ABSTRACT

The 1988 Constitution of the Federal Republic of Brazil has dedicated an entire chapter to assure the protection of the environment, according to the text of article 225. From the broad list of spaces protected by the Constitution, we will analyze, on the present work, the so-called subterranean natural cavities, also known as caves, and their respective legal system. Indeed, this study identifies and analyzes the main judicial rules (of constitutional and infra-constitutional nature) related to the caves, allowing the delimitation of a legal system applicable to the protection of the national speleological patrimony, which shelters priceless treasures, essential to the comprehension of history, and, eventually, of the own trajectory of men on the planet.

Keywords: Subterranean Natural Cavities. Speleological. Environmental Law. Environment.

1. INTRODUCTION

The importance the subterranean natural cavities display to the environment and so-
ciety, both for the natural and cultural prism, is not unknown. As widely shown by scientific studies, the human being has lived in some of them for large periods of time, registering his presence on them through signs that are discovered until today, allowing, thus, the comprehension of history and, eventually, of the own trajectory of the species on the planet. In this sense, the fantastic rock paintings at the entrances and interior of some of these caves, the burials and the remains of human occupations associated to these entrances prove the millenary interest of men for the cavity environment (KARMANN, 2004).

The study of the caves, still according to the author, reveals an enormous scientific potential involved in the evolution of them, from the very action of bacteria in deep ambiances eroding limestone to the acknowledge of unique sedimentary deposits occurred during the climate changing over the last ten thousand years, including the remains of extinct animals or traces of pre-historical occupation.

Due to [and reckoning] the indubitable importance of the caves, the Brazilian State has built a normative framework aimed to protect the national speleological patrimony, which, for being wide and sparse, makes it difficult the acknowledging and the exact interpretation of the legal rules pertinent to the subject, a problem that motivated us to write the current essay, contributing, thus, to the compilation and diffusion of the environmental protection of such spaces, notable in all their aspects (natural, cultural, paleontological, archaeological, historical...).

2. CAVES: MATERIAL AND INTANGIBLE PATRIMONY

After reckoning the importance of the subject, we must remember that the legal protection of the subterranean natural cavities began with Decree-Law 25, from November 30th 1937, which article 1st, caput, predicted that the historical and artistic national patrimony is constituted by the group of mobile and immobile goods in the country, which conservation is of public interest because of their linking to memorable facts of the Brazilian history and also because of their exceptional archaeological, ethnographic, bibliographic and artistic values.

Further afield, the 2nd paragraph of the same article matched the goods referred on the caput with the natural monuments, as well as the places and landscape that need to be preserved and protected by the State because of the notable feature given to them by nature or human action.

The concern of the State in what regards the legal discipline of the subterranean natural cavities is not baseless. Piló; Auler [2011, p. 17] points a series of impacts involving the handling of caves, namely: a) mining (visual degradation, interferences in the routes of subterranean drainage, water table pollution, vibration due to explosions, acoustic pressure, total or partial suppression of caves); b) reservoirs and dams (total or partial overflow, changing in the soil usage); c) urbanization/industrialization/big engineering works (water table pollution, surface erosion and cave silting, acid rain, atmospheric pollution, flooding); d) adaptation for mass tourism/intensive religious use (engineering works in the interior of the caves, graffiti, garbage generation, water pollution); e) deforestation (habitat fragmentation, loss of flora and fauna species, erosion and water silting, water contamination); f) visiting (trampling, breaking of stalactites and stalagmites, graffiti, cave pollution).

Another legal rule related to the subject is Law 3.924, from July 26th 1961, which regards the archaeological and pre-historical monuments (article 2nd), for example: a) the coal-beds of any nature, representing cultural testimonies of the ancient Amerindians of Brazil, like the sambaquis, artificial hills, sepulchral wells; b) the places in which there are traces of occupation by the ancient Amerindians, as grottos and shelters under the rock; c) the places identified as cemeteries, graves or villagization, in which there are archaeological or ancient ethnographic human traces; and d) the rock inscriptions and polishing utensil places, as well as other traces of ancient Amerindians activity.

