

ORGANIZATIONAL IRRESPONSIBILITIES OR ABSENCE OF TERRITORIAL GOVERNANCE? REFLECTIONS ON ENVIRONMENTAL MANAGEMENT IN THE MINAS-RIO PROJECT¹

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1. Introduction

This article has the objective of systematizing and analyzing social and organizational dimensions of the environmental licensing process and implementation of the Minas - Rio Mining Project in Conceição do Mato Dentro, MG, discussing methodological and managerial weaknesses demonstrated by the accumulation of reports of irregularities, social and environmental conflicts, human rights violations, failures of planning with unfulfilled steps and projects. This article presents reflections on the dynamics of addressing issues associated with the lack of guarantee of water availability and quality for communities downstream of the territory appropriated by the mining company to install the mine, equipment, tailings dam and waste rock dumps. The study focuses on the situation of affected communities regarding access to water and not recognized by the company and by public agencies, in the case of the implementation of iron ore mining in the Espinhaço Middle Region, precisely in the Sapo and Ferrugem communities, in the cities of Conceição do Mato Dentro and Alvorada de Minas.

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The absence of formal recognition of the affected community nuclei reminds us of the lack of corporate management and the scarcity of a participatory system of territorial governance with the objective of promoting local development, with sustainability as a perspective. An administration system with the participation of the public, business and civil society sectors, which contemplates different and divergent actors in the territory, could provide assertiveness in the policies and strategies for driving the dynamics of social and environmental transformations forced by the implementation of such large enterprise.

The mining venture in question accumulates reports of irregularities, violations of both human and environmental rights - specifically the human right to water (MARGARIDA ALVES COLLECTIVE, 2017), planning flaws with conditioning measures, procedural steps and unaccomplished projects, as attested by hundreds of documents filed in environmental licensing agencies, such as the State Environmental Policy Council (COPAM), the COPAM Regional Union, URC-Jequitinhonha, the State Water Resources Council (CERH), the Hydrographic Basin Committees (CBH) of Santo Antônio and Doce, the State Environmental Foundation (FEAM), the National Water Agency (ANA), and the State, Federal and Public Defenders Public Cabinets. These reports of irregularity, violations and conflicts, if analyzed in their technical and political implications, have indicated weaknesses or inefficiencies of a system of territorial governance incapable of sustaining local development in a context of contradictions generated by large-scale mining activity.

In the city of Conceição do Mato Dentro, an advertisement campaign announced the implementation of the mine with the slogan "Excuse us, MMX is coming", preceding, therefore, the purchase of the mining project by Anglo American and the beginning of the licensing process (ESTADO DE MINAS, 2007). The process for obtaining a prior license, installation and operation lasted from 2007 to 2014, and the excess of situations generating conflicts, appeals filed, confrontations and data completions troubled it. The legal implications have led to the social mobilization of those affected by the recognition of their rights.

The Prior License was granted in 2008, with more than 100 conditioners, that is, measures to regulate, complement and instruct the implementation plan of the enterprise. The Installation License was fragmented in LI Phase 1 (2009) and LI Phase 2 (2010), due to conditions totally or partially *not fulfilled* and the Operation License occurred on 09/29/2014 (STATE ENVIRONMENT SYSTEM, 2014). In total, the process has more than 360 conditioning measures, many of them revised, suppressed and / or substituted for technical adequacy or due to disagreements among agents and contradictions of the licensing itself.

What is considered here as fragilities in the process of environmental management of the Minas-Rio project, is expressed from the planning of the mining venture that, by business tradition was done without any kind of consideration on vectors of local development and, in a timely manner, presented the Study (EIA-RIMA) without incorporating all the communities and families affected or living in the Directly Affected Areas (ADA) and Direct Influence (AID). Such a situation has become significant for the perpetuation of conflicts with the unacknowledged. A second aspect concerns the Environmental

Control Plan presented by the company, composed of collections of programs related to the Physical Environment, the Biotic Environment and the Socioeconomic Environment. The achievement of its programs occurs without instruments of effective monitoring by the public licensing and supervisory bodies, as well as without control by the civil society, since this is not an open agenda. A third aspect concerns the repeated clashes between those affected and the organizations involved in noncompliance with conditions that are, in practice, legal regulations, which function as plans to be fulfilled.

In order to demonstrate the systematization and analysis of the effects of the installation and operation of the Minas-Rio mining project, this work has been organized in four sections, as regards the dispute over the appropriation and use of water resources in the territory. After this Introduction, item two presents a discussion about the relationship between mineral extraction, water and hydric insecurity and rescues historical elements of the legal and technological dimensions regarding mining and the use of water resources, which focuses on the environmental management logic it dominates. In item three, we synthesize the methodology adopted in the course of the research. The fourth item focuses information on the territory, communities, enterprise and the main issues that impact the uses of water, and finally, the final considerations section brings to the fore criticisms about business practices and public management that, in the case of mining, are producing socioeconomic disruption and conflicts, especially by imposing a deterioration of the macro-system that provides life on the planet and directly affects the survival conditions of the population in its territory of origin.

