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THE ENVIRONMENTAL BOND: THE STATE LAW OF MINAS GERAIS AND THE FRAMEWORK LAW OF THE UNION FROM THE PERSPECTIVE OF THE BRAZILIAN FEDERAL STATE

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ABSTRACT

The objective of the essay was to analyze the environmental bond required in the licensing processes for economic mining activities and the use of dams. The study legally classified the environmental bond as a guarantee for diffuse rights. Such guarantee applies to the duty of assistance and repair for possible environmental disasters and their respective humanitarian and cultural consequences. The method we applied in the research was deductive, analytical, dogmatic and comparative; and we consulted national, state and foreign legislation, in addition to specific bibliographic texts. We concluded that within the scope of the Brazilian federation, the norm that must prevail is the one that best meets the constitutional principles of most effective protection and of federative subsidiarity

Keywords: environmental bond; environmental disaster; mining; principle of the most effective protection; principle of subsidiarity; environmental law.

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O INSTITUTO-GARANTIA DA CAUÇÃO AMBIENTAL E A COMPETÊNCIA LEGISLATIVA CONCORRENTE NA RELAÇÃO FEDERATIVO-CONSTITUCIONAL ENTRE O ESTADO DE MINAS GERAIS E A UNIÃO

RESUMO

O objetivo do artigo foi o de analisar a caução ambiental exigida nos processos de licenciamento das atividades socioeconômicas de mineração e uso de barragens. O estudo classificou juridicamente a caução ambiental como instituto-garantia de direitos difusos. Tal garantia se aplica ao dever de assistência e reparação por eventuais desastres ambientais e suas respectivas consequências humanitárias e culturais. A metodologia utilizada na pesquisa foi dedutiva, analítica, dogmática e comparativa; e foram consultadas legislação nacional, estadual e estrangeira e textos bibliográficos específicos. Concluímos com o trabalho que, no âmbito da federação brasileira, há de prevalecer, em concreto, a norma específica estadual ou a norma-quadro federal que melhor atender aos princípios constitucionais da proteção mais efetiva e da subsidiariedade federativa.

Palavras-chave: *caução ambiental; desastre ambiental; mineração; princípio da proteção mais efetiva; princípio da subsidiariedade federativa.*

INTRODUCTION

The socioeconomic mining activity and the use of waste dams are very typical of the social, economic, political and legal dynamics of the Brazilian state of Minas Gerais. Part of the state's identity formation results from the historical occupation and settlement of the mountainous regions of its territory by pioneers, manufacturers, workers, slaves, traders and drovers who worked in some activity related to mines and metallurgy. The main historical cities of the state such as Ouro Preto, Mariana, Congonhas, Tiradentes and Diamantina were formed and have always been connected with these economic sectors in their diverse cultural and institutional expressions. The colonial heritage arising from urbanization around gold, diamond and iron mines, among others, constitutes an immense cultural collection of the people of Minas Gerais and Brazil.

Although it has been part of Minas Gerais culture, the mining activity present structural consequences, such as waste dams, and so they have also left historical marks of immense human suffering and environmental and cultural degradation. The last two most significant events regarding these issues relate to disasters involving the collapse of mining waste dams in the municipalities of Mariana, in 2015, and Brumadinho, in 2019. These two disasters reached repercussions in the global media and left in the a sad legacy to Minas Gerais, including hundreds of victims, extensive environmental damage, loss of priceless historical heritage and depletion of local and regional economies. One of these disasters had consequences far beyond the mountains and valleys of Minas Gerais, affecting the people and territory of the state of Espírito Santo.

Among culprits and innocents, a conclusion can be drawn from what happened: the urgent need for a legal regime that establishes parameters for immediate and effective financial assistance in cases of dam disruptions, especially in densely populated areas and with an huge environmental and cultural heritage. In this context the state of Minas Gerais enacted Law 23,291, of February 25, 2019 to improve the state dam safety policy, shortly after the Brumadinho disaster, in 2019, but already idealized since the case of Mariana, in 2015.

These aspects justify the elaboration of this article and based its theme, objectives, hypotheses, theoretical framework, methodology, content organization and final considerations.

One of the innovative doctrines of this regional legal regime is the so-called environmental bond. Considering the positivation of the doctrine, this article is based on the following research question: What is the concept and normative scope of the environmental bond doctrine provided for in the state legislation of Minas Gerais?

As the environmental bond is a legal guarantee positively established in a state rule with connections in various specialties of law, the theoretical-dogmatic framework of the article is based on the constitutional doctrine of concurrent legislative competence among government entities. Thus, we propose the assessment of the following hypotheses: (a) the greater or lesser extent of ownership and the exercise of this concurrent legislative competence by the state of Minas Gerais on environmental bond; and (b) the possible suspension or ineffectiveness of the state rule in the event of positivizing the general national rule on the matter.

Thus, the article's general objective is to discuss the concurrent legislative competence of the state on the issue of environmental bond. As a specific objective, we seek to investigate the modalities of concurrent legislative competence among the entities of the federation and their effectiveness in the scope of environmental law, specifically regarding the institution and regulation of environmental bond.