Such relation between archaeology and caves, duly registered in the aforementioned law, is evidenced in literature, an aspect which reinforces the necessity of conferring protection to the national speleological patrimony. Some authors say that there are numberless walls and cave entrances with traces of usage as shelters, dwelling, ritual practices, ce-
meteries and base for the pre-historic human art development, highlighting the regions of Lagoa Santa, in Minas Gerais, São Raimundo Nonato, in Piauí, Medium São Francisco (from Januária up to Montalvânia), Monte Alegre and Serra dos Carajás, in Pará, among other areas (PILÔ; AULER, 2011, p. 15).

3 ENVIRONMENTAL NATIONAL POLICY

Proceeding in the study of the norm, one of the most important legal documents destined to the protection of the environment in Brazil appears in the eighties,. This is the Law 6.938, from August 31st 1981, which features the Environmental National Policy, its purposes and mechanisms of formulation and enforcement. Although it is not a law specifically destined to the protection of caves, the article 2nd of the mentioned rule affirms that the Environmental National Policy has as its goal the preservation, enhance and recovery of the environmental quality, aiming to assure the right conditions to the social-economical development, to the national security interests and to the protection of the human life dignity. In this context, the law, in the article 3rd, V, quotes the subsoil as an environmental resource, a rule in perfect harmony with the article 4th, III, which imposes the observance of “environmental quality criteria and standards and of the norms related to the usage and handling of the environmental resources”. Such excerpts, when referring to the subsoil, cover, to all evidence, the subterranean natural cavities, providing to them, thus, some legal protection.

Furthermore, the article 9th of the Law 6.938/81 mentions a broad list of instruments inherent to the Environmental National Policy, all perfectly applicable to the subterranean natural cavities, given that they are also part of the environment. Still, the article 10 of the law mentions that the “construction, installation, enlargement and functioning of establishment and activities that use environmental resources, considered effectively and potentially polluter, as well as the ones capable of causing the environment’s degradation, will depend of previous licensing from a State competent department”. As we can see, the article 10th, when conditioning the measures pointed above (construction, installation, enlargement, and so on) to the previous environmental licensing, reaches and guards the country’s speleological patrimony.

Notwithstanding the legal instruments referred up to now, the country did not have a legal document created specifically to deal with the issues regarding the national speleological patrimony.

Aiming to increase the protection of the subterranean natural cavities, the Environmental National Board (Conselho Nacional de Meio Ambiente - CONAMA) has edited the Resolution 9, from January 24th 1986, which purpose was to create a special commission to talk about subjects related to the preservation of the national speleological patrimony. Back to 1987, the CONAMA, through Resolution 5, from August 6th 1987, approved the Speleological Patrimony Protection National Program, including on it various protective recommendations, such as: a) the establishment of criteria, guidelines and usage norms to indicate the areas comprehending the national speleological patrimony; b) the inclusion, in the normative of the CONAMA (Resolution 1/86), of the mandatory elaboration of environmental impact studies in the cases of business ventures potentially harmful to the national speleological patrimony; c) that the bodies in charge of implementing and administer natural resources exports and large civil constructions mention, in their projects, the existence of caves in the areas impacted by them. Despite of the edition of Resolution CONAMA 5/87, Milaré (2011, p. 370) asserts that no management action was effectively taken by the Public Power.

The 1988 Constitution of the Federative Republic of Brazil has entirely dedicated a chapter (Chapter VI - The Environment, Title VIII - The Social Order) destined to assure the protection of the environment, according to the text of article 225, in which the right of all Brazilians to an ecologically balanced environment is asserted, affirming also that the environment is a good for the common usage of the people. The same article is emphatic to determine that it is up to the “Public Power and the collective, the duty of defending and preserving it for the present and future generations.”

During the elaboration of the 1988 Constitution, the dimension of the speleological
subject was not disregarded by the Constituent National Assembly, which seated this issue constitutionally. Therefore, we must analyze the treatment conferred by the Magna Carta.