2. Water, Hydric (in) insecurity and Mineral Extraction

The discussion about the impacts of mining on the management of water resources has mobilized debates in the academic circles as well as in several regulatory segments of the State and within the framework of social movements. Largely, such discussions are in dialogue with the predominant development model, with the expansion of large enterprises and their consequences as processes of territorial appropriation, interference and deconstruction of ecosystems, water networks, rural and traditional communities at the same time that occurs the construction of other productive flows and of urban spaces (ACOSTA, 2016; RODRIGUES e COSTA, 2016; ARAOZ, 2010; ADLER, CLAASSEN, GODFREY e TURTON, 2007). Intrinsic to these questions, water, considered as a good of humankind, has been transformed “into a commodity”, water resources (RODRIGUES e COSTA, 2016, p. 68) which increases the potential of conflicts and disputes between enterprises and communities in each territory submitted to the logic of economic development that favors the production and commodification of mineral and agricultural commodities.

In peripheral countries, members of the so-called Global South, tendencies to extensive urbanization triggered by the expansion of global industrial processes and, in particular, intensification of mineral extraction associated with large-scale hydropower production (MELO and CARDOSO, 2016), make up an array of water consumption unprecedented in history. The multiple forms of water use, the amounts consumed in

productive operations and in the cities have raised questions about the sustainability of the supply sources, but before that, about the guarantee of the ecosystems that produce the water. In this sense, research on scarcity and water security gains space on the world scenario, especially when it comes to the interference of mining technologies and extractive practices on surface and groundwater (RODRIGUES, 2015). As Domingues, Boson and Alípaz (2016) reaffirm, “In many mines, much more water is extracted than ore. This is the common case of mining that is located below the piezometric level, of confined free aquifers in which the groundwater must be pumped for the duration of the mine’s operation.” (p.20).

In Brazil, in processes where financially-owned global capital operates freely as in the case of large enterprises and mining regions, the prevailing environmental governance systems, with all their laws, technical norms and flaws, reproduce concepts and dynamics derived from models and international organizations, formulated in the framework of guidelines derived from the international financial system with the participation of the World Bank and transnational corporations (KLEMENS, 2014). The territorial governance in this field is also characterized by weaknesses in the composition of the forums of agents who decide on plans and intervention processes for development without, in general, going beyond the economic question and to contemplate the historical-cultural dimensions that respect the local identities and the ways of life of the populations. Melo and Cardoso (2016) have demonstrated how the “volume of resources and the pace of transformation associated with investment projects connected to the globalized market, instead of reducing it, has sharpened the contrast between spaces of wealth, growth and privilege, and spaces of poverty, decline and exclusion” (p. 1216) rescuing the problematic of the contemporary international urban question (BRENNER and SCHMID, 2015) that, in turn, translates inequalities in the access and appropriation of territories and resources.

Water, among other socio-environmental dimensions, has not been adequately addressed in territorial governance policies and practices to avoid conflicts and threats to hydric security in the regions. On the contrary, the scarcity of water has been configured as a result of developmental projects that favor the “realization of the profit of the capitalist mode of production” (RODRIGUES and COSTA, 2016, p. 68). There are several cases in which mining enacts water scarcity to be caused by the destruction of environmental reserves with deforestation that compromises springs and groundwater, either by contamination by effluents or even by socioenvironmental disasters such as dam ruptures or tailings leaks. As an example, in its 2017 report, the Pastoral Land Commission (CPT) related 197 cases in the field and highlighted the number of water conflicts since 2005, as shown in Table one.

Table one - Progression of conflicts over water in Brazil2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
71	45	87	46	45	87	68	79	93	127	135	172	197

Source: CEDOC Dom Tomás Balduino – CPT. Elaborated by LEMTO – UFF, 2018

Source: Extracted CPT, 2017, p. 131.

According to the same report,

124 of the 197 conflicts occurred in mining areas, 63%. 91 of them where international mining companies are established, 33 where there are national mining companies. Iron ore is responsible for 84 of these conflicts, 43%, uranium for 25 conflicts, 13%, aluminum for 8 conflicts, 4%, and gold for 4 conflicts, 2%. 33 conflicts, 17%, occurred in the context of hydroelectric dams. Another 26 conflicts, 13%, in areas dominated by farmers. (CPT, 2017, p 131).

The gravity of water conflicts, the tendency to increase and diversify the demand for water resources, and the lack of territorial governance systems based on social justice values refer us to the concept expressed in the United Nations International Hydrological Program, which defines hydric security as the ability of a population to safeguard sustainable access to adequate quantities of quality water to ensure livelihood, human well-being and socio-economic development; to ensure protection against water-related pollution and disasters, and for the preservation of ecosystems in a peaceful atmosphere and political stability. (UN WATER, 2013, translation by MELO and JOHNSSON, 2017).

This formulation does not, however, demonstrate an inherent condition for mineral extraction that produces or entails the disorganization of geosystems in which concomitance occurs between aquifers and mineral formations, especially exemplified by open-cast mining (RODRIGUES, 2015).