We used deductive methodology and applied the analytical-dogmatic, analytical-conceptual, analytical-descriptive methods and basic elements of the comparative method. As primary sources, we consulted national, state and foreign legislation and, as secondary sources, we reviewed bibliographic collections, such as books and articles available in scientific journals, including the internet.

In summary, we organized the article – in addition to the introduction, final considerations and bibliographic references – in two topics. The first is the constitutional doctrine of concurrent legislative competence among entities of the Brazilian Federation, as compared to the same competence provided for in the constitutional regime of the Federal Republic of Germany, where the doctrine has originated. And the second is the environmental bond set forth in the state legislation of Minas Gerais, as a guarantee doctrine in the face of environmental disasters arising from dam ruptures or leaks, especially in the field of mining activity

1 CONCURRENT LEGISLATIVE COMPETENCE AMONG GOVERNMENT ENTITIES: CONCEPTS, OWNERSHIPS, EXERCISE AND REGULATIVE EFFECTIVENESS

The federative form of state adopted by the current Brazilian Constitution is too complex and inefficient in terms of attributing state functions to government entities, especially those of legislative, administrative and supervisory nature. In Environmental Law – and due to federative, environmental, economic, social, humanitarian and legal repercussions of its specificities – the constitutional system of competences proves to be useless. Therefore, it generates neither legal certainty nor contextual effectiveness.

In the field of Environmental Law, this article focuses on the modalities of concurrent legislative competence among entities of the Brazilian Federation to analyze the legal regime applicable to the environmental bond doctrine in relation to the use of dams in mining activities.

The legal concept of concurrent legislative competence has its origins in the Fundamental Law of the Federal Republic of Germany, in 1949. However, since then, the content and extent of that competence have been improved by constitutional reforms and by precedents of the Federal Constitutional Court (HORBACH, 2015).

The assumption for positivizing concurrent legislative competence is the plurality of federal state entities with legislative function to regulate legal matters that are, concomitantly and specifically, affected at local, regional and transregional levels (HORTA, 2010, p. 324). Thus, considering the possibility of multiple legal regimes on the same topic and their potential for simultaneous and antinomic repercussions in more than one government entity, the concurrent legislative competence is based on three converging premises: (a) the competence of one of the government entities in order to, in the field of positivizing general national standards (ATALIBA, 2011, p. 291), standardize concepts, principles, processes, structures, institutions, functions, rights, duties and basic guarantees in a determined legal matter, to be observed by all government entities in the exercise of their specific legislative powers; (b) the competence of each government entity to regulate their specific conjuncture, institutional and functional aspects regarding the subject matter of the national general rules; and (c) hermeneutical criteria for solving antinomies between general national and specific standards (federal, state, district and municipal).

We found that concurrent legislative competence is supported by the

principle of subsidiarity as a structuring standard of the federal model of State. According to Oliveira,

> […] the principle of subsidiarity – in the organization of the Constitutional Powers of the Federation (Union, Member States, Federal District and Municipalities) – is based on the following premises: a) a given public interest in society must be primarily attributed to the competence of the government entity that has better physical, budgetary and legal conditions to carry it out; and b) the ownership and/or exercise of competence to satisfy the public interest should only be transferred to the competence of another entity of the Federation if the one who holds it with constitutional priority is unable to meet it satisfactorily, or could not be conducted in a particular context, or even if there is constitutional authorization for joint action of both government entities, observed the priority criterion (OLIVEIRA, 2016, p. 376).

As a first premise, we observe that, in the federative models that adopt concurrent legislative competence, the general national standards of uniformity are the responsibility of the government entity, which, by constitutional delegation, presents the state in a macronational scope. In the Brazilian system, this competence is attributed to the Union, according to Article 24, *Caput*, Paragraph 1 of the Constitution of the Federative Republic of Brazil (CRFB). We emphasize that the Union, in the exercise of this competence, does not issue federal rules to deal with matters of its own attribution, but general national rules to cover themes of developments in all entities of the Federation (Union, Member States, Federal District and Municipalities) in their specificities and diverse competencies. In these terms, and by distinguishing national from federal standards, Ataliba points out that

> […] national law is much broader and, as said, transcends the distinctions established by reason of political and administrative districts.
>
> National law, a different legal-positive category, is the legislative product of the national, total, global state.
>
> It prevails in the territory of the Brazilian state, linking all subjects to their sovereignty, an abstraction made up of other qualities that they may have. This law abstracts the circumstance of Brazil being a unitary or federal state.
>
> In practical terms, federal law is opposed to state and municipal law, while national law abstracts from all of them – federal, state and municipal – transcending themselves.
>
> […]
>
> Federal laws are those that can be edited, in the proper field, by the Union. In the same way, in the respective fields, state and municipal laws are those edited by states and municipalities, each in their own sphere of competence […] [and] are, at the

> same level, in a similar way, the laws of different public policies (ATALIBA, *s.d.*, p. 49).