3.1 The Protection of the Caves in the Federal Constitution

To begin with, we must register that the subterranean natural cavities, as predicted in the article 20, X, of the Federal Constitution, are Federal goods, submitted, thus, to a special regime. In this case, the national interest gave rise to its inclusion among the goods of the Federal Government, receiving the protection of all the members of the Federation (article 23, III, CRFB).

Alson [2004] affirms that, despite the fact that the subterranean natural cavities have been predicted by the current Constitution as goods of the Federal Government, it does not mean that they are owned by it, but that it is a duty of the Public Power to manage them.

Fiorillo [2004, p. 54-56], by its turn, affirms that the caves are not, in their essence, patrimony of the Federal Government, but for the common usage of the people, being absolutely indispensable to a healthy quality of life, the reason why the society, together with the State, must participate directly in its management.

Likewise, a very important constitutional rule for the protection of the caves is the article 216, V, notably for sheltering, in the broad concept of the Brazilian Cultural Patrimony, the material and intangible patrimony, taken individually or in group, carriers of references to the identity and the memory of the different groups that form the national society, in which we include, logically, the places of historical, artistic, archaeological, paleontological, ecological and scientific values, covering, thus, the caves.

Finally, we must not forget to list the one we consider to be the main constitutional norm destined to the protection of the environment, the article 225 of the Brazilian Constitution, which predicts that all Brazilians have the right to an ecologically balanced environment, affirming that the environment is a good for the common usage of the people and it is up to the “Public Power and the collectiveness the duty of defending and preserving it for the present and future generations”.

Still, as for the constitutional discipline, now in what concerns the competence plan in environmental subject, we must quote the article 22, XII, from the Federal Constitution, which asserts that only the Federal Government can legislate over coal-beds, mines, mineral resources and metallurgy. The article 23, III, by its turn, confers common competence to the Union, the States, the Federal District and the Municipalities to protect the goods of historical, artistic and cultural values, the monuments, the notable landscapes and the archaeological places.

3.2 The Protection of the Caves in the Brazilian Supreme Federal Court

Regarding this subject, the Supreme Federal Court (Supremo Tribunal Federal - STF), when analyzing the ADI (“Ação Direta de Inconstitucionalidade”) 2.544/RS, Minister -Rapporteur Sepúlveda Pertence, judged on 06/28/2006, manifested about the common competence of the Union, the States, the Federal District and the Municipalities in what concerns the protection of the archaeological valuable places: “Federation: common competence: protection of the common patrimony, including the archaeological valuable places (CF, articles 23, III, and 216, V): an incumbency which does not allow unilateral termination”.

“[…] The inclusion of a specific administrative function in the ambience of the common competence does not impose that each task comprehended as its responsibility, even the simpler ones, has to be the object of simultaneous actions of the three federal entities: where the prevision in the single paragraph of the article 23 CF of a complementary law to determine the cooperation norms (v. about archaeological and pre-historical monuments, Law 3.924/61), which issue, however, is competence of the Union, and, by all means, does not cover the possibility of the Union and the States to withdraw from the constitutional incumbencies of protecting the goods of archaeological value to unload them entirely over the Municipalities. Ação direta de inconstitucionalidade upheld.”

Furthermore, aiming to broaden the legislative competence regarding the subject, the article 24, VI and VII, of the Main Law firms the so-called concurrent legislative competence, allowing, thus, the Union, the States and the Federal District to legislate over forests,
hunting, fishing, the fauna, the nature conservation, the soil and the natural resources defense [VI], as well as over the protection of the environment and the control of the pollution, the protection of the historical, cultural, artistic, touristic and landscaped patrimony [VII]. As for the Municipalities, it is their duty, according to the rule registered on the article 30, II, of the Federal Constitution, to supplement the federal and state legislation.

The constitutional rules mentioned above allow us to affirm that the normative frame of the protection of the subterranean natural cavities is duly and well defined in the Constitution. Therefore, we will analyze, from now on, the indispensable infra-constitutional norms edited after the promulgation of the 1988 Constitution.