Based upon the fact that mining makes intensive use of water in its processes and still presents itself as a source of pollution, contamination and environmental degradation, it can be concluded that this is an activity that promotes scarcity and water insecurity. In this sense, the basic water needs of populations affected by territorial and environmental transformations, as well as collective and macrosystemic security should be guiding territorial governance strategies in which those activities are implemented. In these strategies, even to make decisions about operations that will lead to the undermining of aquifers and water networks, it is possible to include formulas that mobilize and effect social participation by combating the traditional power asymmetries between sectoral representatives in decision-making processes, considering from planning, environmental and social licensing, with the right to not granting licenses - and the management of risks, threats and perverse consequences of activities. Or as advocated by Galizoni and Ribeiro (2013), one can learn to draw water security paths with populations whose knowledge, norms and traditions on water management will contribute to “creating innovations in governance, [and] ways to include marginalized populations in water care and sharing decisions” (p 70).

This condition, incidentally, is radically opposed to what happens in the case presented in this study: the communities around the great open-cast iron mine and downstream of the tailings dam were excluded from the business and public planning processes as well as which were abandoned in the process of discussion and decision in the environmental licensing, remaining in a situation of socioeconomic vulnerability, scarcity and water insecurity as demonstrated by the Social Cartography Cartography

Newsletter: Reached by the Minas-Rio Project: Communities downstream of the tailings dam (SANTOS, 2018).

2.1 Management of water resources, mining and conflict: history and context in the 21st century

Water resources management can be defined as “the practices of coordination and decision making involving different agents engaged in contested forms of water distribution” (ZWARTEVEEN, 2015, p.18). This perspective implies that the resolution of conflicts over water can never be reduced to an exclusively technocratic exercise, but always precedes the need to consider issues of power and political arrangements (SOSA, ZWARTEVEEN, 2016).

Socio-environmental conflicts, in turn, arise out of disagreements and disputes between different groups of society and are centered on the distribution of natural resources or the allocation of risks and cannot be solved in a consensual way between all parties involved (EDMUNDS, WOLLENBERG, 2001). These conflicts are representative of inadequate political processes, but are also signs of technical problems involving the agents responsible for the exploitation of natural resources (SOSA, ZWARTEVEEN, 2016).

Jiménez, Molina and Le Deunff (2015) surveyed the socio-environmental conflicts around the world in 2014, recording 384 occurrences. Among them, 185 (48%) were categorized as having water as the main reason for the dispute. Of these water conflicts, 119 (31%) were motivated by mining activities, of which 77 occurred in Latin America. In other words, among the 384 environmental conflicts mapped in the world in 2014, 77 of them were related to water problems arising from mining and occurred in Latin America (JIMÉNEZ et al., 2015).

Since the 1980s, with the increasing representation of environmental movements, the water resources management system in Brazil has undergone advances, represented in the last instance by the creation of two legislative mechanisms: the National Water Resources Policy (Law 9.433, dated January 8, 1997) and the National Water Agency - ANA (Law 9.984, dated July 17, 2000) (TUNDISI, 2003, 2006).

Until the last years of the twentieth century, water management in Brazil was still based on the 1934 Water Code, which, in spite of being considered an important juridical framework, ended up favoring the hydroelectric use of water, not being effective in mediating the increasing conflicts over water resources that began to intensify from the middle of the last century. The intensification of the processes of industrialization and urbanization represented an increase of pressure on water bodies which, due to the lack of structures (sewage pipeline, universality of the distribution of drinking water) and gaps in the relevant legislation, resulted in pollution and silting of springs, droughts, and an increase in the number of floods and conflicts of uses.

However, Fonseca and Prado Filho (2006) show that the dynamics described above - that of increasing pressure for water resources, on the one hand, in contrast to insufficient water management arrangements, on the other hand, was well before the 1950s. According to the authors, the conflict over water in Brazil and the creation of

legislation dedicated to the subject is directly and inextricably linked to the activities of mineral exploration: the discovery of gold in the seventeenth century on the rivers of what would then become in 1720, the Captaincy of Minas Gerais meant a “(...) literal watershed in the history of the colonists’ relationship with the waters” (FONSECA, PRADO FILHO, 2006, p.6).

The dependence on water resources was so great that, at the time, it was common to perceive that “without water, a golden sierra is worthless” (Ferrer 1998, 109). As a result of mining, the value of the rivers increased, as they potentially indicated the presence and exploitation of gold and, therefore, also intensified the interest and, therefore, the conflict over the waters (JOÃO PINHEIRO FOUNDATION, 1999).

As a way of resolving such conflicts, on May 13, 1736, the Portuguese Crown sought to increase its powers over the control of water use in the Captaincy of Minas Gerais. Legislation was envisaged to establish mining services as having priority over other uses of water, and “(...) water would only be allowed to be diverted to the mills or to the vegetable gardens if there were no demand among the miners” (FONSECA, PRADO FILHO, 2006, p.11).

In this section of the article, the idea is not to make an exhaustive historical reconstruction of conflicts over water as a result of mining and the respective legislation created to mediate such conflicts. We seek only to point out how the water issue has been the source of a real war of interests for at least four centuries in Brazil, having as one of its clearest origins precisely the mining and its disputes over the preferences of water use. It is also possible to see how legislation, in addition to being always behind in the search for regulation of uses, does not always show a clear interest in guaranteeing the access and use of water to the population in general, such as the laws of 1736 and 1934; not infrequently hung for the protection of activities that would guarantee a greater “development” to Brazil - mining and hydropower, for example - to the detriment of others, such as human consumption itself.

