

SHOULD THE AREA BE MINED? THE PRECAUTIONARY PRINCIPLE AND THE ENVIRONMENTAL IMPACTS ON DEEP-SEA MINING

*A ÁREA DEVERIA SER MINERADA? O PRINCÍPIO DA
PRECAUÇÃO E OS IMPACTOS AMBIENTAIS DA
MINERAÇÃO EM FUNDOS MARINHOS*

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Abstract

The purpose of this paper is to analyze the role of the precautionary principle in the regulations of seabed exploitation activities. In order to do this, it relates the current Mining Code with the events that served as the basis for the Code nego-

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tiation. The methodology applied in this research is predominantly qualitative and of the document analysis procedure. The documents examined are the rules and jurisdictional decisions emanated from the International Seabed Authority. In summary, this article analyzes the adoption of the precautionary principle in recent normative and decisional constructions regarding mining activities and environmental impacts in the deep seabed. In conclusion, it is pointed to the construction of a normative arrangement of jurisdictional consolidation of the precautionary principle in the exploration activities of the deep seabed. Moreover, given the uncertain nature of the consequences that mining in the deep seabed will bring, the adoption of the principle arises to ensure the reduction of environmental impacts.

Keywords

International Seabed Authority. Marine Environment. Mining Code. Precautionary principle.

Resumo

O propósito do presente artigo é analisar o papel do princípio da precaução na Regulamentação de Exploração dos Fundos Marinhos. Para tal, relaciona a atual proposta de Código de Mineração com os eventos que serviram de base para negociação do Código. A metodologia adotada nesta pesquisa é predominantemente qualitativa e de análise documental. Os documentos analisados são as normas e decisões jurisdicionais emanadas da Autoridade Internacional para os Fundos Marinhos. Em síntese, este artigo analisa a adoção do princípio da precaução nas recentes construções normativas e decisórias em torno das atividades de mineração e dos impactos ambientais nos Fundos Marinhos. Em conclusão, aponta-se para a construção de um arranjo normativo de consolidação jurisdicional do princípio da precaução nas atividades de exploração dos fundos marinhos. Ademais, diante do caráter incerto das consequências que a mineração em Fundos Marinhos trará, a adoção do princípio surge de forma a garantir a redução de impactos ambientais.

Palavras-chave

Autoridade Internacional para os Fundos Marinhos. Código de Mineração. Meio-ambiente marinho. Princípio da precaução.

INTRODUCTION

The Law of the Sea international regime was contemporaneously structured by the 1982 Law of the Sea Convention (LOSC), which settled some basic principles such as high-seas free-

dom and respect to territorial sea sovereignty, and also provided the regime of institutions such as the International Seabed Authority (“Authority”) and the International Tribunal for the Law of the Sea (ITLOS).³

In the terms of LOSC article 1, “Area” includes seabed, ocean floor, and subsoil thereof, beyond the limits of national jurisdiction, which comprises “about sixty percent of the whole seabed” (BOURREL, THIELE and CURRIE, 2018, p. 314). In the 1960s, ocean floors became a relevant issue in an international scope due to the possibility of the appropriation of these by higher technologically developed countries. Scientific discoveries of magnesium, iron, silicon, lead, aluminum, copper, nickel and cobalt generated discussions between central and peripheral countries about the legal nature of the Area’s dominance (ARAÚJO JÚNIOR et al, 2017, p. 375).

In 1966, Lyndon Johnson stated that “(w)e must ensure that the deep seas and the *ocean bottom* are, and *remain*, the *legacy* of all human beings” (ZANELLA, 2017, p. 77). In 1967, Arvid Pardo’s (then UN Malta’s ambassador) speech presented a Declaration and a Treaty proposal related to seabeds in humanity’s interest, which becomes the starting point for the Third United Nations Conference on the Law of the Sea (GALINDO, 2006, p. 105). This is the beginning of diplomatic negotiations around the concept – groundbreaking, by that time – of “common heritage of mankind” regarding seabed, ocean floor and subsoil thereof, beyond national jurisdictions.

In 1970, the United Nations General Assembly (UNGA) adopted Resolution 2749, XXV, the Declaration of Principles, stating that ocean floors and subsoils thereof beyond national jurisdictions, as well as their mineral resources, are “common heritage

³ Stephen D. Krasner (1982, 185) defines international regimes “as principles, norms, rules, and decision-making procedures around which actor expectations converge in a given issue-area.”

of mankind”.⁴ Erick Frankx highlights inherent dangers caused by the “common heritage of mankind” neologism usage, which due to its metaphorical characteristic, vagueness and imprecision in meaning, entailed acceptance resistance by the negotiators which, in practice, led to the difficulty in creating a concrete implementation plan (FRANKX, 2010, p. 565).

In the sphere of LOSC negotiations, ocean floors thematic ended up by being one of the most delicate negotiation topics, risking to paralyze the Treaty negotiation, for the Area may contain a considerable amount of mineral resources. This space reckoning while common heritage of mankind justified the creation of the International Seabed Authority (ISA) as an international management organ (MENEZES, 2015, p. 238).

Regarding common heritage of mankind (CHM) principle, it is useful to highlight that all rights over the Area’s resources are acquired in favor of mankind as a whole, under which name the Authority must act, due to articles 137, 140 and 160 of the LOSC. Yoshifumi Tanaka (2012, pp. 170-171) understands that there are three elements in this principle: the first is non-appropriation, distinct from a *res communis*; the second oversees equitative sharing of economic benefits in a non-discriminatory way; and the third refers to peaceful usage.