Having in mind the lack of a specific law destined to regulate the legal treatment regarding the caves, the Brazilian Institute of Environment and Natural Renewable Resources [Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis - IBAMA] edited on June 15th 1990 the Ordinance 887, which aimed to: a) promote the diagnosis of the national speleological patrimony, identifying the critical areas and defining actions and the necessary instruments for its duly protection and adequate use [article 1st]; b) constitute a National System of Speleological Information, with up-to-date information about the subterranean natural cavities in the national territory, research institutions, researchers and technical-scientific documents related to them [article 2nd]; c) limit the usage of the subterranean natural cavities only to studies in the technical-scientific order, as well as activities of speleological, ethnic-cultural, touristic, recreational and educational goals [article 3rd]; d) make mandatory the elaboration of an Environmental Impact Study [Estudo de Impacto Ambiental - EIA] for the actions or enterprises of any nature, foreseen or existing in areas where there are subterranean natural cavities or with a speleological potential, which can be directly or indirectly harmful to these cavities [article 4th]; e) prohibit deforestation, burning, soil and subsoil usage or actions of any nature that can put at risk the subterranean natural cavities and their area of influence, which comprehends the superficial and subterranean environmental resources important for their integrity or ecological balance [article 5th]; f) promote the elaboration and implementation of disclosure and awareness plans about the importance of the national speleological patrimony [article 7th].

We can notice, clearly, the protective aim in the Ordinance IBAMA 887/90. Beyond other measures, the Ordinance IBAMA 887/90 tried to present a number of definitions regarding the various technical terms related to the subject, as we can see on the article 10:

a) Subterranean Natural Cavity: each and every subterranean space where men can enter, with or without an identified entrance, commonly known as cave, including its ambience, mineral and hydrous contents, the fauna and the flora found there and the rocky body where it is inserted, provided that its formation has occurred through natural processes, disregarding its dimensions or the type of rock, a designation which includes all the terminology adopted in the different regions, like cave, cavern, grotto, etc.

b) Speleological Patrimony: the group of biotic and non-biotic, social-economical and historical-cultural, superficial and/or subterranean elements, represented or associated to the subterranean natural cavities.

c) Speleological Potential Areas: areas in which, having in mind their geological and geomorphic constitution, the development of caves are susceptible, such as the limestone areas.

d) Stalactites and Stalagmites: mineral depositions formed in caves through chemical processes.

e) Speleological Activity: sports or technical-scientific prospection actions, mapping, documentation and research which subsidize the identification, registration, acknowledging, handling and protection of the caves.

Milaré (2011), analyzing the outlines of the article 3rd of the Ordinance IBAMA 887/90, adduces that this Ordinance has narrowed important concepts [subterranean natural cavity, speleological patrimony, speleological potential area and stalactites and stalagmites] and created obligations of evident illegality. It is clear for us to see that, in this sense, “without a legal basis, the article 3rd of this Ordinance limits the use of subterranean natural cavities only to studies of technical-scientific order, as well as
to activities of speleological nature, ethnic-cultural, touristic, recreational and educational” [MILARÊ, 2011, p. 372].

Following this digression, we can see the importance of the Decree 99.556, from October 1st 1990, which disposes about the protection of the subterranean natural cavities existent in the national territory, which abstract evidences its role as a rule specifically created to solve the issues regarding the preservation and management of the national speleological patrimony, in this residing the historic relevance of such legal text. According to the sole paragraph of the article 1st, Decree 99.556/90, with the text established by the Decree 6.640/08, a subterranean natural cavity is “each and every subterranean space accessible by a human being, with or without an identified entrance, commonly known as cave, cavern, grotto, etc, including its ambiance, mineral and hydrous contents, the fauna and the flora found there and the rocky body where it is inserted, provided that its formation has occurred through natural processes, disregarding its dimensions or the type of rock”, a definition that does not differ in anything from that on the article 3rd of the Ordinance IBAMA 887/90.