In Brazil, the creation of the National Water Resources Policy (1997) and the establishment of the National Water Agency (ANA) (2000), a federal agency linked to the Ministry of the Environment, were the two main institutional measures since the Water Code of 1934, in the direction of a definition of the parameters of use and regulation of the water resources of the country.

It was with the National Water Resources Policy that it was recognized for the first time that “in situations of scarcity, the priority use of water resources is human consumption and animal watering” (BRASIL, 1997, Art. a change of focus of the preferred water user. In addition, it was established that water is a public domain good and the management of water resources should be decentralized and participatory (BRASIL, 1997).

Another key change was the introduction of the *river basin* as the central unit of legislation, a concept that allows the management of water resources from a sectoral, local system and response to crises and conflicts to an integrated and predictive system that seeks to anticipate potential demands and, with this, to avoid larger impacts (TUNDISI, 2003). Due to the delimitation of river basins do not necessarily coincide with municipal, state or even national political boundaries; a new institutional configuration has become neces-

sary in terms of management: river basin-centered management requires an articulated governance between the different levels of power (HUFSCHMIDT McCauley, 1986).

In general, the National Water Resources Policy, for having the hydrographic basin as a management unit (TUNDISI, 2006) would offer the opportunity for the development of partnerships and the resolution of conflicts; would allow the local population to participate in decision-making processes and promote the institutional integration necessary for the management of sustainable development.

However, persistent socio-environmental conflicts over water show that, even after 20 years of its establishment, the guidelines stipulated by the National Water Resources Plan have not been completely and correctly implemented by the National Water Agency (ANA). These socio-environmental conflicts are understood here as “(...) unequal competition for natural goods, opposing traditional socioeconomic and cultural practices and, on the other, mineral extraction industry” (SANTOS, 2012, p.75).

It is worth noting that the Brazilian government's excessive *faith* and its almost paternalism towards mining (PIMENTEL, MESQUITA, 2015), point out that several policies aimed at the sector, including the National Mining Plan 2030, formulated by the Ministry of Mines MME, have an extremely productive nature and authoritarian strategies that hide under the “national interest” argument and represent an increasing threat to workers and trade unions in the area, as well as to social movements and NGOs, communities and families affected, indigenous and traditional populations.

This is a trend that has only intensified in recent years, especially since 2010, when the National Mining Plan 2030 was published. The PMN - 2030's objective is “ (...) to guide medium - and long - term policies which can contribute to the mineral sector being a foundation for the country's sustainable development in the next 20 years “(BRAZIL, 2010, p. xiii), with this laying the foundations for the elaboration of a new Mining Code (PIMENTEL, MESQUITA, 2015). The dispute over the appropriation and use of natural resources, recognized as common and collective, such as land and water, which was already fierce in Brazil, has since intensified and extended towards vulnerable territories:

A worrying issue is the need for MME [Ministry of Mines and Energy] to establish guidelines for mining in legally restricted areas, including indigenous and quilombola⁷ lands, agrarian reform areas, archaeological and fossil sites, and environmental reserves (PIMENTEL, MESQUITA, 2015, pp. 381).

In line with this position delimited by Pimentel and Mesquita (2015), Santos (2012) argues that urban and rural populations, both traditional and indigenous, have had their traditional rights routinely disregarded. Among these fundamental rights is the one of access to the water, since the mining industry extracts directly on the existing sources of water in the territories. Severe disruptions in communities, restriction of other potential

7. A quilombola (Portuguese pronunciation: [kilõ'bɔla]) is an Afro-Brazilian resident of quilombo settlements first established by escaped slaves in Brazil. They are the descendants of Afro-Brazilian slaves who escaped from slave plantations that existed in Brazil until abolition in 1888. Source: <https://en.wikipedia.org/wiki/Quilombo>

economic activities and problems related to the environment are intrinsic factors to mining (BAKHEIT, 2005) and, therefore, unavoidable consequences of this whole process of expansion of extractive activities.

The scenario presented here unfolds, however, under the protection of a State whose economic bases are largely anchored in the project of large-scale mineral extraction. This context generates a dubious relation, to say the least, between public power and mining companies, in which the former often stands side by side with the latter, to the detriment of citizen participation and observance of the most basic constitutional principles (PIMENTEL, MESQUITA, 2015). In this context, the desired balance between development, which must be beyond mere economic growth, and ecological planning⁸, threatening the sustainable future of the Brazilian territory is also not respected.

One of the major sources of environmental assets and social wealth is precisely that of water resources, since the mineral exploration industries extract the aquifers, reduce and contaminate the groundwater and depend to a great extent on the alteration of waterways in areas immediately adjacent to the mining complexes, which also tends to have strong impacts at groundwater levels - primordial for the survival of the river basins. In addition, water also plays a central role in the processes of exploitation⁹ and, in particular, the processing of minerals. In some cases, as in wet-magnetic separation processes, water is required not only in high quantity, but also in high quality, often seeking water courses near springs. When disposed or discarded back to nature, they have, in significant part, residual concentrations higher than those recommended for the normal use of humans or even threats of contamination of the environment (SANTOS, 2012).

