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Environmental Licensing and its effects  
on the mining sector

Bruno Milanez

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# The PL (Bill) 3729/2004 on Environmental Licensing and its effects on the mining sector<sup>1</sup>

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## Abstract

The National Congress, jointly with the Bolsonaro government, has been advancing their agendas of environmental deregulation. PL (Bill) 3729/2004 approved by the Chamber of Deputies in May 2021, is one of those measures and aims to institutionalize, at the federal level, licensing procedures less stringent than those in current legislation. This paper identifies some of the likely consequences of the approval of the Bill on environmental licensing in the mining sector. We argue that the exclusion from the Bill of large and/or high-risk mining ventures is not a guarantee that there will not be considerable loosening of the licensing of such activities in Brazil in the medium term, since this is part of the agenda of the government and the mining sector. Furthermore, we indicate that the loosening of licensing of mining activities included in the scope of the PL, namely small and medium operations, will tend to generate negative impacts on communities and the environment. and in consequence an increase in conflicts involving activities of mineral extraction. In addition, we indicate that municipalities with mining, and Indigenous Peoples whose land-holdings have not yet been regularised, may be severely impacted by the new measures.

## Key words

Brazil, Mining Policy, Environmental licensing

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## Highlights

- The aim of PL (Bill) 3729/2004 is to institutionalize, at the federal level, less restrictive procedures, some of which are in practice already being carried out in different states.
- Although every mining activity can be considered to be highly polluting, the Bill excludes only large and/or high-risk ventures. These categories do not have an exact definition and, depending on the criteria, might represent only 12% of the enterprises.
- Regardless of specific legislation, future changes in the regulation of environmental licensing of large and/or high-risk mining ventures may occur in three ways:
  - taking into consideration Decree 10,657/2021, which established a policy of support of environmental licensing of "strategic minerals" production projects, imposing limited deadlines for licensing approval;
  - changing the classification system of IBAMA through the presidency of the agency, reducing the classification of the degree of risk of mineral projects
  - modifying CONAMA's own standards, where the government has a majority.
- The Bill puts in place new modalities of environmental licensing – such as the Single Environmental License (LAU), Environmental License by Adhesion and Commitment (LAC) and the Corrective Operation License (LOC) - which eliminate part or all of the phases of licensing and which authorize operations that were unauthorized.
- Authorizations through the Usage Guide, which have already been deregulating the environmental licensing of small activities, may serve as justification for reducing licensing requirements, when considering mining works as a simple expansion of a project.
- The Bill reinforces the use of mediation and conciliation instruments, such as the Terms of Conduct Adjustment (TACs), which have already proven ineffective in cases of disasters caused by mining in Brazil.
- The plan is to eliminate the need for environmental licensing for emergency activities when the need arises for preventive and corrective measures arising from the risk of failure of tailings dams, despite the institutional inability to check the real risk of such structures.
- Restrictions for the creation of conditions related to the execution of public services may make it impossible to mitigate the impacts of the increased demand for public services (health, safety, infrastructure etc.), arising from mining ventures.
- PL 3729/2004 ignores Indigenous Lands (TIs) in the process of regulation, which may affect more than 237 TIs in this condition (33%).

## 1 Introduction

The approval of PL 3729/2004 by the Chamber of Deputies in May 2021 generated a series of questions and criticisms by various organizations and entities. To a large extent this was because it institutionalized, at the federal level, licensing procedures that are less stringent than those currently in place. In this way, it would tend to promote the implementation of potentially polluting projects and activities to the detriment of environmental protection (ABA, 2021; ABRASCO, 2021; SBPC, 2021).

To understand the objectives of PL 3729/2004, it is important to look at the profile of the rapporteur, Neri Geller, a deputy elected for the Progressives of Mato Grosso (PP/MT). Geller has a strong connection with agribusiness; he is the coordinator of the nucleus of soya producers of Lucas do Rio Verde (MT) and was vice president of the Producers Association of Soybean Production of Mato Grosso (FGV CPDOC, 2021). In the Chamber of Deputies (Câmara dos Deputados, 2021b) he is part of the Parliamentary Group for Armaments, Agriculture and Mining, but he is absent from the Environmentalist Group. The interests to which Geller is linked tend to be against what should be the core of environmental licensing: ensuring the maintenance of environmental integrity and people's territorial rights.

Also, for the assessment of the impacts of PL 3729/2004, it is necessary to take into consideration that its eventual approval will not necessarily mean an immediate change in environmental licensing processes in Brazil. According to the Federal Constitution, the Union, states and municipalities have common competence to protect the environment and concurrent competence to legislate on protection of the environment and the control of pollution (Brasil, 1988). So, according to the legislation (Brasil, 2011), with some exceptions, the standardization and implementation of the environmental licensing are largely the responsibility of state governments<sup>5</sup>.

Within this context, there is an understanding that it is the responsibility of the Federal Government to establish the most general environmental legislation, with states and municipalities preparing complementary and detailed regulations. Also there is an understanding that, while respecting the formal competences, in case of conflict between norms of different federative entities, the more restrictive rule prevails (Figueiró and Colau, 2014).

Starting from this understanding, and because PL 3729/2004 is in many aspects less restrictive than the legislation of many states, the Bill does not need to be automatically put into practice. On the other hand, it should be expected that, considering the low institutional capacity (and institutional vulnerability) of many states (Scardua and Bursztyn, 2003), the flexibility created by this norm will trigger,

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<sup>5</sup> According to the legislation, it is the competence of the Federal Government to license projects and activities: located in a border area; in the territorial sea, on the continental shelf or in the exclusive economic zone; in Indigenous Lands; in federal areas, in two or more states; of a military character, associated with the exploration and processing of radioactive material or that meet a specific typology defined by an Executive act, such as oil exploration and extraction, large-scale energy generation and transmission systems, among others (Brasil, 2011, 2015).

in the medium term, a ripple effect, and many states and municipalities will change their environmental regulations to also make them more permissive and less protective. To some extent, this movement is already provided for in PL 3729/2004, in its 4th article Paragraph 1:

Federative entities must define the types of activities or undertakings subject to environmental licensing, respecting the attributions provided for in Complementary Law No. 140, of December 8, 2011, updated whenever necessary and subject to the provisions of articles 8 and 9 of this Law (Câmara dos Deputados, 2021d).

Based on these assumptions, the main objective of this text is to assess what are the likely consequences of a possible approval of PL 3.729/2004 (in the form as approved by the Chamber of Deputies in May 2021) for the environmental licensing of mineral extraction activities<sup>6</sup>. In this text, we argue that the exclusion of large-scale and/or high-risk mining projects is not a guarantee that there will not be considerable loosening of licensing of such activities in Brazil in the medium term. We also argue that looser licensing of mining activities included in the scope of the Bill will tend to generate even more negative impacts for the communities and the environment, resulting in an increase in conflicts involving mineral extraction activities.