Analyzing the aforementioned definition, we notice that the Decree 99.556/90 demands, for a conceptual parameter effect, the cave’s accessibility by a human being, which allows us to move away the accessible spaces to other non-human beings. According to Trajano (2004), such requirement (human accessibility) reveals a certain preference for the so-called anthropocentric view of the environment, because the majority of the caves are formed through erosion (fractures, plans of lodging), which have amplified more than others during the processes of dissolution and erosion of soluble rocks like limestone. These cracks are interconnected, maintaining a spatial continuity where smaller organisms can move freely. Therefore, the concept of cave is anthropocentric and artificial from the point of view of biology, because it is directly linked to the dimensions and moving capacity of our species. Smaller animals can live in cracks that we cannot penetrate, and, to them, these spaces are “caves” [TRAJANO, 2004].

We must mention, moreover, the Law 9.985, from July 16th 2000, which regulates the article 225, paragraph 1st, I, II, III and VII of the Federal Constitution, and also institutes the National System of Nature Conservation Units (Sistema Nacional de Unidades de Conservação da Natureza - SNUC), which article 4th, VII, establishes as a goal of this system “protecting the relevant characteristics of geological, geomorphic, speleological, archaeological, paleontological and cultural nature”.

The definition of what is a conservation unit is given by the article 2nd, I, Law 9.985/00: “a territorial space and its environmental resources, including the jurisdictional waters, with relevant natural characteristics, legally instituted by the Public Power, with conservation objectives and determined limits, under a special administration regime, to which adequate protection warranties are applied”. We verify, thus, that the Public Power can use the prediction written in the mentioned article to institute a conservation unit specially created to protect a specific cave.

By its turn, the article 2nd, IV, Law 9.985/00 considers environmental resources the atmosphere, the interior waters - superficial and subterranean -, the estuaries, the territorial sea, the soil, the subsoil, the elements of the biosphere, the fauna and the flora. According to what is determined in the article 24 of the same law, the subsoil, when influencing in the stability of the ecosystem, will integrate the limits of the conservation units. In effect, a systematic interpretation of the article 4th, VII, and article 24 of the Law 9.985/00 allows us to infer that the subterranean natural cavities, when integrating the subsoil, can be a part of a conservation unit, receiving, thus, the incidence of the pertinent federal legislation - in this case, Law 9.985/00, among others. By the way, we must register that the land surface and the subsoil, in which we include the subterranean natural cavities, are not isolated, but with complete communication, reason why the protection of one does not depend on the other. Therefore, the Law 9.985/00, as we can see, presents itself as another legal instrument created to protect the caves.

Still on the analysis of the legal framework, it is interesting to mention, furthermore, the Resolution CONAMA 347, from December 10th 2004, which equally provides for the protection of the speleological patrimony.
In the terms of the article 2nd, II, of the referred resolution, a legal text revoked by the Resolution CONAMA 428, from December 17th 2010, the concept of relevant subterranean natural cavity was introduced: the one which presents significant ecological, environmental, scenic, scientific, cultural or social-economical attributes, in the local or regional context, due to the following characteristics: a) dimension, morphology or landscaped values; b) geological, geomorphologic or mineralogical peculiarities; c) archaeological or paleontological traces; d) significant hydrous resources; e) delicate ecosystems; endemic species, rare or endangered.

Furthermore, according to the article 4th of the Resolution CONAMA 347/04, the location, construction, installation, enlargement, modification and operation of enterprises and activities considered effective or potentially polluters or degrading of the speleological patrimony or of its area of influence will depend of a prior licensing by the competent environmental agency, in the terms of the current legislation. The article 5th of the same resolution, by its turn, pointed north on how the licensing agency has to measure the impact degree to the speleological patrimony.