The configuration of the articulation between public power and private initiative contributes to the crystallization of the old belief that mining has priority over other economic activities. This “precept of mining priority” is based on the link between the alleged economic benefits of mining and the interests of the nation and society, defined as “public” - exclusively and arbitrarily by the state itself (MILANEZ, 2012) conflicts involving water resources, mining and territory.

3. Methodology

This article represents a fragment of the multidimensional reality that characterizes the context in which a mining enterprise is implanted in a given territory. In this sense, the presented here is constituted as a broader research clipping performed by the Multidisciplinary Research Group on Mining and Territorial Governance.

The participatory research that generates the case study (YIN, 2005; NUMAGAMI, 1998; DRESCH; LACERDA; MIGUEL, 2015) presented here was developed in a qualitative perspective, based on documentary analysis, interviews and, mainly, monitoring

8. Among the tools of territorial management is the institutionalized process of planning through the Ecological-Economic Zoning (ZEE), an instrument of the National Environmental Policy regulated by Decree No. 4.297 / 2002 (Brazil, 2017, <http://www.mma.gov.br/territorial/zoneamento/zoneamento>).

9. Exploitation “is a technical term used to refer to the withdrawal, extraction or procurement of natural resources, generally non-renewable.

processes in public meetings in the environmental licensing system of the state of Minas Gerais. As mentioned earlier, this work is part of a broad research, developed since 2010, when Participatory Rapid Diagnostic (DRP) techniques were applied for the preliminary mapping of communities (BROSE, 2001; GOMES, SOUZA; CARVALHO, 2001; FARIA; FERREIRA NETO, 2006; VERDEJO, 2010; FREITAS; FREITAS; DIAS, 2012). What distinguishes DRP is the possibility of promoting self-knowledge, the re-elaboration of the history and the family trajectories of the local people. The adoption of techniques to perform the DRP, such as mental map, time line, transversal walk, Venn diagram, allows verbalization and representation of established power relations, identification of subjects with collective history, questioning of conflicts experienced by the participating group and, therefore, the knowledge, awareness and appreciation of the community's interest choices.

In other words, the research-action techniques for diagnosing and questioning environmental impacts and conflicts with the direct participation of those affected have demonstrated the potential to generate knowledge and mobilize the collective to formulate propositions and referrals of their demands. Throughout the research, the scope of socio-environmental diagnostic tools was expanded due to the polarization of interests and agents. In this sense, the typical criticisms of the notion of sustainability (FREY, 2001) and the impacts of large scale mining enterprises (FERNANDES, ENRIQUEZ, ALAMINO, 2011) stimulated the attempt to combine diagnostic techniques with a strategic profile, as presented by experts in prospective scenarios such as Godet (2000).

When identifying the preponderance of the technical-economic interests of the mining enterprise on the demands of affected communities and not recognized by the institutional actors involved in the environmental licensing, the objective of investigating popular participation in the construction of the scenarios was no longer coherent, since environmental conflicts have taken center stage. The research team was then guided by the documentary study with the follow-up of the movements of those affected in their confrontations with the company and with state agencies in the administrative processes when they manifested conflicts arising from decisions made about the enterprise.

The various phases of the field research involved, besides the participatory dynamics with the housing nuclei of the districts affected by the project, in the communities of São Sebastião do Bom Sucesso, or Sapo, as well as Água Santa, Mumbuca and Ferrugem; Turco, Turco Headland, Beco, Água Quente composed by the Faustinos, Gramixá, Cachoeira, Teodoros, and Gondó - the monitoring of meetings and public hearings (more than a dozen) and, specifically, the 12 meetings of the Socio-Environmental Monitoring Network of the Minas-Rio Project - REASA¹⁰, established by the Public Ministry of Minas Gerais (PRATES, 2014) and, as from 2014, the follow-up of the social movement of those affected, REAJA - Articulation Network and Justice of the Affected by the Minas-

10, In May 2012, the Coordination of Social Inclusion and Mobilization of the Public Prosecutor's Office of Minas Gerais created, after joint audits of the demands of the affected communities, the REASA - Socio-Environmental Monitoring Network of the Minas-Rio Project. The main objective was to hold monthly meetings in these communities so that complaints could be filed and, presumably, to take decisions to institute legal measures in defense of the vulnerable population that was in continuous conflict. But after recognizing the inaction of the MPMG, those affected chose to declare themselves independent of the guardianship and recreated their movement under the name of REAJA - Articulation Network and Environmental Justice of Those Affected by the Minas-Rio Project.

Rio Project. It is worth mentioning that the REAJA movement covers issues related to land ownership, environmental licensing, land restructuring, resettlement of recognized beneficiaries and the struggle for recognition of others, as well as the issue of availability and access to quality water as already established in legal conditioning measures.

This article represents a fragment of the multidimensional reality that characterizes the context in which a mining enterprise is implanted in a given territory. The discussion contemplates the relationship between the communities in their territory and the forms of access and use of water from the implementation of the Minas-Rio project, of an open-pit iron mining, which installed the waste rock pile and the tailings dam on springs in the waterways that supply the downstream populations.