For the presentation of this argument, the text is organized into four sections, in addition to this one (introduction). In Section 2, we describe and interpret the deletion of some specific mining activities from the Bill. Then we discuss the creation of new licensing modalities with special attention to their effect on the issuing of User Guides (GU). Section 4 deals with a number of detailed points of PL 3729/2004 and assesses how they may impact the licensing of mineral activities. Finally, the last section presents some developments and possible practical scenarios for the Brazil of this Bill is approved.

It should be noted that this is a preliminary text and, therefore, is not exhaustive and should serve as a starting point for deeper debates about the interface between changes in environmental licensing and activities of mineral extraction.

## 2 The exclusion of large scale and high-risk mining activities

Among the different existing economic activities, mineral extraction receives a different treatment in the wording of PL 3729/2004. Thus, in article 1, 3rd paragraph, the Bill defines that:

For licensing of large-scale and/or high-risk mining activities or ventures the provisions of the National Council for the Environment (Conama) will prevail until a specific law is promulgated (Câmara dos Deputados, 2021d).

According to the documentation available on the Chamber of Deputies website (Câmara dos Deputados, 2021c), the different treatment for activities of mineral

<sup>6</sup> For broader debates on the Bill, we recommend the assessments prepared by the Brazilian Association of Anthropology (ABA, 2021) and by the Brazilian Society for the Progress of Science (SBPC, 2021).

extraction was due to the Parliamentary Amendment 89, authored by the deputies Rogério Correia (PT/MG), Júlio Delgado (PSB/MG) and Zé Silva (Solidariedade/MG).

Article 1. The following paragraphs 3 and 4 are added to article 1 of the Amendment presented by the rapporteur:

[...]

§ 3 The provisions of this Law do not apply to the environmental licensing of mining ventures.

§ 4 Until the approval of the Law dealing with the environmental licensing of mining projects, the licensing authority shall follow the determinations of the National Council for the Environment. (Câmara dos Deputados, 2021a)

Thus, it can be seen that, contrary to what had been proposed in the amendment to PL 3729/2004, which excluded all mineral extraction activities, the rapporteur chose to withdraw only a part of these activities. However, it should be kept in mind that this differentiation between mineral activities, either by risk or by size, adopted by the rapporteur is a novelty, at least in federal legislation, and contravenes the rules in force.

For example, Law 6938/1981, which defines the National Environment Policy, after the changes defined by Law 10,165/2000, established that the extraction and treatment of minerals are activities with high polluting potential and high degree of use of environmental resources and, as such, would depend on prior environmental licensing (Brasil, 1981). At the same time, the CONAMA Resolution 001/1986 states that the extraction of ore will depend on licensing by competent authorities, preceded by an Environmental Impact Study and an Impact Environmental Report (CONAMA, 1986). In addition, the CONAMA Resolution 237/1997 reinforced this by saying that mineral prospecting with a Utilization Guide, open-pit mining, underground mining and garimpo are subject to environmental licensing (CONAMA, 1997). Therefore, current federal regulations consider all mineral extraction activity as having high pollution potential and a high degree of use of natural resources, regardless of their size or level of risk.

Furthermore, the creation of this differentiation for "large and/or high-risk activities" is vague, since the Bill does not explicitly establish the criteria to be adopted in this classification, which may generate a series of legal disputes on the subject.

For the analysis presented here, it will be adopted as a hypothesis that such parameters would follow, at least for federal licensing, the MMA/IBAMA Ordinance 2231/2020 (MMA and IBAMA, 2020). This Ordinance was approved in the context of the deepening of the ultraliberal model defended by the Minister of Economy Paulo Guedes and is an offshoot of Law 13,874/2019, called the Declaration of Economic Freedom Rights (Brasil, 2019b). This law established that there would be a differentiated involvement and control by public bodies over the private sector, according to the degree of risk associated with economic activities. At the regulation stage of the Law, Decree 10178/2019 created the following typology:

I - risk level I - for cases of light, irrelevant or non-existent risk;

II - risk level II - for moderate risk cases; or



III - risk level III - for high-risk cases (Brasil, 2019a).

The same decree established that specific entities would define proposed risk classifications for different activities. In compliance with this requirement, MMA/IBAMA Ordinance 2231/2020 was published, which established risk levels for various activities. Table 1, in the annex, lists the risk classification adopted by MMA/IBAMA for some of the main activities associated with mineral extraction.

Thus, activities that would be within the scope of the Bill and subject to a more flexible licensing would be those considered to be of moderate or low risk. These activities would include the raising of small dams, the installation of a Mineral Treatment Unit (UTM) with small-scale dry treatment, small-scale underground mining, small-scale open-pit mining of minerals, pipelines located in the internal areas of the enterprises, among others (MMA and IBAMA, 2020).

However, this risk level analysis is still incomplete since, according to art. 3 of PL 3729/2004, the size would be defined by "dimensioning of the activity or enterprise based on criteria pre-established by the competent federative entity" (Câmara dos Deputados, 2021a). The MMA/Ibama Ordinance 2.231/2020 does not establish objective criteria for a definition of small-scale in the context of a mine, a UTM, or a dam<sup>7</sup>.

In mining there is no consistency in the way that size is defined in Brazil. As can be seen in Table 2 (annex), different units of the federation adopt different criteria to establish the size of extractive industries. Thus, it can be expected that, given this situation, PL 3729/2004 will generate considerable legal uncertainty about which projects would be included in its scope and which would still be licensed in accordance with CONAMA rules.

At the same time, it is possible to imagine that, making conditions easier using the regulations of PL 3729/2004, mineral extraction projects may be divided into subprojects to meet the criteria of being small-scale. Alternatively, such projects may be started at the maximum size of a small project and be later expanded. This kind of project division may make the environmental licensing process even less demanding, since "extensions" to projects tend to be treated less rigorously by the environmental licensing bodies, because they have already caused the transformation of the original environment.

Within this context, it should also be noted that the exception created by article 1 of the Bill would exclude a tiny part of extractive projects. Heider (2019), based on the classification criteria used by the National Agency of Mining (ANM), estimated that in 2017, 135 large mines were in operation. 992 medium, 2750 small, and 5653 micro projects. If a similar proportion applies to new projects, it can be concluded that the rules of PL 3729/2004 may be adopted in the licensing of 88% of projects of mineral

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<sup>7</sup> The National Mining Agency (ANM) classifies dams into very small, small, medium, large and very large size; however, more critical for environmental licensing would be to assess the Associated Potential Damage (DPA). However, the MMA/Ibama classification disregards this variable. Data from the ANM show that, concerning very small and small dams (with a volume of less than 5 million m<sup>3</sup>) and of unknown size, there are 169 dams with high DPA, 147 with medium DPA, and also 442 dams which DPA is unknown (ANM, 2021a).

extraction in Brazil. If there is an “instalment plan” for medium-sized projects, as mentioned above, this percentage could be even higher.