From this differentiation between national norms and federal norms, we can assess, for example, the Union's competence to legislate – through federal law – on legal issues that are constitutionally their own, such as Civil, Criminal, Electoral and Labor Rights (exclusive or private legislative powers, for example). At the same time, the Union also has the competence to legislate – through national general law, via concurrent legislative competence – on legal matters that are constitutionally conferred on all entities of the Federation, in some specific way. In this area, we can mention the Environmental, Tax, Financial-Budget and Economic Rights. Consequently, the concurrent legislative competence of the Union to posit national general norms coexists with the specific competences of all the entities of the Federation to also edit norms related to the legal subject matter of the national general norm. It is in this context that one can observe the concomitance of the National Tax Code (general national law) with the specific federal, state, district and municipal tax laws in relation to the respective exclusive competence taxes.

In turn, and as a second premise, concurrent competence for the edition of specific rules is conferred to each government entity, with the due particularities and under two different perspectives, which are: (a) the supplementary or complementary concurrent legislative competence; and (b) concurrent legislative competence, supplementary or integrative.

The supplementary or complementary concurrent legislative competence is attributed to the regional entities of the Federation (or even local, in the Brazilian federative model) to adapt the general national rules to the specificities of their circumstances, institutions and functions at regional or local levels. In turn, the concurrent legislative competence, supplementary or integrative, is also attributed to the regional or local entities of the Federation to edit integration norms in order to make up for thematic omissions in relation to the general national norms. In Brazilian law, these two concurrent legislative powers are expressly owned by the States and the Federal District and, by constitutional hermeneutics (BRASIL, 2017), by the Municipalities, under the terms of Article 24, *Caput*, Paragraphs 2 and 3, Article 30, I and II, and Article 32, Paragraph 1, of the CRFB.

There is also a third premise. The concurrent legislative competence regime must also establish hermeneutical criteria for solving antinomies between general national norms and specific norms (federal, state, district

and municipal). However, in Brazilian law, not all general national norms deal with this aspect, which ends up allowing the occurrence of many antinomies, hermeneutic and application errors. The National Tax Code is an exception when minimally setting some hermeneutical parameters in its Articles 107 to 112 and to be observed by all entities of the Federation in the exercise of their specific tax powers. It is observed that the Union itself, when regulating federal taxes under its exclusive legislative competence, must be guided by the guidelines established in the general national rule, which was also positive by the Union, but within the scope of concurrent legislative competence.

However, in Brazil, the precariousness of predictability of hermeneutic criteria arises from the Constitution itself. In its Article 24, there are only two generic rules of hermeneutics to solve antinomies in the field of concurrent legislative competences. These are the Paragraphs 1 and 4 of that article:

> Article 24. It is incumbent upon the Union, the States and the Federal District to legislate concurrently on:
> […]
> Paragraph 1 Within the scope of concurrent legislation, the competence of the Union will be limited to establishing general rules.
> […]
> Paragraph 4 The supervenience of the federal law over general rules suspends the effectiveness of the state law, in what is contrary to it.

The first hermeneutic rule is very vague as it does not exactly conceptualize the content of what would be the "general rules" of concurrent competence of the Union. And the second rule only establishes which provision or legal diploma should prevail in the event of antinomy between the general national rule issued by the Union and the state, district and municipal rules.

There is also an omission in relation to the scope of any specific federal rule to deal with a topic that affects only the legislative competence of the Union and which is also the object of the general national rule. As an example, the National Tax Code (general national rule) coexists with federal legislation relating only to federal taxes. In other words, concurrent legislative competence for general national rules applies, in its guidelines, to the Union – in the field of its specific legislative competences – as well as to the Member States, the Federal District and the Municipalities. Article 24, however, does not foresee anything in the circumstances that the

Union exceeds the content limits of general national rules and enters into specificities of its only legal interest or, even worse, to the other entities of the Federation as well. This is due to the vagueness of the constitutional in Paragraph 1 provision of Article 24 of the Constitution.

In the hypothesis of Paragraph 4 of Article 24, the solution of antinomy of supplementary concurrent standards or of integration of member states in relation to general national standards is not very effective; and it is aggravated by the vagueness of the concept of general national rules and the lack of more precise constitutional delimitation of the concurrent legislative competence of the Union.

On the other hand, and although it presents gaps, the German system that served as a model for Brazil in the issue of concurrent legislative powers provides for more specific mechanisms for the solution of possible antinomies. In addressing the 2006 German constitutional reform, HORBACH, states that