It is interesting, still, to make a reference to the Decree 6.640, from November 7th 2008, which, as affirmed, altered the Decree 99.556/90, completely modifying the legal treatment gave to the Brazilian caves, notably when classifying them according to relevance degrees:

a) Subterranean natural cavity with maximum relevance degree, i.e., the one that possesses at least one of the following attributes [article 2nd, paragraph 4th, Decree 99.556/90]: rare or unique genesis; unique morphology; notable dimensions in what regards extension, area or volume; unique stalactites and stalagmites; geographical isolation; essential sheltering for the preservation of genetically viable endangered species, mentioned on official lists; essential habitat for the preservation of genetically viable troglafauna species; rare troglafauna habitats; unique ecological interactions; witnessing cavities; historic-cultural or religious highlighted relevance. It is evident, thus, that the defining parameters of what is a natural cavity with a maximum relevance degree are found in the Decree 99.556/90, with the modifications brought with the Decree 6.640/08.

The cavity fauna, according to Hoenen (2004), is frequently classified “[...] in conformity to its ecological-evolutionary relation to the subterranean environment, into three different troglafauna groups: species that return to the surface to complete their life cycle, species that can live in the underground or on the surface, or cavity exclusive species”.

According to the article 3rd of the Decree 99.556/90, the subterranean natural cavity with maximum relevance degree (and its respective area of influence) cannot suffer irreversible negative impacts, and its usage must happen according to conditions that assure its physical integrity and the maintenance of the ecological balance.

b) Subterranean natural cavity with high relevance degree [article 2nd, paragraph 6th, Decree 99.556/90]: the one which the importance of its attributes is considered high locally (understood as the spatial unity that covers the cavity and its respective area of influence) and regionally (understood as the spatial unity that covers at least a group or geological formation and its relations with the environment where it is inserted), or high on the local focus and significant on the regional one, according to the methodology to be established in a normative act from the Minister of the Environment, after the counseling of the Chico Mendes Institute for Biodiversity Conservation [Instituto Chico Mendes de Conservação da Biodiversidade - ICMBio], the IBAMA and the other governmental actors related to this subject. Currently, the administrative act mentioned is the Normative Instruction 2, from August 20th 2009.

c) Subterranean natural cavity with medium relevance degree [article 2nd, paragraph 7th, Decree 99.556/90]: the one which the importance of its attributes is considered high locally (understood as the spatial unity that covers the cavity and its respective area of influence) and low on the regional focus (understood as the spatial unity that covers at least a group or geological formation and its relations with the environment where it is inserted), or significant on the local and
regionally, according to the same methodology mentioned before.

d) Subterranean natural cavity with low relevance degree (article 2nd, paragraph 8th, Decree 99.556/90): the one which the importance of its attributes is considered significant locally (understood as the spatial unity that covers the cavity and its respective area of influence) and low on the regional focus (understood as the spatial unity that covers at least a group or geological formation and its relations with the environment where it is inserted), or low on the local and regional ones, everything according to the same methodology mentioned before.

Therefore, we can find that the guiding elements to determine what is a natural cavity with maximum, medium or low relevance degree are not found on the Decree 99.556/90, with the modifications brought by the Decree 6.640/08, but, on the contrary, on an act to be edited by the Ministry of the Environment.

In accordance with the article 4th of the Decree 99.556/90, with the modifications promoted by the Decree 6.640/08, the cavity classified as high, medium or low relevance degree can suffer irreversible negative impacts, provided that it has an environmental licensing, with some distinction in what regards the compensation form: a) in the case of an enterprise which generates irreversible negative impact in a cavity classified as highly relevant, the entrepreneur must adopt, as a condition for the environmental licensing, measures and actions to assure the permanent preservation of two subterranean natural cavities with the same relevance degree, lithology and similar attributes to the one that suffered the impact, these two being considered testimony cavities (article 4th, paragraph 1st, Decree 99.556/90).

In the event of a lack of representative cavities to become testimony cavities in the area of the enterprise, the ICMBio will define, together with the entrepreneur, other compensation ways (article 4th, paragraph 3rd, Decree 99.556/90); b) in the case of an enterprise that generates irreversible negative impact in a subterranean natural cavity with medium relevance degree, the entrepreneur must adopt measures and finance actions - in the terms defined by the competent environmental agency - which contribute for the conservation and adequate usage of the Brazilian speleological patrimony, specially the subterranean natural cavities with maximum and high relevance degrees (article 4th, paragraph 3rd, Decree 99.556/90); c) in the case of an enterprise that results in irreversible negative impacts in a subterranean natural cavity with low relevance degree, the entrepreneur is not obliged to adopt measures and actions to assure the preservation of other subterranean natural cavities (article 4th, paragraph 4th, Decree 99.556/90).