A second issue that deserves further debate concerns the possible strategies to ensure the change of licensing of “large and/or high-risk projects”, since PL 3.729/2004 mentions the possibility of a specific law.

One possibility is that, at least for mineral extraction activities, this “law” has already been created “in fact” from the publication of Decree 10,657/2021 (Brasil, 2021)<sup>8</sup>. This decree established the policy of supporting the environmental licensing of investment projects for “strategic minerals”<sup>9</sup>, and came in the wake of Law 13,334/2016, which said that state entities “have the duty to act” for these investment projects to be completed “in a period compatible with the priority status”. In its chapter that deals with “The release of projects of the PPI”, Law 13,334/2016 defines “release” as “the obtaining of any licenses, [...] regulatory, environmental, indigenous, urban, [...] water, for the protection of cultural heritage, [...] and any others, necessary for the implementation and operation of the enterprise” (Brasil, 2016). Thus, what might happen after such a Decree is that limited deadlines for approval are imposed for the approval of the environmental licensing of projects for the extraction of “strategic minerals”.

Considering the growing precariousness of environmental licensing bodies, this scenario can significantly reduce the rigour of assessing the viability of these projects.

Alternatively, it is possible that an eventual “specific law” will be created and follow criteria close to those of PL 3.729/2004, since there has already been an effort by the ANM, in partnership with IBAMA, and with the involvement of the Organization for Cooperation and Economic Development (OECD), for the “downsizing” of the environmental regulations for mining, as explained by former ANM director Eduardo Leão:

About licensing, as I mentioned, we had a very productive meeting with IBAMA’s board [...] with Jônatas [Trindade], who is the director of licensing, where they have a very interesting project on this issue, also based on the Law of Economic Freedom; the question of risk gradation of licensing. For example, in Pará you have Simplified Licensing. For Rio you have the EIA/RIMA. That is, you have different licensing teams for the same type of activity. So IBAMA asked... let's cooperate. They sent us everything about the mineral sector for us to evaluate and coordinate with them the gradation of environmental risks for the mining activities. It is going to make a sort of national glossary of size, and such. I guess that this is going to be really great, I'm really very impressed with this work rate that IBAMA has now. And to be level with you, this is the first time I'm going to put this information outside of the agency. We started working with the OECD, on a review of our regulations in March, right at the beginning

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<sup>8</sup> For a more detailed discussion of Decree 10.657/2021 see Milanez (2019).

<sup>9</sup> According to SGM/MME Resolution No. 2/2021, “strategic minerals” are considered: sulphur, aluminium ore, cobalt ore, copper ore, tin ore, iron ore, phosphate ore, graphite ore, lithium ore, manganese ore, molybdenum ore, niobium ore, nickel ore, gold ore, potassium ore, silicon ore, thallium ore, tantalum ore, rare earth ore, titanium ore, ore of tungsten, uranium ore, vanadium ore and platinum group ores (SGM/MME, 2021).

of the pandemic. And we talked about this alignment with IBAMA. The OECD will do this adjustment of the regulation of mining and the environment free of charge with the Brazilian government. So they're going to go inside IBAMA, they're going to help us also make this downsizing and this review of the environmental regulation of mining. That was a really interesting win and it wasn't mapped by us (Leão, 2020).

However, there are still other possible alternatives, in addition to the creation of a specific law. Another strategy would be to change IBAMA's own classification system, reducing the degree of risk of mining projects. In this sense, it should be remembered that changing an ordinance is a prerogative of the president of IBAMA. In September 2020, when the MMA/IBAMA Ordinance 2,231/2020 was signed, the president of the institute was Eduardo Fortunato Bim who, according to Bragança (2018), was critical of Three-Phase Environmental Licensing (LAT)<sup>10</sup> and the requirement for compliance with conditions imposed on companies by environmental licenses.

There is still a third possibility for future flexibility in the process of licensing of mining projects, which could occur through changes in the CONAMA standardization itself, as warned by Vervloet (2021).

In this sense, it is important to take into account that, in May 2019, there was a restructuring of this Board, which went from 96 to 22 members, mostly in line with Federal Government guidelines (Firmiano, 2020). In the current composition of CONAMA, the federal government has eight seats, in addition to the presidency and executive secretariat, the others being occupied by state governments (5), environmental entities (4), municipal governments (2), business entities (2), and the Federal Public Ministry (1), the latter not having the right to vote (CONAMA, 2021). Therefore, the federal government, in coalition with the business entities, would not find it very difficult to make any changes they wanted.

Therefore, the exclusion, at first, of mineral extraction activities that are large or of high risk from PL 3,729/2004 does not guarantee that the licensing of such activities will not change in the near future. Considering the current situation of prioritization given by the Federal Government to the sector (Milanez, 2021), it is possible that new initiatives are still adopted in the short or medium term to make the licensing of projects that have so far been excluded more flexible and easier through this Bill.

### 3 Licensing modalities and their relationship with the Use Permit (Guia de Utilização – GU)

PL 3.729/2004 (Câmara dos Deputados, 2021d) also brings new modalities of environmental licensing, including the Single Environmental License (LAU) and the Environmental License by Adhesion and Commitment (LAC); it still regulates the License Corrective Operation (LOC).

<sup>10</sup> The Three-Phase Environmental Licensing comprises the sequential issuance of the Preliminary License, the Installation License and the Operation License.

The LAU would allow in a single step the installation, expansion and operation of a project, and would establish the environmental conditions to be met without, however, these being decisive conditions for obtaining the intended licence.

It would also approve the Environmental Control Plan (PCA), which details the programmes, the projects and actions to mitigate, control and monitor the compensation of the resulting environmental impacts; and the Environmental Control Report (RCA), which should contain the data and general information of the project and its impacts (Câmara dos Deputados, 2021d) which, in our view, would replace Environmental Impacts Assessments (EIAs).

On the other hand, the LAC would authorize the installation, expansion and operation of an activity or enterprise upon declaration of adhesion and commitment of the entrepreneur (Câmara dos Deputados, 2021d). This is the modality that researchers, organizations and environmental entities have called self-licensing (ABA, 2021; SBPC, 2021). To support the granting of this licensing method, according to PL 3.729/2004, it would be sufficient for the entrepreneur to present the Enterprise Characterization Report (CER) with the technical information on the installation and operation of the activity to the licensing agency. This report, in addition to defining the contents of the necessary environmental analyses (a kind of Terms of Reference) for projects that would pass through the LAC and that would no longer be subject to EIA, would only be checked by sampling the information sent by the entrepreneur without full surveys (Câmara dos Deputados, 2021d).

In relation to the LOC, intended for the regularization of activities that are operating without a license, PL 3729/2004 in practice regularises environmental crimes provided for in the Law No. 6905/1998, which provides for criminal and administrative sanctions for actions and activities that are harmful to the environment.

