation of the plan, as well as the recovery plan – and all in simple, understandable language; the right to ATI, to

be funded by the entrepreneur; the right to free and informed choice concerning full reparation alternatives, social participation in deliberative processes, prior and collective negotiation of reparation damage, and also continued access to public services (MINAS GERAIS, 2021). However, Peab does not define the instruments for those affected to have effective access to these rights, as in the case of participation in deliberative spaces. As a result, although provided for, there are gaps related to participation and social control in this policy, especially when observing the HRWS.

In another axis of activities monitored by the Committee, there are the ongoing Human Health Risk Assessment Studies (HHRAS), in which there is a proposal for the use of methodologies which are accepted and acknowledged both in Brazil and worldwide by entities linked to health and the environment (MINAS GERAIS, 2022). Considering that the ARI did not specifically mention the methodologies used, nor how the selection process occurred, the benefits of these studies for decision-making may imply the choice of technologies and management that do not adhere to the reality of the affected communities, especially in rural areas.

One of the steps envisaged by HHRAS consists of investigating the community's health concerns. While the holding of meetings with feedback to the communities is cited, no details are provided concerning the forms and mechanisms of participation and social control during this process. The study also provides for the application of questionnaires to those affected, as well as forming focus groups in locations in the municipalities with a target area, by using the categorization strategy of grouping concerns related to health (EPA GROUP, 2022). In other words, the study presents and classifies the concerns of the communities beforehand, leaving little room to identify the risks to human health that take into account the social determinants of health that consider the ways of life, their connections and relationships with the environment. In view of this, in the context of the HRWS, there are perceived risks for the populations in ensuring the operation and perpetuity of the possible technologies presented and eventually installed in these communities, since their sustainability may be compromised, with risks to health, to access to water and to forms of management that may be incompatible with their way of life.

Such situations may result in an expansion of environmental injustice, which results from the devalorization and discrimination against the life, autonomy and culture of those affected by disasters, in different contexts and moments. This may be recognized in the face of low rates of social participation, the form of economic evaluation used to calculate investments, the devalorization of the work of monitoring institutions, the organization of health services, in addition to the development of research on environmental and health problems, among others (PORTO; FERREIRA; FINAMORE, 2017).

Over recent decades, changes have taken place in the forms of communication and networking, based on tools provided through the use of the internet, such as social networks. With this, new functional networks and flow spaces have emerged, a new virtual culture, of a diverse, multimodal and versatile character that influences interests, values, imagination and social conflicts (CASTELLS, 2019). This networking consists of an important strategy for analyzing and facing complex environmental problems, at different levels, enabling the production and dissemination of knowledge, as well as the possibility of carrying out joint actions. Networks are flexible structures in which different actors can interact, such as social movements, institutions and organizations working around common causes (PORTO, 2011). During the 2010s, innovations were perceived in the way in which social movements work, such as the use of internet-based social networks as an organizational tool, the valorization of direct participation, the horizontality of relationships and collective action (GOHN, 2019). Therefore, it is relevant to identify the network action by those affected, by social movements and by participants in discussion arenas on public policy aimed at the reparation of damage caused by the disaster.

In the context of the municipality of Brumadinho, the existence was identified of networks and cooperative relationships, culminating in the articulation between the actors and in the construction of a predominant narrative, supported by the negotiation of joint actions, as well as in the construction of common meanings in the narratives (CARVALHAIS, 2020). In this case, Vale has been identified as perpetuating social injustice. Recognized by the company as a movement that puts its strategy in check, the networking of collective actors from civil society in the territory has been fought against and dismantled in a variety of manners, such as by promoting individualized negotiation, obstacles to social participation (such as the absence or silence of their representatives in discussion spaces), in addition to an attempt to construct narratives that try to reduce their responsibility in relation to the disaster (CARVALHAIS, 2020).

Given these aspects, the strategy for representing those affected, through the ATIs, in the context of Brumadinho, may provide greater clarity and objectivity in exposing their demands in formal spaces. Through its technical staff, who are somewhat more familiar with the rituals of the discussion and decision-making arenas, it is possible to obtain greater attention and support from the other actors regarding their claims. Therefore, as much as this type of indirect representation incurs the risks of appropriation, distortion of arguments and demands of those affected, there is a possibility of greater acceptance due to the use of technical arguments and attendance to the rituals present in such spaces.

In 2021, the State Policy for Those Affected by Dams was instituted in Minas Gerais, bringing within its scope the definition of the right to social participation in deliberative processes related to policies, plans and programs for the prevention and full reparation of the socioeconomic impacts linked to dams, as well as the right to independent technical advice, chosen by those affected and funded by the enterprise, in order to guide the full reparation process (MINAS GERAIS, 2021b). The document also provides for the creation of a representative committee, with parity between representatives of public power and those affected by dams, with an advisory and propositional character. However, it fails to explain or detail other forms of social control, such as forums and councils, as spaces for discussion and deliberation in these situations.