4. The Minas-Rio Project and the impacts on downstream communities

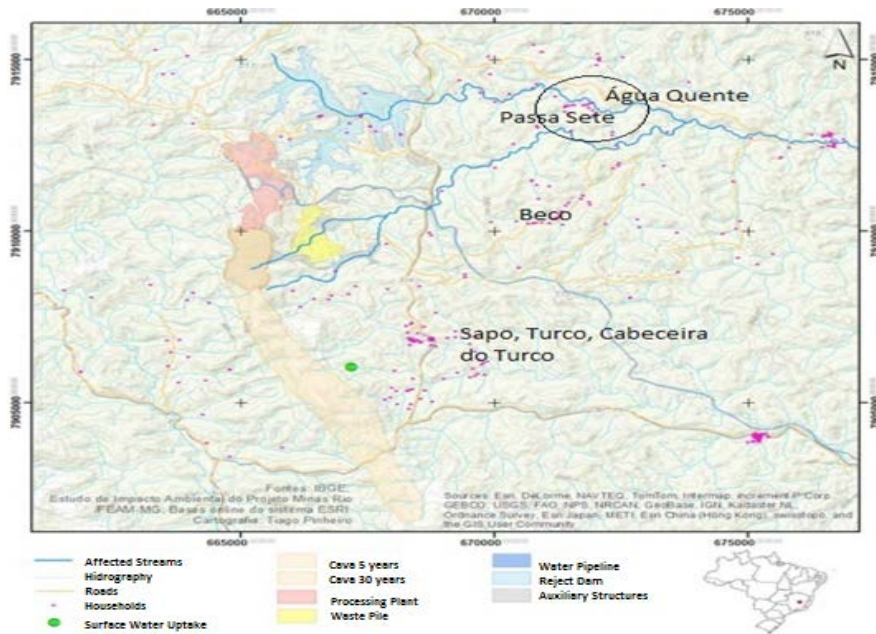
The Minas-Rio Project was conceived as a mega system involving three structures: the mine with more than 12 km of extension in the Sapo and Ferrugem mountains, in the borders of Conceição do Mato Dentro, Alvorada de Minas and Dom Joaquim, in the region of the Middle Espinhaço; a slurry pipeline of 529 km, passing through 25 mining municipalities and seven in Rio de Janeiro; and the Port of Açú, in São João da Barra / RJ. The entrepreneurial discourse reveals a milestone in the logistical integration between the mine and the port of exportation. For the affected populations, the project involves displacement, resettlement, water scarcity, environmental degradation, problems resulting from the technological choices of extraction, wet processing and an ore pipeline transportation that impact the cycles of production and use of water and productive land.

The environmental licensing processes of the large enterprise were fragmented and filled with problems of legal and operational orders, without strategic and integrated analysis of environmental impacts. As shown by several studies (BECKER; PEREIRA, 2011; PEREIRA, PEREIRA, 2012; Pereira et al, 2013th, 2013b; Pereira et al, 2015; Zhouri, 2014; Santos, 2014), what creates conflict involves: land issues, with displacements and settlements on the part of affected communities, but with different criteria and forms of negotiation, with contracts partially (un) fulfilled and generating insecurity and instability of families; the water conditions, with extinction of water courses, groundwater relegation, pollution, contamination of streams in the local water grid; the violation of human rights as registered through the Office of the Public Defender and Public Prosecutor; the fragility and ruptures of family and community ties, resulting from the formulas of intervention and relationship of the company with those affected. The communities of the Passa Sete and Água Quente, which encompass several family nuclei such as the Faustinos, are located between the two streams Pereira / Vargem Grande and Passa Sete (blue in Figure 1).

The press spokesperson of the company and its interests emphasizes the economic side of generating direct and indirect jobs and the circulation of capital with the growth of local commerce in those cities. Regarding the local problems, the news is basically those of accusation, accountability of those affected who demand rigor and legality in the accomplishment of the actions of implementation of the enterprise and the impacts management.

Over the years in which they faced the environmental licensing process two significant issues mark the repetition of allegations of non-compliance situations supposedly regulated: restructuring and land negotiations (ZHOURI, 2014 and SANTOS, 2014) and the management of water that serve the communities in the watersheds of the Passa Sete and Pereira streams (PRATES, 2014). The REASA - Minas-Rio Social-Environmental Monitoring Network, created in a joint action of the State, Federal and Public Prosecutor's Ministries of MG, was the cruelest of the monthly witnesses of the subhuman conditions to which the local residents were subjected. Repeatedly, month by month, those affected exposed their problems in the expectation that the public hearings would be able to reverse the conflict with the solutions to the problems of recognition of the conditions of the families affected and the proposals for resettlement and compensations according to the restructuring requirements imposed by the entrance of the mining in its territories.