The LOC could also be by adhesion and commitment, which would leave it up to the entrepreneur to regularize or not certain actions previously considered irregular. If this is not considered possible by the environmental agency, the entrepreneur must sign a term of commitment for the licensing, such as the Environmental Control Report (RCA) and the Environmental Control Plan (PBA). As for the LOC for activities or ventures considered of public utility, a specific regulation will define the method of regularization (Câmara dos Deputados, 2021d). If the Bill is approved, mineral extraction activities might be included in the latter case, based on Decree 9,406/2018 (Brasil, 2018).

It is also worth mentioning the possibility of two-phase environmental licensing, which consists of the fusion of two licenses into a single one. This would be possible for new enterprises or activities in the same area of direct influence of similar ventures already licensed. Area of Direct Influence (AID) is understood to mean an area affected by the geographic scope of the direct environmental impacts of an activity or enterprise subject to environmental licensing (as defined in the environmental study and approved by a competent body). For mining activity, this could enable new pits and dams, for example, to be licensed in a biphasic way, if they are not high risk and large, if a link can be established to a project already operating in the same region.

As well as spelling out licensing methods provided for in PL 3729/2004, we are interested in analysing its possible consequences for the mining sector, and especially understanding its effects on the issuance of the Use Permit (GU), since, as shown in Table 1 (Annex), the activities of mineral prospection with a GU, of any size, are considered Risk Level II (moderate risk) and, therefore, would be subject to the rules created by the PL.

The GU is provided for in Law No. 9314/1996 (Brasil, 1996), which modified the provisions of the Code of Mines, established by Decree-Law No. 227/1967 (Brasil, 1967). However, the DNPM Ordinance 155/2016 (DNPM, 2016) which, later, was amended by ANM Resolution 37/2020 (ANM, 2020b), brought significant flexibility for issuing GUs. In general, the GU is an extraordinary authorization for extraction of specific quantities of specified minerals (see Table 3 in the Annex) in authorised areas before the concession to mine by the responsible agency.

The use of GUs incorporated, after ANM Resolution 37/2020, the permission to use minerals of interest to the National Mining Plan - 2030 and/or related to government economic strategies<sup>11</sup>. Its objective was to reduce the requirements for the start of operations and speed up the processing of requests for the concession of mining, which depended on obtaining a specific license.

The issuance of the GU is considered a binding administrative act, that is, there is no Room for judgment about its value by the public servant and, once the requirements are met legally, the public administration will be obliged to put it into effect, without an actual inspection. It turns out that ANM Resolution 37/2020 waived the need to present a previous environmental licensing protocol for the issuance of the GU, maintaining the license only as a condition of its effectiveness (necessary to ensure the effective extraction and validity of the GU). That is, the requirement of environmental licensing for mining activities requiring a GU was put back in time which, in practice, widens the existing time for extraction of certain minerals without an environmental license. In this sense the speech by Eduardo's Leão, former Director of ANM, is illustrative:

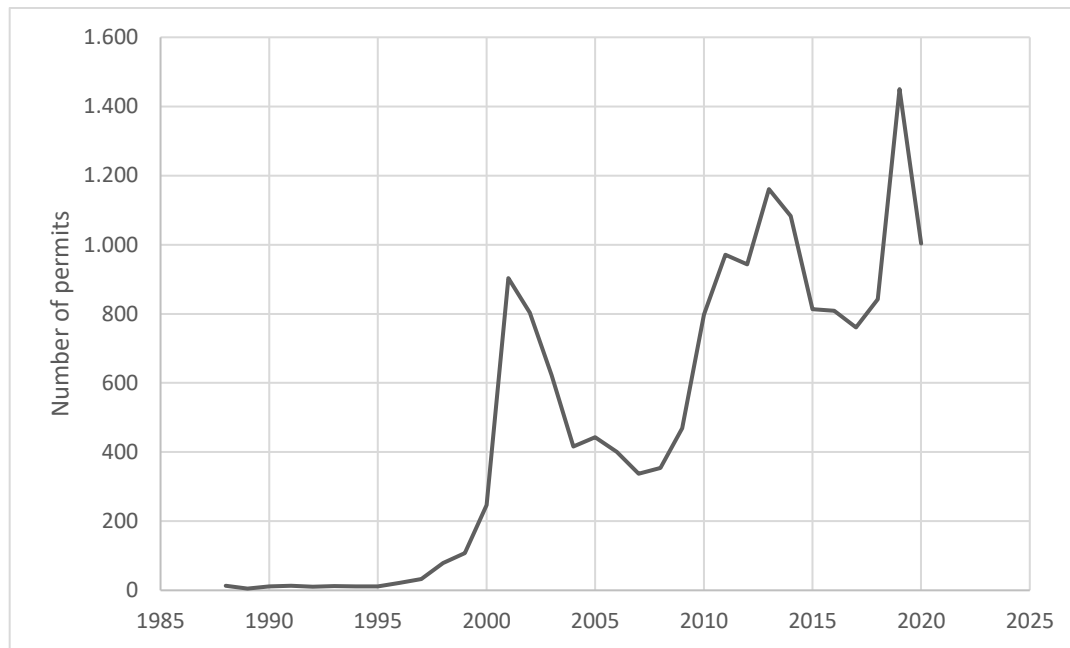
And the other paradigm that we are breaking, even in line with IBAMA, and that I think is exciting to use, this streaming to inform you about this, which is the issue of disentangling environmental licensing. Environmental licensing is still necessary for mineral activity, but it doesn't need to be stuck. Make the companies wait twice for this to happen. The Use Permit will be just that. I'm going to issue you a Permit, but logically you won't operate if you don't have your environmental license. Anyone who does this in bad faith, [...]. And his Permit will only be valid when his [environmental] license is issued. Even though it is two years old, three years old, since he got the license, he has up to

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<sup>11</sup> ANM Resolution 37/2020 amended §2 of Art. 102 of DNPM Ordinance No. 155/2016 to specify the public policies whose observance is decisive in the application for issuing a GU. Among the changes, it started to demand that: i) the area under analysis is in a situation of formalizing the activity and strengthening of micro and small companies, following the National Mining Plan - 2030; ii) aim to promote the development of small and medium mining; iii) is intended for the research of strategic minerals (abundant, needy or with a future); iv) guarantee of supply of inputs for infrastructure works, for agricultural development and civil construction; v) has investments in sectors relevant to the Brazilian trade balance; and vi) relate to projects that promote the diversification of the Brazilian export agenda and contribute to the trade balance surplus (ANM, 2020b).

10 days to inform us about it; of course, we have a cross-check that I can use. I can check this environmental license online because it is within Sisnama, so several tools show how we can even, based on the law for economic freedom, be more, I wouldn't say, bold, but it would be more committed to the good faith of the regulated (Leão, 2020).

In 2019, 1,450 GU were issued nationwide by ANM, the highest number since 1988. Authorizations for this type of license have increased over the last two decades. Substantial growth was identified in 2019, in the first year of the Bolsonaro government, which, despite the fall in the previous year, remained at a high level, as shown in Figure 1.