Within this complex scenario, mining companies are able to influence power relations in governance structures, in order to both benefit themselves and to elaborate complex systems to delegitimize victims. In the case of the ATIs, the same strategy was adopted by the Renova Foundation, in the context of the disaster in Mariana, i.e., the use of delegitimizing systems due to the supposed political orientation of the technical assistance recommended by civil society. With regard to the representativeness of those affected, in the cases of both disasters, the fragmentation of the different groups, entities, political movements and others that operate across the territories has led to the fragmentation of activities and to conflicts. However, despite all the heterogeneity among those affected, two claims are common: the right to rebuild their lives and the right to fair compensation for material and immaterial damage (LASCHEFSKI, 2020).

Returning to the context of Brumadinho, doubts remain regarding the involvement of those affected in the discussion and decision-making processes, in accordance with the premises of the HRWS, in view of the current provisions on the Pro-Brumadinho Management Committee and the ARI. This agreement presents no proposals for the adoption of any structures and technologies aimed at sanitation, nor does it mention the operation or guarantee of perpetuity of these systems over time, observing the ways of life of its users, operators and managers.

Comparing the documents of the Pro-Brumadinho Management Committee, the ARI and the HHRAS, a gap may still be observed in terms of forms of participation and social control in the affected territories. While the first associates social participation with actions intermediated by the ATIs, the agreement mentions the guarantee of the participation of those affected in decision-making processes, which could be understood as an eventual space dedicated to social control. However, the documents do not explain, instrumentalize or define any mechanisms for direct participation. Thus, in the case of sanitation, the same gap may be identified in

the context of the disaster in Mariana, where there are no guarantees of equity, transparency, participation, sustainability, economic accessibility, acceptability, dignity and privacy for those affected. From the viewpoint of the HRWS, it would be up to government structures to ensure compliance with the most vulnerable populations, especially at times of decision-making, formulating agreements and in the search for solutions to supply water to the affected regions compatible with their ways of life.

Hence, based on the analysis of these documents, it was not possible to identify any elements or aspects that would be capable of promoting participation and social control related to sanitation in the territories affected by the disasters in Mariana and Brumadinho, from the perspective of the HRWS.

Despite this, in view of such a complex scenario, with a great many social actors involved, such questions and notes may be answered by future studies, to follow the developments related to sanitation, particularly the strategies of participation and social control adopted by rural, forest and water populations affected by the failure of the mining dams in Mariana and Brumadinho.

Conclusions

The occurrence of recent large-scale technological disasters, which are the subject of this analysis, has resulted in extensive damage to the surrounding populations, in the short, medium and long term. In these situations, implications are involved for sanitation structures, as in the case of water collection carried out directly and around the water courses affected by the tailings.

Thus far, the institutional arrangements created for the mitigation and reparation of damage for those affected, in both cases, have provided no evidence in relation to strategies for the participation and social control in sanitation across the territories. This has resulted in difficulties and obstacles regarding the participation of those affected and their representatives in the discussion forums and decision-making. Given this scenario, compliance with the guiding principles of the Human Rights to Water and Sanitation is placed at a disadvantage, since it fails to contribute to the participation and social control of those affected in these processes.

If, on the one hand, the arrangements have sought agility in defining strategies and mitigating actions, the legitimate participation of those affected, as an interested party, must be ensured, encouraged and expanded at all stages of discussion and decision-making, in order to promote the implementation, the efficacy, effectiveness and sustainability of the interventions adopted throughout the territories. Otherwise, there is a risk of adopting and encouraging the

maintenance of strategies and public policies that are incorrect, inadequate or incapable of being sustained over time, thereby increasing inequity and injustices from the social viewpoint, and, more specifically, from the environmental and public health perspective, of issues related to sanitation.

Compared to the context of damage reparation in the case of the collapsed dams in Mariana and Brumadinho, with regard to participation and social control in sanitation, timid advances may be observed. When comparing the TTAC, TAP and TAC Governança, related to the event in Mariana, possibilities for participation and social control are identified, such as the creation of communication groups and the structuring of ATIs for detecting damage. In the specific case of sanitation, actions that would be capable of fostering participation and social control in sanitation in the affected areas were not identified. In relation to the event that took place in Brumadinho and its aftermath, ATIs were structured to operate in the affected territories, which contributed to participation and social control, albeit indirectly. The ARI provides for the participation of those affected but does not explain or define by what means it may be provided and/or carried out. In the same direction, Peab assures the right to ATI for those affected by dams, although also without foreseeing forms of direct participation. Lastly, the HHRAS presupposes previous meetings with those affected, focus groups and feedback, although, on the other hand, the categorization and organization of this information tends to disregard the social determinants of health, such as the lifestyles of the affected populations.

Therefore, actions to promote and encourage participation and social control in sanitation identified by the document analysis carried out in this study present a low potential for effectiveness in the context of damage reparation for the affected populations. However, it is suggested that future work be carried out aimed at the strategies of those affected in order to expand and strengthen participation and social control in sanitation throughout the territories, from the perspective of the Human Rights to Water and Sanitation.

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