Analyzing the modifications [above] introduced by the Decree 6.640/08 on the Decree 99.556, Milaré (2011) asserts that, although the new Decree 6.640/2008 has been suffering attacks due to the fact that it allows some subterranean natural cavities, according to its relevance degree, to be impacted and even completely suppressed, the previous legislation already used to do it. In reality, the Decree removed the concerns regarding the “systematic interpreting of the previous rules and established, in a very objective and integrated way, the criteria to define the relevance degree of natural cavities, besides the hypothesis in which they can or cannot be impacted” [MILARÉ, 2011, p. 379].

By its turn, the Supreme Federal Court (Supremo Tribunal Federal - STF), when judging the ADI 4.218/DF, filed by the Attorney General's Office and reported by Minister Luiz Fux, understood that the Decree 6.640/80, when establishing criteria for the environmental licensing of potentially harmful enterprises to the Brazilian speleological patrimony, does not violate the Constitution, enjoys legal protection and finds abundant regulating in Law.

Finally, beyond the group of legal texts aforementioned, the protection of the environment, for its intrinsic nature, demands a wide and articulated performance of the Public Power, requiring, from the respective actors involved, the editing of administrative acts of various shades, generally edited to regulate laws and decrees.

As mere examples, we can list the following acts:

a) Normative Instruction ICMBio 30, from September 19th 2012, establishing administrative and technical procedures for the speleological compensation mentioned on article 4th, paragraph 3rd, Decree 99.556/90, which, as we have seen above,
was altered by the Decree 6.640/08, especially for the enterprises that cause irreversible negative impact in subterranean natural cavities classified as high relevant [article 2nd, paragraph 6th, Decree 99.556/90] without other representative cavities on its area that could be preserved as testimony cavities, according to an analysis done by the licensing agency.

b) Ordinance 358, from September 30th 2009 (Ministry of the Environment), which instituted the Speleological Patrimony Protection National Program.

c) Ordinance ICMBio 078, from September 3rd 2009, which created the National Center of Research and Conservation of Caves (Centro Nacional de Pesquisa e Conservação de Cavernas - Cecav).

d) Normative Instruction 2, from August 20th 2009 (Ministry of the Environment), establishing the methodology for the relevance degree classification of subterranean natural cavities, regulating, thus, the article 5th of the Decree 99.556/90, altered by the Decree 6.640/08.

e) Ordinance IBAMA 887, from June 15th 1990, which, as mentioned before, ordained the use of the subterranean cavities.

4 FINAL CONSIDERATIONS

From the extensive list of the rules aforementioned, we can infer that the legal treatment conferred by the Brazilian State to the subterranean natural cavities unfolds in three distinct phases.

In the beginning, especially with the advent of the Ordinance IBAMA 887/90 and the Decree 99.556/90 (with the original text), we could identify a normative framework that was extremely conservative in what regards the management of such spaces.

Then, with the editing of the Resolution CONAMA 347/04, we could notice the appearance of a legal outline marked by the forecast of rules endowed with more flexible characteristics in what concerns the management of the caves.

Finally, especially after the editing of the Decree 6.640/08, which, as already said, altered the Decree 99.556/90, being considered constitutional by the Supreme Court, a gamma of criteria for the analysis and delimitation of the caves relevance degree (maximum, high, medium and low), allowing, thus, the conjugation of two values that, without repelling each other, walk arm in arm: the protection of the environment and the sustainable development.

5. REFERENCES


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outras cavidades representativas que possam ser sua área, conforme análise do órgão licenciador, grau de relevância alto e que não possuam na tóss que ocasionem impacto negativo irreversível de 7 de novembro de 2008, para empreendimen
to a Adaptação temporal e o am