**Figure 1: Use Permits issued between 1988-2020**

**Source: ANM (2021b)**

An emblematic example of the gaps that already occur due to the use of GU can be identified in the municipality of Itaituba (PA), in the case of the mining company M. M. Gold Mining, known as Ghana Gold. According to the ANM (2021d), M.M. Gold does not have any mining concession, only three requests for authorization to prospect<sup>12</sup>. Associated with one of these requirements is a GU, published in March 2020. The company attracted attention because, in that same year while still supposedly in the prospection phase, it reached the position of sixth largest mining company in gold in the area, and 27th in the country, with a declared operation of R\$ 234 million (ANM, 2021c). Considering that the average gram of gold traded at R\$ 295.10, the company's extraction can be estimated at approximately 796 kg of gold. That level is very similar to that of the mining company Serabi Gold, 907 kg (Serabi Gold, 2021), which operates in the same municipality, but with state environmental licensing and mining authorization in force. In June 2021, M.M. Gold

<sup>12</sup> Cases 850.397/2016, 851.105/2020, 850.907/2021. Among these, two are in the exploration authorization phase and, together, add up to 5,400 hectares (ANM, 2021d).

has already become the highest value in gold operation in the area and 19th of the Brazil (ANM, 2021c).

In this case, we are talking about an environmental flexibility that has already been accepted by the ANM. At first an enterprise operating with this volume of extraction, and with an area of thousands of hectares, it shouldn't even be an “experimental” mine, nor should it work without a three-phase licensing issued by the State agency.

Situations like this may be even easier in the case of the approval of the PL3729/2004. As we warned at the beginning of the text, it will not necessarily mean an instantaneous change in the environmental licensing processes in Brazil, but it can generate loosening of state and municipal norms. If the states and municipalities follow the new licensing modalities (LAU, LAC and, above all, LOC) for the mineral sector, they can be requested after the entrepreneur is already performing mineral extraction in certain areas via GU. That is, from the ownership of the area and even before the mining grant, mining companies, especially small ones, will be able to extract a considerable quantity of specific minerals while awaiting environmental licensing. Practices of this nature have already been taking place, not yet widely, in some states and tend to generalize with the approval of the PL.

For example, in Minas Gerais, after the publication of State Law 21,972/2016 (Minas Gerais, 2016), a mining company can start the licensing process and, upon obtaining the Advance License or even the licensing protocol, it would be able to ask for a GU, to later apply for concomitant licenses in two phases (LI +LO) or even in just one phase (LP+LI+LO). There is also the possibility for companies to start extractive activity with a GU and, subsequently, request an LOC.

Similarly, in 2020, the State Environmental Council of Pará regulated the licensing procedure for the User Guide with issuance LP, LI and LO licenses in parallel (COEMA, 2020). In the case of the state of São Paulo, “the request for a Preliminary License will lead to a Permit for Prospection and to a favourable opinion for the issue of a GU ” (CETESB, 2021).

In general, what we can see is that the flexibility of issuing the GU by ANM without the proper environmental license, in line with the new modalities of licensing, could significantly increase the social and environmental impacts caused by mining. On the one hand, due to the low inspection capacity of the environmental agencies, it widens the opportunities for the beginning of “research” activities without the proper environmental licenses. On the other hand, even if the institutions work well, mineral prospection could, with less difficulty, obtain a simplified license as it is considered an activity of “lesser risk” (despite its irreversible impacts). Later, after the eventual obtaining of the mining concession, it would be even easier to obtain another simplified license arguing that it is an expansion, or project carried out in a “degraded area”. Thus, shortcuts have been created for licensing of activities with high potential for environmental degradation, without the studies necessary or evaluation by the State or social participation (since the public hearings would also cease to take place). Finally, the creation of these short-cuts (Mello, Martins, and Neffa, 2015) could make environment licensing in practice difficult to understand.

## 4 PL 3729/2004 and the mining question: some specific (but not less important) issues

In addition to more general issues, such as the definition of which activities of mineral extraction are affected by PL 3729/2004 and the new modalities of licensing using UGs, the PL is related to other aspects of the mineral sector. Throughout this section we examine some of them, including the preferential adoption of mediation and conciliation, the facilitation of the construction of pipelines, the special treatment to emergency control activities, the restrictions on the requirement of conditions environmental issues and the licensing of activities in Indigenous Lands (TIs).

Regarding the first point, the preferential adoption of mediation and conciliation, the Article 2 IV states that:

Art. 2. Subject to the provisions of this Law, they are guidelines for environmental licensing

[...]

IV - the strengthening of inter-institutional relations and instruments of mediation and conciliation, in order to ensure legal certainty and to avoid judicialization of conflicts (Câmara dos Deputados, 2021d).

The mediation and conciliation instruments, particularly the Terms of Adjustment of Conduct (TACs), are already widely used in the relationship between environmental agencies and companies in the mineral sector, having presented unsatisfactory results, from the perspective of the affected communities. González (2019) identifies that different Latin American governments began to adopt methods of conflict resolution based on mediation and arbitration as a way of trying to deal with the increase in conflicts between communities and projects that are mineral resource intensive. He explains that such instruments would be legitimized by the discourse that they help to find “mutually beneficial alternatives for communities, for companies and for public institutions” (p. 368). Viegas, Giffoni Pinto, and Garzon (2014), in turn, warn that the search for efficiency, effectiveness and speed in the arguments in defence of negotiated resolutions of environmental conflicts does not work out in practice. In this sense, Ferreira (2020) explained that the adoption of these instruments tries to rule out the judicial sphere and reinforce the principle of a minimal state (in line with neoliberalism). Thus, for the author, the main motivation for the adoption of these instruments is a reduction of costs for companies and the state avoiding full compensation for affected people. Thus, one of its results would be the construction of a “coercive harmony” (Nader, 1990), guaranteeing the acceptance of the projects.

Within the history of Brazilian mining, the most emblematic example of failure in the use mediation and conciliation instruments is the case of disaster in the Rio Doce Doce River basin, involving the Samarco mining company. After the collapse of the Fundão Dam, four main agreements were signed between companies, representatives of the Federal Government and the governments of the states of Minas Gerais and Espírito Santo, as well as Justice Institutions (Public Ministries and Defenders Public). More than five years after the disaster, these agreements were unable to to guarantee the minimum rights of the affected people, such as identification and



recognition of all those who are entitled to reparation, fair payment of indemnities for moral and material damages and the definitive resettlement of those who lost their homes (Milanez, Ali, and Puppim de Oliveira, 2021; Roland, Faria Júnior, Mansoldo, Senra, and Ferreira, 2018; Santos and Milanez, 2017).