> From then on, Germany started to have three modalities of concurrent legislative competences: the basic competences (*Kernkompetenzen*), of Article 72, I, LF; the necessary skills (*Bedarfskompetenzen*), Article 72, II, LF, and, finally, divergent competences (*Abweichungskompetenzen*).
>
> The most intriguing point of the reform was the introduction of the latter (divergent competence), a system for the distribution of legislative competences that doctrines a completely innovative technique in German law – perhaps worldwide. Article 72, III, LF granted the States the possibility of elaborating their own and divergent rules to federal legislation that can more effectively meet their local needs and characteristics, in certain matters.
>
> A divergent state law does not revoke the diverged federal law within the scope of its respective state territory, but it has a "priority of use" (*Anwendungsvorrang*), i.e., it becomes valid before that (*geht vor*). This issue makes it clear that, with the eventual revocation of the divergent state rule, the federal law automatically becomes effective in that state. On the other hand, when the Union legislates on these matters, after the state divergence, this federal law takes precedence over divergent state laws, as it is a later law.
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> The possibility that federal law will have priority of use over divergent state laws of the same content, and that states may again diverge from federal laws that were contrary to their old valid state laws, is a mechanism called the ping-pong effect by German indoctrinators, as it could generate an infinite "come and go" between federal and state legislation. They point out however that this is a theoretical hypothesis, since the very principle of federative fidelity (*Bundestreue*), so ingrained in German constitutional culture would, in itself, be a brake on such a situation.
>
> The introduction of the right of divergence also affected another classic rule of German federalism, constantly cited among us: the idea that, colliding rules of federal law

> with state, federal laws have preference over state ones – a principle emanated from Article 31, LF (*Bundesrecht bricht Landesrecht*). Regarding divergent concurrent legislation, the principle of superiority (*Superioritätsgrundsatz*) or primacy of federal law is no longer valid, but the principle of posteriority (*Posterioritätsgrundsatz*) (HORBACH, 2015).

Therefore, in the German system, the competent regional government entity to act in the specific circumstances of the situation has the constitutional preference to regulate the subject, observing the Federation's competences to posit the basic, necessary and divergent concurrent norms, under the terms foreseen in Article 72 of the Basic Law of the Federal Republic of Germany[3].

The subject of concurrent legislative powers is of particular relevance in environmental matters, part of which is the subject of this article. In Environmental Law the system reaches immense complexity, mainly because it is endowed with thematic, conceptual, institutional, functional and conjunctural transdisciplinarity.

We proceed to the analysis of ownership and exercise of concurrent legislative competence exercised by the state of Minas Gerais in the process of positivizing the environmental bond doctrine.

2 POSITIVIZING THE ENVIRONMENTAL BOND DOCTRINE WITHIN THE LEGAL REGIME OF THE STATE OF MINAS GERAIS

3 Art. 72 [Concurrent legislation]
(1) In the field of concurrent legislation, the states have the power to legislate, as long as and to the extent that the federation does not make use, through law, of its legislative competence.
(2) In matters concerning Article 74 Paragraph 1, paragraphs 4, 7, 11, 13, 15, 19a, 20, 22, 25 and 26, the federation has the right to legislate when and to the extent that a federal legislative regulation is necessary, in the interest of the state as a whole, for the establishment of equivalent living conditions in the federal territory or the preservation of the legal or economic unit.
(3) If the federation makes use of its legislative powers, the states may adopt, by law, separate regulations on:
1. hunting (without the right to issue hunting license);
2. the protection of nature and preservation of the landscape (without the general principles of nature protection, the right to protect species or the protection of maritime nature);
3. the distribution of the soil;
4. the structuring of the territory;
5. the hydraulic regime (without regulations concerning substances or installations);
6. Admission to universities and university completion certificates.
Federal laws on these matters will only come into force six months after their promulgation, unless otherwise determined with the approval of the Federal Council. In the matters of the first sentence, the most recent law prevails in the relationship between federal and state law.
(4) By federal law it may be determined that a legal regulation of the federation, no longer necessary according to Paragraph 2, be replaced by state legislation.

In Brazil, Environmental Law affects all entities of the Federation; and the basic provision for its regulation falls within the scope of concurrent legislative powers (Article 24, VI, VII and VIII, of the Constitution). Among its specificities there is the mining activity and, more specifically, the theme of dams used in this sector. In such a situation, primary and regulatory legislation is abundant at all levels of the Federation.

Likewise, in the state of Minas Gerais where the mining activity is identified with the history and formation of its society, in addition to the enormous socioeconomic dependence of sectors related to it, the state legislation is thorough, complex and extensive. The normative context becomes even more relevant if we consider the last two disasters related to the mining activity, which caused great humanitarian, environmental and cultural repercussions from the locations where they took place: the Municipalities of Mariana, in 2015, and Brumadinho, in 2019.

Since their occurrence, the two disasters have been managed in very different ways, and its humanitarian, environmental, cultural and socioeconomic developments are not yet fully understood (KOKKE; OLIVEIRA, 2017).

However, among the various public and private measures adopted to minimize its effects, hold the agents involved accountable and avoid the repetition of similar events, the publication of State Law 23,291, of February 25, 2019, which changed the state dam safety policy, overcoming and improving the legislation that preceded it, especially State Law 15,056, of March 31, 2004 and in part State Law 20,009, of January 4, 2012.

Without entering into the issues concerning its legislative process and prior to the Brumadinho disaster, State Law 23,291, from 2019, was concluded in a short time, and soon after the fact. Under his rule, the socioeconomic agents that use dams in the mining sector started to be subject to greater inspection, accountability and administrative sanctions, in addition to the duty of observing stricter technical criteria for environmental licensing, construction, maintenance, operation, de-characterization. and even impeding rules regarding the modality of dams raised by the upstream method (which should be replaced by alternative technological means of accumulation or disposal of tailings and waste, accompanied by de-characterization of the respective dams that still exist).