Figure 1 - Minas-Rio Structures, affected communities and watercourses



Source: Extracted and adapted from Rosa (2014, page 58)

According to studies by Zhouri (2014) and Pereira et al. (2015), no effective action by the authorities was launched to combat injustice and repair the damage experienced in the communities. After a year of repeated denouncements, there was a lack of recognition of the reached conditions, inability of further cultivation and breeding of animals due to lack of water, silting, contamination and reduction of water volume in the stream, drying of springs, dust, noise, fraudulent negotiations, fragmentation of procedures, non-compliance with technical norms and laws, etc. On the part of the company, the same

speech was heard that accompanies most of the opinions and reports favorable to the enterprise and its technical-managerial procedures. The central argument was of a bureaucratic tone, calling to the scene the linear and normative notions of technical-economic rationality. Company representatives and counselors corroborated the arguments that if the Environmental Impact Study approved with the Preliminary License did not indicate the location of families in those particular territories, it did not even acknowledge the existence of the Água Quente community; if no impacts were identified on watercourses around which no residents were identified; if the dam located upstream of the community was designed to be safe, downstream communities do not need to be concerned of anything. It would be enough to believe that the “fear of rupture was psychological”, as repeated by the company manager in meetings with those affected (MINAS GERAIS, 2012). The conception and condition of in situ displacement was then deepened, when in its place the subject is no longer able to guarantee the sustenance of his way of life, of his production. The following testimony illustrates the company’s disregard for the native population and the water resources of the territory.

Until today, Anglo does not know, they do not come in front of the people to say anything. I want to know when the water from the Pereira and Passa Sete stream are going to be cleaned, because the answer that was given to the recommendation of the public prosecutor’s office is another professional make-up. Oh, a project is being done, oh implantation is being done, which day the water will be clean, that since 2009 has been dirty, that until today they were not able to do a study, that until today they can not give a date for us. In addition, what did Anglo say to the people? What? ... (...) (Affected, 64, 3rd audio transcription REASA, in August / 2012, Itapanhoaganga-MG, GESTA archive) (PRATES, 2014).

In an observation carried out on May 24, 2017, during a field visit to the Água Quente community, it was possible to observe the permanence of the water characteristics in the Passa Sete stream, around the houses, which suggest the impropriety for human and animal use, as shown in figure 2 below.

Figure 2 - Waters of the Passa Sete Stream and septic tank in the backyard of Água Quente



Source: Research Collection

The installation of septic tanks in the backyards of the houses, as well as the installation of two water tanks, supplied by kite trucks of the company, in order to appease the demand of all the residents of the community, generated endless polemics. The water from the water tank should be distributed by hoses in networks placed by the families themselves. Toilets and septic tanks were built without the full acceptance of the residents, especially by imposing unrecognized standards. In addition, two occurrences of fish mortality also mark these communities:

The acknowledgement of the death of the fish happened on June 15 and according to residents of the region, there were already few species of fish in the mentioned section. “Now the river is dead for sure,” says Dona Maria da Consolação, who lives on the banks of the stream. It is not the first time that it happens. In 2014, even before obtaining the Operation License of the enterprise, a large number of fish, chickens and even dead cattle were recorded by drinking the water from the stream (FALA CHICO, 06/20/2017).

In the community of Faustinos, near Água Quente, the situation does not appear very different. The water provided by the municipality to meet the needs after the loss of the source and its flow also does not arrive in good quality conditions for drinking and other purposes.

The public agencies, however, are condescending with the company, as officialized

by the Municipality of Conceição do Mato Dentro, through the Secretariat of Environment and Urban Management, in the document Situational Report 001/2017 - Community of Faustinos, when presenting to Anglo American's justification that "it exempts itself from the responsibility for the adequacy of the supply of that community, claiming that it is not directly affected by any action of the company and that the drainage area of the supply sub-basin has not suffered any direct interference from the enterprise." In the company's argument, "there are no studies that prove that the company and the wells drilled in the region would have affected the level of the water table, thus reducing the flow at the source" (CONCEIÇÃO DO MATO DENTRO, 2017).

The relations between the company's interference in the territory and the environmental management are also reflected in the ongoing civil surveys, systematized by the Margarida Alves Collective (2017) in the Dossier on Violation of the Human Right to Water. Among the surveys analyzed, six were highlighted, directly linked to the correlation between mining and water, thus summarizing their contents:

- Granting - use of groundwater - Water reduction - Minas Rio Project;
- Death Toll fish - Passa Sete Stream - Tailings Dam;
- Gondó Community - explosions in Serra da Ferrugem - silting and pollution of watercourses;
- Safety measures - tailings dam - Minas Rio;
- Subsistence - lack of access to water - irregular and precarious supply - City Hall;
- Subsistence - lack of access to water - irregular and precarious supply - City Hall;

The two inquiries involving City Hall concern the different consequences of the miner's activities. One denounces landslides over streams; the other denounces the shortage of water resulting from the construction of the sterile piles and dams above the springs and the precariousness in the supply of water for human use by means of water trucks in the service of Conceição do Mato Dentro City Hall.

Despite the advances in Brazilian legislation regarding water resources management, especially in the last three decades (TUNDISI, 2003, 2006), problems persist when addressing social and environmental conflicts in order to contemplate the aspirations of all the actors involved (SOSA, ZWARTEVEEN, 2016). Such a relationship opens the conflicts between mining companies and traditional communities involving access to water and corroborates the position defended by Pimentel and Mesquita (2015, pp. 394-395), that "the Brazilian State takes sides in favor of companies to the detriment of citizen participation and observance of the most basic constitutional principles." The technocratic discourse practiced by the mining companies and, strongly corroborated by the public power, acts as a "smokescreen" that obscures power relations and political arrangements that are in the midst of environmental conflicts (ACLASTA, 2016; ADLER et al., 2007, JIMÉNEZ et al., 2015, PIMENTEL, MESQUITA, 2015).