Indicating the strong preference of the mineral sector to mediation and conciliation, in May 2021 ANM began a process of support on its website for "encouraging adjustments in behaviour between miners and the ANM, as well as the discharge of obligations and pending issues through the use of the instrument "Term of Adjustment of Conduct – TAC".

A second specific aspect of PL 3729/2004 that can be seen is the loosening of control on and the facilitating of the licensing of pipelines. Thus, article 5 of the Bill says that:

§ 4 Without prejudice to other cases of a bi-phasic procedure, the LI of linear projects for rail and road transport, for transmission and distribution lines and fibre optic cables, as well as substations and other associated infrastructure, may include, when required by the entrepreneur, conditions that enable the beginning of the operation as soon as installation is complete.

§ 5 At the discretion of the licensing authority, the provisions of § 4 of this article may be applied to ore pipelines, gas pipelines and oil pipelines (Câmara dos Deputados, 2021d).

The differential treatment of "linear projects" is partly associated with their extensive linear form and the way in which they are constructed. The way that they are treated can be explained in the case of highway and railway construction, since once a section of these works was completed, they would be used for continuity of the installation of the subsequent section. In other words, it would not be possible to terminate the work without the operating license.

The creation of this exception is not exclusive to PL 3729/2004, since a similar situation is also found in the state of Minas Gerais, where the Instruction Sisema 01/2018 lists a series of activities in which, in the understanding of the Secretary of State for Environment and Sustainable Development, the installation implies the operation of the enterprise (ASNOP/SISEMA, 2018).

The inclusion of pipelines in this group, however, proves to be a distortion of this reasoning, since the operation of the pipeline in no way contributes to its installation. The pipelines do not even fit in the flexibility used to include transmission lines. To some extent, it can be argued that a part of a transmission line can be used before the completion of another and, therefore, the operating license could be concomitant with the installation license. However, this logic does not apply to pipelines, since, due to the nature of the material transported, they rarely have "extensions" or intermediary destination points along their path.

Thus, the flexibility for pipelines seems to be just a simplification of licensing processes without proper guarantee of environmental viability. The technical challenges in the construction of pipelines implies that there is a high potential for failure. This aspect was demonstrated in the case of Anglo American's Minas-Rio Project. According to a report by Benevides-Guimarães, Pedlowski, and Terra (2019), just over four years after the start of operations, there were two subsequent

disruptions of the pipeline in 2018, which affected the lives of more than 4,000 people and led to stoppage of the mining company's activities for almost a year. According to the authors, the failure to identify the failures that led to these disruptions was associated with the speed of its environmental licensing process. Similarly, leakage problems along the pipeline and contamination from the cleaning of pipelines were also reported by Saavedra (2019), in the case of the kaolin miner Imerys in Pará.

A third point that deserves to be highlighted in PL 3729/2004 concerns the abolition of the need for environmental licensing for emergency activities. In Article 8, the text of the Bill states that:

Art. 8 The following activities or enterprises:

[...]

V - urgent works and interventions aimed at preventing the occurrence of imminent environmental damage or interrupt a situation that creates a risk to life (Câmara dos Deputados, 2021d)

With regard to mineral extraction activities and emergency situations, this article raises concerns about the lack of transparency in the risk assessment of collapse of tailings dams and the preventive and corrective measures taken.

Recent studies and news have demonstrated limited technical and political capacity of the ANM to regulate, in practice, the performance of mining companies in general and particularly in managing the safety of tailings dams (Abu-El-Haj, 2020; Lobato Junior, 2021; Maciel, 2020). In this way, they have had the freedom, with little or no independent assessment, to define the impacted areas, the level of risk and corrective measures for such situations.

For example, after the B1 collapsed at Vale S.A.'s Córrego do Feijão mine, in Brumadinho (MG), a series of dams were identified, also in the Iron Quadrangle, in a situation of instability in areas like Itatiaiuçu, Barão de Cocais, Nova Lima, Itabirito, among others. In some of these cases, such as in Barão de Cocais and in the locality of Macacos (city of Nova Lima) Vale S.A. claimed there was a need for the construction of security walls, and defined their characteristics and location. These decisions were made without consultation of the communities involved, or even a careful and participatory evaluation of technological or locational alternatives by the competent licensing bodies (Laschefski, 2020). On the other hand, if environmental licensing processes were adopted, despite their limitations (Zhou, 2008), it would be possible for communities at least to participate in the design of such works. However, this will not be possible in the case of the approval of PL 3729/2004.

A fourth issue that needs to be better discussed in the text of the Bill is related to the restriction of the use of environmental conditions in the process of licensing.

Article 13. The management of impacts and the setting of conditions of the environmental licenses must meet the following order of priority objectives

[...]

§ 2 For the purposes of the provisions of § 1 of this article, the environmental conditions do not should be used for:

[...]

II - making up for deficiencies or damages arising from omissions by the government

[...]

§ 5 The conditions established in the environmental licensing cannot oblige the entrepreneur to maintain or operate services under the responsibility of the public power (Câmara dos Deputados, 2021d).

On this issue, in the first place, it should be noted that the current system for granting licenses based on the list of conditions has been shown to be very ineffective in relation to the mineral sector. For example, surveys elaborated by Dias (2001), as well as by Enríquez, Fernandes, and Alamino (2011), indicated that state environmental agencies do not have the capacity to verify properly if mining companies comply with the conditions established in the licensing process. Prado Filho and Souza (2004, p. 348), in turn, went further and, in Minas Gerais, identified that “part of the mitigating measures indicated in the EIA end up not being implemented even though they are provided for and approved in the Preliminary License (LP) phase, while others are only listed as impact mitigation proposals, and are not effectively performed”.

Within this context, considering the proposal of the Bill, the definition of restrictions on the creation of conditions will possibly have the main effect to further expand the negative impacts of the projects on the quality of life of the people who live in mining areas, as well as in the budget of city halls in these locations.

Mineral extraction projects have significant social and environmental impacts during the deployment and operational phases. Just like any other big project, the installation of a mine tends to generate the migration of a large contingent of people looking for work, which ends up increasing the pressure for a series of public services such as housing, sanitation, transport, health and safety (Milanez, 2019). Without the possibility of conditions to mitigate such impacts, the extra cost for these services will be borne by city halls.

In addition to the issue of constraints, Article 16 of PL 3729/2004 has implications for municipal management. According to this article, “environmental licensing is [...] not in the competency of agencies that are not members of Sisnama” (Câmara dos Deputados 2021d). Although it is not explicit, this article might be used to waive the requirement of consent of the municipal administrations to obtain an environmental license. This has been an important instrument on the part of municipal administrations and communities to impede projects or, at least, to increase their bargaining power in the negotiation of mitigation and compensation actions, as in the cases of Viçosa (Folha da Mata, 2014) and Santa Bárbara (G1, 2017), in Minas Gerais. If this is really the effect of this article, municipal governments will lose their ability to influence and decide on the licensing of polluting activities in their territories and the relationship of power with mining companies will become even more unbalanced.