Among the main innovations of State Law 23,291, from 2019, one deserves mention: the forecast of the environmental bond proposal by the entrepreneur, established in regulation, with the purpose of guaranteeing the

social and environmental recovery for cases of accident and deactivation of the dam, during the environmental licensing process and for purposes of granting the prior license (Article 7, I, b). And in order to obtain the operating license, it has become mandatory for the entrepreneur to prove the implementation of the environmental bond, with the update (Article 7, III, b).

The discussion on the environmental bond for socioeconomic enterprises classified as having potential risk of environmental, humanitarian and cultural-heritage damage is not new. It is a doctrine already used in some legal systems in various formats, such as in New Zealand, Australia and Canada. When dealing with the elements of command-and-control (direct regulation) and economic instruments (indirect regulation) as mechanisms to be considered in the stages of elaboration, decision making, implementation and evaluation of public policies capable of combining socioeconomic activities with the environmental protection, Windham-Bellord places the environmental bond doctrine in the second category, maintaining that

> In order to internalize these issues and make the people who caused the damage responsible, a series of direct (also known as command and control) and indirect (economic instruments) instruments can be used. Examples of command and control are: pollutant emission standards, licensing, impact studies, zoning, administrative and criminal sanctions. Examples of economic instruments are: economic incentives, subsidies, taxes, a system for charging for the use of environmental resources, deposit and return systems, tradable certificates, insurance and environmental bond. Such mechanisms are used to induce desired behaviors for entrepreneurs and to achieve the objectives of national environmental policy. According to Mendes and Seroa da Motta, economic instruments are market oriented and combine elements related to economic regulations and incentives to achieve environmental protection (WINDHAM-BELLORD, 2015, p. 146).

Despite being an internationally known doctrine, the Brazilian legal system had not used environmental bond as the object of general national standard. From this perspective, the state of Minas Gerais, when editing State Law 23,291, of 2019 improved the Brazilian Environmental Law through supplementary concurrent legislative competence or integration. By making this type of guarantee doctrine positive as an instrument of public policy for undertakings of environmental-humanitarian-cultural risk, Minas Gerais effectively dealt fully and met the peculiarities, as it is the Brazilian state that historically has developed around the activity of mining and its structural derivations (tailings dams) and industrial (processing of ore, steel and automobiles). In addition, the Minas Gerais is heavily

dependent on these sectors from the socioeconomic and fiscal-budgetary perspectives.

Moreover, a substantial part of the mining activity in the state of Minas Gerais is located in a densely populated region with an immense historical-cultural and environmental collection: the *quadrilátero ferrífero* (iron quadrilateral), where the capital Belo Horizonte and its macro-regional surroundings are located. This factor makes the peculiarities of the state even more evident in order to justify the ownership and the exercise of its legislative powers as a supplementary concurrent and integration concurrent, pursuant to Article 24, Paragraphs 2 and 3 of the CRFB. Therefore, the forecast of this matter in a general national rule issued by the Union does not, by itself, create an antinomy to justify the suspension of the effectiveness of the Minas Gerais state law, as well as its consequent regulation. Even if the national general law regulates this topic in detail, the reality of the state of Minas Gerais regarding mining activity is quite peculiar as compared to other member states of the Federation. Even in the state of Pará, where mining activity has been strengthened, the population density and the historical-cultural collection in the mining regions are very different from Minas Gerais, even though the wealth of another natural environment is also likely to suffer with the eventual risks of disaster: the Amazon region.

However, the doctrine of the environmental bond is not easy to implement in a regulatory or administrative manner. This occurs for a number of reasons, starting with the guarantee modalities and the calculation methodologies, as well as the respective payment, release, update and application stages (TORQUETTI; SAWAYA; VEIGA, 2014). In addition, the high economic and financial cost of environmental collateral – resulting from their different potential for disasters – is another important aspect to be considered, under the menace of ineffectiveness of the doctrine. Public policies for the protection of the environment and the adoption of measures for its recovery in the face of the risk of the enterprise must be accompanied by mechanisms to encourage sustainable socioeconomic activities, which in the great majority, are financially very expensive for some sectors and actors. It is noteworthy that the omission or precariousness regarding the inclusion of socioeconomically viable measures on the agenda of environmental public policies are destabilizing factors for environmental protection itself, as structural unemployment and poverty generate institutional and social instability with adverse effects.