5. Final Considerations

In trying to systematize elements about irresponsibility in the processes of environmental licensing and implementation of the Minas-Rio project, we identify antagonistic visions of the different actors involved. The specialized opinions and business and technical arguments of the political licensing system are aimed at highlighting the positive impacts such as warming the local economy and disqualifying the living conditions and demands of the affected population. The situations of vulnerability in which the residents of the communities mentioned here - especially because they are below the tailings dam and because they lack access to adequate water for consumption - lead to the recommendation of immediate insertion of the families in the processes of land restructuring and negotiation, that is, of collective resettlement.

This issue has been literally ignored by the mining company and state representatives. In addition, one can identify the continuity of a *modus operandi* that demonstrates the unequivocal domination of mining, or mineral extractive economy, on the strategic decisions related to water, secondary to the population demands. In spite of institutional regulations, it is clear that business interests dilute and deform legislation regulating the use of water resources at the same time as their actions produce violations of human rights to water and the quality environment. There is also an aging of mining technologies dependent on large volumes of water, destructive of aquifers, groundwater and watercourses that predominate in the state of Minas Gerais. The situation continues to worsen with the pipeline transport system that, in addition to demanding high percentages of water grants for a single undertaking, leaves its trail of destruction on rural properties cut by the areas of servitude and negative interference in geography and landscapes locations.

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Original Article

ORGANIZATIONAL IRRESPONSIBILITIES OR ABSENCE OF TERRITORIAL GOVERNANCE? REFLECTIONS ON ENVIRONMENTAL MANAGEMENT IN THE MINAS-RIO PROJECT

Abstract: The aim of this paper is to analyse social and organizational dimensions of the environmental licensing and implementation process of the mining project Minas-Rio, discussing methodological and managerial frailties highlighted by the accumulation of reports regarding irregularities, socioenvironmental conflicts, and flaws in the venture's masterplan. This situation reveals authoritarian systems of business management and territorial governance, which fail to sustain local development, subjecting families to the disruption of their traditional livelihood. In 10 years (2007-2017) following the case, qualitative methods – participative techniques – were used to collect data, allowing the comprehension of the environmental licensing processes, negotiations and conflicting clashes between actors. It was observed that tools for public corporate planning did not prove to be able to guarantee the management of the impacts on water resources: water-courses had springs and stretches trapped and communities declared themselves affected by the water drying and pollution, being assisted only with precarious supply solutions.

Resumo: Este trabalho teve por objetivo sistematizar e analisar dimensões sociais e organizacionais do processo de licenciamento ambiental e implantação do projeto minerário Minas-Rio, discutindo fragilidades metodológicas e gerenciais evidenciadas pelo acúmulo de denúncias de irregularidades, conflitos socioambientais e falhas de planejamento do empreendimento. Tal situação traduz gestão empresarial e governança territorial autoritários, incapazes de sustentar o desenvolvimento local, submetendo famílias a condições desestruturantes dos modos de vida. Em 10 anos (2007–2017) de acompanhamento do caso, adotaram-se métodos qualitativos – técnicas participativas – para obtenção de dados, permitindo a compreensão dos processos de licenciamento ambiental, negociações e enfrentamentos conflituosos entre atores públicos e privados. Constatou-se que instrumentos de planejamento empresarial públicos não se mostraram capazes de garantir a gestão dos impactos da mineração sobre recursos hídricos: cursos d'água tiveram nascentes e trechos soterrados e comunidades se declaram prejudicadas pela diminuição e poluição da água, sendo atendidas por precárias soluções de fornecimento.

Palavras-chave: mineração; comunidades atingidas; recursos hídricos; governança territorial.

Resumen: Este trabajo tuvo por objetivo analizar dimensiones sociales y organizativas del proceso de licenciamiento ambiental e implantación del proyecto minero Minas-Rio, discutiendo fragilidades metodológicas y gerenciales evidenciadas por denuncias de irregularidades, conflictos socioambientales y fallas de planificación del emprendimiento. Tal situación traduce gestión empresarial y gobernanza territorial autoritarios, incapaces de sostener el desarrollo local, sometiendo a familias a condiciones desestructurantes de sus modos de vida. En 10 años (2007-2017) de seguimiento del caso, se adopta métodos cualitativos - técnicas participativas - para la obtención de datos, permitiendo la comprensión de los procesos de licenciamiento ambiental, negociaciones y enfrentamientos conflictivos entre actores. Se constató que instrumentos de planificación pública no se mostraron capaces de garantizar la gestión de los impactos de la minería sobre recursos hídricos: cursos de agua tuvieron nacientes sepultados, y comunidades se declaran perjudicadas por la disminución y contaminación del agua, siendo atendidas por precarias soluciones de suministro.

Palabras clave: minería; comunidades afectadas; recursos hídricos; gobernanza territorial.