Even in the current context, there are different examples of how the implementation of mineral extraction projects had the result of overloading municipal services, generating significant damage to local communities or town councils. In the case of the operation of mines, a special relationship exists with the impacts on water. For

example, the construction and operation of the Anglo American tailings dam, in Conceição do Mato Dentro (MG), had the result of compromising access to water from the Agua Quente community. In the licensing process, one of the established conditions was that the company would be responsible for the supply of the people who lived there. This condition was fulfilled inadequately (Tôrres, 2014), but at least it was recognized as the responsibility of the company, which was triggered by the people affected or by judicial entities when there were supply failures. Under PL 3729/2004, the mitigation of this impact caused by the mining company would have been transferred to the town council.

Similarly, in Itabira (MG), access to water has historically been a central element of the dispute between the community and the mining company Vale SA., which started operating in the area in the 1940s, but only got its Corrective Operational License (LOC) granted in 2000, subject to a list of 52 corrective or compensatory actions (Guimarães and Milanez, 2017). Among them was the guarantee of access to water for city dwellers, since the high consumption by the mining company competed with public supply. However, the participation of the mining company in the expansion of the collection network was only guaranteed in 2020, after long negotiation and involvement of the Public Ministry of the State of Minas Gerais (MPMG, 2020; Vila de Utopia, 2019).

Although the cases mentioned above are related to large projects, there is a possibility that the cumulative effects of small and medium-sized companies will also compromise water supply or quality in specific communities. The identification of such impacts, however, would only be feasible in the case of adopting a tool known as Strategic Environmental Assessment (Sánchez, 2017). However, the possibility of carrying out this type of environmental assessment was not considered by PL 3729/2004 (Parliamentary Environmentalist Front, 2021).

Finally, the way in which the Bill addresses the issue of Indigenous Lands (TIs).

Article 40. Subject to the premises established in Article 38 of this Law, the involvement of the authorities involved on the EIA/Rima and in the others environmental studies, plans, programmes and projects related to environmental licenses will occur in the following situations:

I - when in the AID of the activity or of the enterprise exist:

- a) indigenous lands with approved demarcation;
- b) area that has been subject to an interdiction ordinance due to location of isolated indigenous people; or [...] (Câmara dos Deputados, 2021d)

PL 3729/2004 seems to adopt the same premise as PL 191/2020 which proposes to regulate mining in TIs. In both texts, what is verified is the predisposition to ignore the existence of TIs in the process of regulation. Thus, PL 191/2020 is restricted to regulating mining in TIs already ratified, disregarding the others, as if they could not be considered as TIs. According to the text of PL 191/2020:

Article 36. The attributive titles of mining rights in indigenous lands that were granted after the act of ratification of the process of demarcation of the indigenous land and before the publication of this Law are null and void and shall not have legal effects.

Art. 37. Prospecting and mining activities for mineral and hydrocarbon resources and the use of water resources to generate electricity that have been regularly granted prior to the approval of the process of demarcation of indigenous land must be authorized by the National Congress within four years, counting from the act of ratification of the process of demarcation and listening to the affected indigenous communities (MME, 2020).

In this context, among the 724 TIs listed by the ISA (2021), there are still 237 (33%) in the process of regularization. In other words, due to the bureaucratic slowness of the regularization process, or by the explicit violation of this right by Executive Power (Resende, 2018), the proposals prepared by the Chamber of Deputies for environmental licensing and the Executive's Project for IT mining, arbitrarily, exclude 33% of the TIs existing in Brazil from protection systems.

However, it should be borne in mind that the Federal Constitution recognizes the right of Indigenous Peoples to the lands they traditionally occupy, and proposals to limit recognition at any time frame, for example the date of ratification, represent attempts to restrict this right (Osowski, 2017).

In short, even excluding large or high risk mineral projects, specific points of PL 3729/2004 have the potential to modify considerably aspects of mineral extraction activity. In this sense, the issues listed here, among others, should be even more deeply debated by the groups that discuss the mineral issue in its different nuances and perspectives.

## 5 Final remarks

In this text, we discuss some aspects that relate the proposed changes to environmental licensing presented in PL 3729/2004 and the activities of mineral extraction. This is a complex topic and the intention was to support a debate rather than be the final word., Within this context, we present four arguments as final considerations.

First, we understand that the Bill in the format that was approved by the Chamber of Deputies will contribute to legal uncertainty regarding mineral extraction activities. As presented throughout the text, the decision to exclude from the scope of the new standard some specific types of mining not only goes against current regulations, but also, due to the complexity of the topic, shows ambiguity and is open to varied interpretations. Therefore, there is a strong possibility that, after an eventual approval of the PL, long debates will start to define which mineral extraction activities are subject to regulation of the new standard and which should be licensed by the previous standards.

In addition, the approval of this standard could lead to an entire readjustment of standards at the state level, causing even more confusion and insecurity about the legality of different licensing modalities.

Second, we argue that there will be significant harm to the municipal administrations of municipalities. As discussed, the immediate loss will be due to the change in the rules of environmental conditions. At the same time, it is to be expected that the reduction in the rigour of the proposed licensing by PL 3729/2004 will generate less structured projects for which it will be more difficult to monitor and control the

environmental impact, and this will eventually intensify the negative impacts of mineral extraction on communities and the environment, generating more damage and costs which will eventually be assumed by local authorities.

As a third point, we warn that the increase in environmental degradation will lead to an increase in environmental conflicts involving communities and mining. Over the last few decades, with the intensification of mineral extraction in the country (Milanez and Felipe, 2020), conflicts involving mining have also increased. In 2004 there were only four conflicts associated with mining in Brazil noted by the Pastoral Land Commission (CPT), while in 2018 they totalled 211 (Wanderley and Gonçalves, 2019). Considering only conflicts over water listed by the CPT between 2011 and 2020, there were more conflicts involving mining companies (885) than hydroelectric plants (365) or farmers (140) (Wanderley, Leão, and Coelho, 2021).

Even assuming that conflicts are inevitable in the implementation of mineral extraction projects, we believe that the expansion and intensification of such conflicts would not be in the interests of mining companies. A detailed study in this regard was prepared by Davis and Franks (2014), based on more than 50 case studies. The authors identified that, as a consequence of the environmental impacts of extractive projects, conflicts materialize in the form of protests, negative propaganda, lawsuits, blockades and damage to property. As a consequence, companies face project modification, work stoppage, risk management, damage repair, lost productivity, personnel, reputation and application of fines.

Thus, if the flexibility proposals in PL 3729/2004 materialise in the area of mining, there will be a direct consequence of increased environmental degradation and increased conflicts with local communities. At the same time, the indirect result for companies will be an increase in the risks of projects, the impossibility of obtaining a possible "social licence to operate", and the loss of investment attractiveness. Thus, the sector itself, by defending such flexibility, contributes not only to worsen the lives of many communities, but acts against its own medium-term interests.