All these aspects lead us to think about the environmental bond doctrine in the field of connections between actuarial sciences and public administration science and some specialties of legal science (human rights, environmental, administrative, business, economic and actuarial). Thus, within the scope of environmental protection in the face of risk and the need to encourage sustainable socioeconomic development, the promotion of private (or public-private) robust funds with actuarial sustainability and democratic inspection by state, private, experts and civil society representatives pass through the observance of guidelines specific to insurance and reinsurance systems at national and international scales. From this perspective, we recognize that

> As part of an environmental policy for mines, environmental bonds could also be used to incentivize mining companies to improve monitoring systems and management. In this case, an environmental bond is created when corporate funds are deposited in advance of a mining activity and are held in escrow until the end of mining and released when reclamation operations are successfully completed (Gerard 2000). The financial coverage provided by this bond could be based on the relative risk of the mining activity and the potential loss of the environmental services. By making bonds mandatory, companies that do not have the capital to cover potential accidents or propose very risky operations will not be able to go ahead with their initial plans. Hence, they will have to reduce the potential size and/or risk of their operation to move forward. If well planned, this policy could markedly improve enforcement of environmental regulations while encouraging mining corporations to minimize their risks and liability, thereby increasing environmental safeguards (GARCIA *et al*., 2017)

Consequently, the national general rule that will eventually be edited on the issue of environmental bond would remove the effectiveness of state legislation, in its primary or regulatory norms, if the Union's rule were more protective than the state's rule in relation to the environment and potential of humanitarian, environmental or historical-cultural damages resulting from an eventual accident, under the incidence and combination of constitutional principles related to the effectiveness of protection (COSTA, REIS, OLIVEIRA, 2016). In addition, the general national rule would also prevail in its application in the event that the impact area (flood spot) or the self-rescue zone transcended the limits of the state territory. Even then, typical aspects of the local-regional environment and socioeconomic factors peculiar to the historicity of communities in the state's territory must always be considered if there is potential for an antinomy between general national norms and specific norms of regional

and local government entities, which reinforces its legislative competences supplementary concurrent and integration concurrent.

Regarding the issue of environmental bond, some aspects must be highlighted. The first of them concerns the generality of the term "bond" used in the Minas Gerais law (State Law 23,291, of 2019, Article 7, I, b, and III, b). However, when performing a hermeneutic-systemic process of the legal provision, it seems that the term "bond" that is provided for expresses the idea of guarantee doctrine against diffuse claim. Therefore, the use of classical guarantees of a real or personal nature, even if simultaneously provided for in legislation, would not be of more appropriate application if the environmental guarantee is considered as a doctrine of diffuse rights and duties. In principle, none of them would serve to reach the end desired with this type of guarantee: that of ensuring, on the part of the entrepreneur – with the direct or indirect action of state entities – the immediate assistance and multidimensional provision to victims and recovery actions socio-environmental impact in the event of accidents and dam deactivation. The real guarantee modalities would imply the entrepreneur's capital immobilization for a long time and at great value. The modalities of personal guarantee would require the commitment of third parties, in large amounts and for a long term. Thus, such guarantees would discourage undertakings in this sector.

Another aspect to be dealt with is the method to calculate the value of the premium and the coverage contracted in the environmental bond. Several factors can be combined in the calculation, such as: (a) the entrepreneur's equity, production, income or profit; and (b) forecasting the impacted area and the potential for damage. In addition, the forms of payment of the bond and its release and application must also be carefully analyzed (TORQUETTI; SAWAYA; VEIGA, 2014).

There are also other hypotheses, such as the constitution of bond funds composed of resources from various private entrepreneurs and even public entities, in an associative-consortial and contributory nature, similar to pension funds. The multiple alternatives in this field increase the potential for insurance and fundraising in national and international bodies and reduce costs. These funds can be segmented by socioeconomic activities or be intersectoral, in order to become actuarially sustainable. There is nothing preventing environmental bond funds from being specifically traded in different markets, in such a way that they do not constitute large amounts of resources simply immobilized. In such circumstances, the liquidity

(availability and accessibility) of securities is recommended and the adequacy of environmental bond funds to reinsurance regimes and special authorizations from the Central Bank of Brazil is necessary.

Finally, the more resources that are available and accessible to minimize the effects of possible environmental claims, in a quick and sustainable way, the better it will be for the combination of legitimate interests of socioeconomic activity and protection of the environment.

We highlight that the institutionalization of the environmental bond, in its multiple nuances, aims to provide an immediate response to the consequences arising from environmental disaster due to dam ruptures and leaks. Consequently, its focus is on providing full assistance to victims and their relatives and promoting the recovery of the environment and historical and cultural heritage in the shortest possible time. However, the possibility of the existence of environmental bond is not a substitute for legal liability in criminal, civil and administrative areas. As stated, its nature is that of a guarantee doctrine in specific connection with human, environmental, administrative, business, economic, financial-budgetary and constitutional rights. In these terms, it is another important guarantee doctrine made available to society and to the environmental cause in its various dimensions of conjuncture and institutional repercussions.

Thus, it is very important for the effectiveness of the environmental bond that it be hermeneutically classified as a guarantee doctrine of diffuse right and duty in relation to the effectiveness of protecting the environment and its consequences, especially regarding the use of dams in socioeconomic activities with potential for diffuse impact and damage. Therefore, it must be considered that the normative dimensionality of the guarantee differs from that of the law, since

> Unlike the law – which has a legal-substantive nature – the guarantee is a dialogical-instrumental legal institute, i. e., it serves as a means (e. g., perfect legal act), procedure (e. g., appealability of the court decision) or process (e. g., writ of mandamus) so that, in the reasoning dialogically constructed, individual law can be subjectified, individual law and collective can be exercised, preserved and updated, and also that the legal system can be legitimately, preserved and updated.
>
> […]
>
> Therefore, we define guarantee as a legal institute of a dialogical-instrumental nature (means, procedure, process) made available by the legal system to state agents and institutions (e.g., the Public Prosecutor's Office), people of law, atypical entities and the community – and liable to be exercised by the holder or even through others – aiming at achieving the following purposes […] prevention, […] restitution / repair, […] compensation, […] minimizing effects […] (OLIVEIRA, 2016, p. *420 et seq.)*

In this scenario, we also highlight that the Federal Government – in the exercise of concurrent legislative competence for general rules – issued a general national rule dealing with collateral guarantees in relation to dam projects, in the following terms:

> Article 17. The dam entrepreneur undertakes to:
> […]
> Paragraph 2 Without prejudice to the prerogatives of the licensing authority of Sisnama, the supervisory body may require, under the terms of the regulation, the non-cumulative presentation of bond, insurance, bail or other financial or real guarantees for the repair of damages to human life, environment and public heritage, by the entrepreneur of:
> I – mining tailings dam or industrial or nuclear waste classified as medium and high risk or medium and high potential associated damage (Federal Law 12,334, of September 20, 2010, article 17, Paragraph 2, item I, as amended by Federal Law 14,066, of September 30, 2020[4]).

In the case of a national general rule, Federal Law 14,066, from 2020, is of a conceptual-exemplary nature in relation to the environmental bond doctrine for dams and therefore coexists with the provision of the matter in State Law 23,291, 2019 and their respective regulations. This hermeneutic perspective that has as its application premise the most effective collateral norm in environmental protection in the context of dams (whether Union or member state legislation) results from the protective-emancipatory-enabling normativity of the Constitution (OLIVEIRA, 2016) and especially of its Article 225, Paragraph 2: "whoever exploits mineral resources is obliged to recover the degraded environment, according to the technical solution required by the competent public agency, in accordance with the law".

Under this hermeneutic parameter of possible antinomy of state and federal legal regimes in relation to the environmental guarantee bond doctrine, we note that:

> […] The 'principle of the primacy of the public interest' has two of its premises: a) the precedence of the public interest over the private interest, with due regard for the fundamental rights, guarantees and duties of individuals; and b) the due commitment, by state agents and institutions, to the best possible protection and realization of the collective interests of society, historically contextualized.

4 Federal Law 14,066, of September 30, 2020, which amended Federal Law 12,334, of September 20, 2010, which establishes the National Dam Safety Policy for the accumulation of water for any use, for final or temporary disposal of tailings and for the accumulation of industrial waste, creates the *Sistema Nacional de Informações sobre Segurança de Barragens*. (Brazilian National Dam Safety Information System).

> […]
> In the case of protection of the environment (public interest), there is the concurrent performance – supplementary convergent – of the "principle of subsidiarity" in relation to the "principle of the primacy of the public interest," in order to make the federal, state or the municipal rule that best preserves a specific *habit* without making the other legitimate public interests of society (local, regional or national) unfeasible, such as access to self-sustainable economic development and the rational exploitation of natural resources.
> In these terms, and observing the entire Brazilian legal collection, only the specific case will lead us to conclude in which of the government entities the competence for environmental protection was based. Therefore, after confirming the "public interest" in the preservation of a specific *habit*, ownership and the exercise (priority and complementary) of the competence to enable environmental protection will be assessed based on the principle of subsidiarity (OLIVEIRA, 2016, p. 376-377).

In summary, if the state law (supplementary or integration concurrent norm) and later federal law (general national concurrent norm) are positivized, the state or federal norms ultimately have the effectiveness of constitutional principles of environmental-humanitarian-cultural protection through of the unity and referentiality of the federative model of the state in its decentralized and subsidiary regime of attribution of legislative powers to the government entities. In this hermeneutic-concretizing process, therefore, the primacy of the public interest, the criteria of federative subsidiarity and the most effective protection of the diffuse right act in a systemic way.

FINAL REMARKS

Considering:

1. The research question of the article: What is the concept and normative scope of the environmental bond doctrine provided for in the state legislation of Minas Gerais?
2. The theoretical-dogmatic framework of the article: the constitutional doctrine of concurrent legislative competence among the government entities.
3. The hypotheses for checking the article:

a) the greater or lesser extent of ownership and the exercise of this concurrent legislative competence by the state of Minas Gerais on environmental bond;
b) the possible suspension or ineffectiveness of the state rule in the event

of positivizing the general national rule on the matter.