## Annexes

**Table 1: Risk classification of mining-related activities (selected activities)**

<b>Activities</b>	<b>Risk level</b>
Mineral exploration without Use Permit (GU) without opening accesses in the researched area, of any scale (small, medium or large) in sensitive or non-sensitive area.	I
Installation and operation of small-scale tailings/waste rock (non-inert material) piles (sensitive or non-sensitive area)	II
Mineral exploration of any size (small, medium or large) with Use Permit in sensitive or non-sensitive area.	II
Mineral exploration without Use Permit (GU) with opening accesses in the researched area, of any scale (small, medium or large) in sensitive or non-sensitive area.	II
Pipeline within the limits of the mining enterprise, of any size (small, medium or large) in sensitive or non-sensitive area.	II
Small scale alluvium mining (except sand and gravel) sensitive or non-sensitive area	II
Small scale clay extraction used in the manufacture red ceramics (sensitive or non-sensitive area) or medium scale extraction in a non-sensitive area	II
Small scale extraction of gravel, rock for the production of gravel, sand outside water courses, for application exclusively in road works (sensitive or non-sensitive area)	II
Small scale Mineral Treatment Unit (UTM) with dry treatment (sensitive or non-sensitive area) or medium scale UTM (non-sensitive area)	II
Small scale mining tailings dam elevation (not foreseen in the original environmental licensing process or with project change), in sensitive or non-sensitive area.	II
Small scale open pit mining of metallic minerals (sensitive or non-sensitive area)	II
Small scale rock extraction for the production gravel (sensitive or non-sensitive area)	II
Small scale underground mining (sensitive or non-sensitive area)	II

<b>Activities</b>	<b>Risk level</b>
Small, medium or large-scale sand and gravel extraction in riverbeds (sensitive or non-sensitive area)	II
Installation and operation of medium and large-scale tailings/waste rock (non-inert material) piles (sensitive or non-sensitive area)	III
Installation and operation of small, medium or large-scale Mineral Treatment Unit (UTM) with wet treatment and associated tailings dam (sensitive or non-sensitive area)	III
Installation, operation or decommissioning of small, medium or large-scale tailings dam (sensitive or non-sensitive area)	III
Medium and large-scale alluvium mining (except sand and gravel) sensitive or non-sensitive area	III
Medium and large-scale extraction of gravel, rock for the production of gravel, sand outside water courses, for application exclusively in road works (sensitive or non-sensitive area)	III
Medium and large-scale mining tailings dam elevation (not foreseen in the original environmental licensing process or with project change), in sensitive or non-sensitive area.	III
Medium and large-scale open pit mining of metallic minerals (sensitive or non-sensitive area)	III
Medium and large-scale rock extraction for the production gravel (sensitive or non-sensitive area)	III
Medium and large-scale underground mining (sensitive or non-sensitive area)	III
Medium scale clay extraction used in the manufacture red ceramics (sensitive area) or large-scale extraction in sensitive or non-sensitive area	III
Medium scale Mineral Treatment Unit (UTM) with dry treatment (sensitive area) or large scale UTM (sensitive or non-sensitive area)	III

**Source: Based on MMA and Ibama (2020)**



**Table 2: Examples of classification of mining activities (selected activities)**

Organisation	Activity	Large Scale	Medium scale	Small scale
ANM (Federal)	All	AP > 1 million t	1 million t > AP > 100 thousand t	100 thousand t > AP
COPAM (MG)	Underground mining, except gems	AP > 500 thousand t	500 thousand t ≥ AP > 100 thousand t	100 thousand t ≥ AP
	Open pit metallic mining, except iron ore	AP > 500 thousand t	500 thousand t ≥ AP > 50 thousand t	50 thousand t ≥ AP
	Open pit iron ore mining	AP > 1,5 million t	1,5 million t ≥ AP > 300 thousand t	300 thousand t ≥ AP
IMA (SC)	Open pit mining with explosives	AP ≥ 120 thousand m <sup>3</sup>	120 thousand m <sup>3</sup> > AP > 24 thousand m <sup>3</sup>	24 thousand m <sup>3</sup> > AP
INEMA (BA)	Iron ore	AP ≥ 1,5 million t	1,5 million t > AP ≥ 300 thousand t	300 thousand t > AP
	Manganese ore	AP ≥ 500 thousand t	500 thousand t > AP ≥ 100 thousand t	100 thousand t > AP
	Other metallic ores	AP ≥ 500 thousand t	500 thousand t > AP ≥ 500 thousand t	50 thousand t > AP

**Note:** AP: Annual Production

**Source:** Based on ANM (2020a); Bahia (2014); COPAM (2017); IMA (2020).

**Table 3: Limits of extracted amounts with Use Permit (GU)**

<b>Substance</b>	<b>Amount</b>
Abrasives	400
Agalmatolite	4.000
Agates, druses and other decorative stones	200
Barite	500
Bauxite (aluminum ore)	20.000
Calcite	6.000
Calcitic or dolomitic limestone, dolomite	20.000
Cassiterite (tin ore)	300
Chrome (ore of)	5.000
Clay	16.500
Clays (ceramics)	12.000
Coal	40.000
Cobalt (ore of)	1.500
Columbite tantalite	150
Copper (ore from)	4.000
Cyanite	1.500
Diamond (primary ore)	50.000
Diamond (processed)*	3.000
Feldspar	4.000
Fluorite	1.500
Gemstones *	100
Gold (ores of)	50.000
Graphite	5.000
Gravel	50.000
Gravel (aggregate or paving)	8.500
Gypsum	20.000
Hidrargilite	100
Ilmenite	200
Industrial sand	10.000
Iron (ore of)	300.000
Kaolin	3.000
Lead (ore of)	2.000
Limestone shells	12.000
Magnesite	20.000

<b>Substance</b>	<b>Amount</b>
Manganese (ore from)	6.000
Micah	120
Monazitic sands or monazite	2.000
Nickel (ores of)	4.000
Ornamental and coating rocks - carbonate (marble, travertine)	10.000
Ornamental and coating rocks - others (slates, sandstones and friable quartzites)	4.000
Ornamental and coating rocks - silicate (granites and gneisses, quartzites, serpentinites and basalts)	16.000
Peat	10.000
Philito	12.000
Quartz	4.000
Refractory clays	15.000
Rock salt	5.000
Saltpeter	100
Sand (aggregate)	50.000
Sapropelite	4.000
Silicon (Metallic/Ore of)	18.000
Silimanite	100
Special clays	5.000
Spodumene	150
Steatite	20.000
Sulphur	500
Talc	5.000
Titanium (ore of)	2.000
Tungsten (ore of)	300
Vanadium (ore of)	100
Zinc (ore of)	10.000
Zirconium (ore of)	300

\* All substances in metric tons, except processed diamonds (carats) and gemstones (kilograms).

Source: DNPM (2016)

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