We conclude that

1. The environmental bond required in the socio-economic activity of mining and use of dams has the legal nature of a doctrine guaranteeing diffuse right and duty of: protection, emancipation, and full environmental-humanitarian-cultural enhancement through the possible occurrence of claims and is in compliance with the incidence and combination of constitutional principles related to the effectiveness of protection.
2. The Minas Gerais law that made the environmental bond doctrine positive in the use of dams in socioeconomic activities of potential environmental-humanitarian-cultural risk resulted from the constitutional ownership and adequate exercise of the concurrent legislative competence by Minas Gerais, both in the mining sector and historical-evolutionary context of representativeness and peculiarities of this segment for its society.
3. The supervenience of the federal law that deals with the of the environmental bond doctrine in activities related to the use of dams is based on constitutional ownership and on the proper exercise of the general and national concurrent legislative competence of the Union and in this context presents the conceptual-exemplary content of the referred bond doctrine.
4. The particularities of the society and state of Minas Gerais in relation to mining activities and the use of dams authorizes the detailed legislative and administrative regulation of the environmental bond doctrine, in order to meet their local and regional peculiarities in its diverse social, environmental, economic and political circumstances.
5. The two legal regimes (regional and macronational) on the environmental bond doctrine remain valid and effective in their maximum normativity, and should prevail, in the various processes of jurisdictional, administrative and supervisory application – as a result of the hermeneutical process of completion – the state or federal rule (legislated or administrative-secondary) of greater effectiveness in the environmental-humanitarian-cultural protection, observing the primacy of the public interest and the decentralized and subsidiary criterion of attribution of legislative powers to the respective government entities.

REFERENCES

ALEMANHA. República Federal da Alemanha. *Lei Fundamental da República Federal da Alemanha*, de 23 de maio de 1949. Available from: https://www.btg-bestellservice.de/pdf/80208000.pdf. Access on: Sept. 21, 2020.

ATALIBA, G. Normas gerais de direito financeiro e tributário e autonomia dos estados e municípios: limites à norma geral – código tributário nacional. *In:* ATALIBA, G. *Apontamentos de ciência das finanças, Direito Financeiro e Tributário*. São Paulo: Revista dos Tribunais, 1969. p. 45-80.

ATALIBA, G. Regime constitucional e leis nacionais e federais. *In*: CLÉVE, C. M.; BARROSO, L. R. (orgs.). *Doutrinas essenciais:* Direito Constitucional. v. III. São Paulo: Saraiva, 2011.

BRASIL. [Constituição (1988)]. *Constituição da República Federativa do Brasil*. Brasília, DF: Presidência da República, 1988. Available from: http://www.planalto.gov.br/ccivil_03/Constituicao/Constituicao.htm. Access on: Sept. 29, 2020.

BRASIL. República Federativa do Brasil. Supremo Tribunal Federal. Plenário. *RE n. 1020307 SP*. Município de Sorocaba, Relator Ministro Luiz Fux, julgamento em 31/3/2017, DJe-068 5/4/2017. Available from: https://stf.jusbrasil.com.br/jurisprudencia/873760867/recurso-extraordinario-re-1020307-sp-sao-paulo?ref=feed. Access on: Sept. 29, 2020.

COSTA, B. S.; REIS, E. V. B.; OLIVEIRA, M. L. *Fundamentos filosóficos e constitucionais do Direito Ambiental*. Rio de Janeiro: Lumen Juris, 2016.

GARCIA, L. C. *et al*. Brazil's worst mining disaster: corporations must be compelled to pay the actual environmental costs. *Ecological Applications*, v. 27, n. 1, p. 5-9, 2017. Available from: https://esajournals.onlinelibrary.wiley.com/doi/pdf/10.1002/eap.1461. Access on: Sept. 10, 2020.

GOMES, M. K.; OLIVEIRA, M. L. Resposta socioambiental e direito dos desastres: considerações sobre o caso Mariana. *In*: VI ENCONTRO INTERNACIONAL DO CONPEDI, 6., 2017, San José. *Anais [...]*. Florianópolis: CONPEDI, 2017. p. 93-114.

HORBACH, B. B. Federalismo alemão fortalece competências estaduais. *ConJur*, 15 ago. 2015. Available from: https://www.conjur.com.br/2015-

ago-15/observatorio-constitucional-federalismo-alemao-fortalece-competencias-estaduais?imprimir=1. Access on: Sept. 1, 2020.

HORTA, R. M. *Direito Constitucional*. 5. ed. Belo Horizonte: Del Rey, 2010.

OLIVEIRA, M. L. *A Constituição juridicamente adequada.* 2. ed. Belo Horizonte: D´Plácido, 2016.

TORQUETTI, Z. S. C.; SAWAYA, M. A. M.; VEIGA, C. R. Modalidades de garantias Financeiras aplicáveis a empreendimentos industriais e minerários que utilizam barragens de rejeitos, resíduos e reservatórios e de água e sua correlação com as etapas de regularização ambiental. *In:* 8º CONGRESSO BRASILEIRO DE MINA A CÉU ABERTO E 8º CONGRESSO BRASILEIRO DE MINA SUBTERRÂNEA, 8., 2014, Belo Horizonte. *Anais [...]*. Belo Horizonte: IBRAM, 2014. Available from: http://www.ibram.org.br/sites/1300/1382/00005656.pdf. Access on: Sept. 8, 2020.

WINDHAM-BELLORD, K. A. O. *Direito Ambiental, economia verde e conservação da biodiversidade*. Belo Horizonte: D´Plácido, 2015.

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