The ISA, implemented by the 1994 Agreement, provided efficacy to LOSC Annex IX. Settled with the intent of managing and granting protection to seabeds, the Authority is an international organ which gives efficacy to the CHM principle, evaluated as a setback in legal regime conduction (MOREIRA; SILVA,

⁴ Under the terms of the mentioned Resolution: “The General Assembly [...] Solemnly declares that: 1.The seabed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction (hereinafter referred to as the area), as well as the resources of the area, are the common heritage of mankind. 2.The area shall not be subject to appropriation by any means by States or persons, natural or juridical, and no State shall claim or exercise sovereignty or sovereign rights over any part thereof.”

2010, p. 128ss), particularly in the technology transfer perspective.⁵ The Convention also established that an executive organ called Enterprise that should serve as the Authority's mining operator but, in a first moment, concrete measures to allow this to happen were not carried out.

Seabeds have become increasingly targeted for private exploitation, demanding caution in regulation efforts from Authority. Experts warn about the consequences of mining activities in the Area when these impact on ecosystems and, consequently, threaten biodiversity (NINER et al, p. 2018). In such maritime biodiversity-threatening socio-environmental context, the Authority has been gradually leading negotiations on regulations-related contractual issues between states and private companies, as well as the environmental impacts of mining activities. These regulations constitute a protective barrier and an Authority-standards compliance assurance.

The technological advances which propelled the extractivist industry towards Area exploitation require an appropriate approach from the Authority, reason by which a set of rules and procedures named Area Mining Code was created. By making use of contributions from public and private agents and non-governmental entities, the Code is an essential regulation for guaranteeing multilateral Area management.

The purpose of the present paper is to analyze the role of the precautionary principle in the regulation of seabed exploitation. For such, it relates the current Mining Code from ISA with the events that served as a base for the creation of the Code, highlighting the ITLOS Advisory Opinion 17, which expanded some

⁵ “Because developed nations were reluctant to give up their technological edge or share the benefits of development, the United States, the Federal Republic of Germany, the United Kingdom, and most developed nations elected not to sign the accord. [...] This amendment changed the nature of the ISA. Mandatory technology transfer was abolished. The 1994 Agreement changed the Common Heritage of Mankind into a market-based concept fully compatible with private economic activity.” (SHACKELFORD, 2008, p. 119)

essential topics for environmental compliance in seabed exploitation as, e.g. precautionary principle application in the context of the deep seabed (DOLIDZE, 2013, p. 380).

The argumentative development in the present paper originates from (i) describing normative and decision-making structures from ISA, particularly from the 1994 Agreement; and from (ii) legal foundations supplied by ITLOS Advisory Opinion 17; in order to, starting from (iii) the negotiating process of the Mining Code Draft, (iv) analyze the role of the precautionary principle as one of the current Mining Code's pillars.

1 THE IMPLEMENTATION OF LOSC PART XI: THE 1994 AGREEMENT

Seeking the implementation of LOSC Part XI, the 1994 Agreement rose from initiatives led by the then Secretary-General of the United Nations, Javier Pérez de Cuéllar, in order to assure universal participation and acceptance of the Convention.⁶ Subject to informal consultations from 1990 to 1994, essential points were highlighted, such as the technology transfer issue, the compensation fund and the environmental considerations. Afterward, commissions released their first considerations, splitting the Agreement's first draft into three parts: (i) a Resolution project to be approved by the General Assembly; (ii) an Agreement project about LOSC Part XI implementation; and (iii) two Annexes. Annex

⁶ "The Secretary-General stressed the importance of securing general acceptance of the United Nations Convention on the Law of the Sea, an instrument which represented many years of negotiations and which had already made a significant contribution to the international legal maritime order. He pointed out that though he would continue to encourage all States which had not done so to ratify or accede to the Convention, it had to be acknowledged that there were problems with some aspects of the deep seabed mining provisions of the Convention which had prevented some States from ratifying or acceding to the Convention" (UNITED NATIONS, 1994b).

I contained complied conclusions from the Secretary-General consultations and Annex II was titled “Consequential Adjustments” (UNITED NATIONS, 1994b, p. 4).

The last meetings took place in mid-1994, aiming at harmonizing the Agreement text with the Treaty’s official languages. Consultations indicated then that the States-Parties wanted to summon an United Nations General Assembly meeting to approve the Resolution, which would inaugurate the Agreement. The consultations’ objective was to obtain the leading industrialized countries’ broadest participation in order to attain the universality objective (UNITED NATIONS, 1994b).

The Agreement that has implemented ISA had aimed at assuring Authority’s operation with the least financial prejudice possible, once seabed exploitation was not yet a reality during the implementation period (SOUZA, 2000, p. 458). It should be noticed that the Agreement and LOSC Part XI should be jointly interpreted and applied as an only instrument.⁷

With the bond for Area-between-States exploitation being made, in a straight or not manner – through private sector concession –, the Authority is competent to administer the Convention’s established objectives, supervising exploitation activities, as it also fits Authority, under presenting a set of documents and analyzes which composes the work plan, to approve seabed exploitation operations in international waters (UNITED NATIONS, 1994a, p. 7). In this last function, limits and requirements to exploitation execution are also noteworthy, with particular attention given to developing, land-locked States and geographically disadvantaged States (SOUZA, 2000, p. 461).

⁷ According to the 1994 Agreement: “Article 2 Relationship between this Agreement and Part XI 1. The provisions of this Agreement and Part XI shall be interpreted and applied together as a single instrument. In the event of any inconsistency between this Agreement and Part XI, the provisions of this Agreement shall prevail. 2. Articles 309 to 319 of the Convention shall apply to this Agreement as they apply to the Convention” (UNITED NATIONS, 1994a).

Based on the sovereign-equality principle of States-Parties and good-faith in obligations fulfillment, the Authority is defined as an international entity with intergovernmental character, with its legal structure and personality. Currently, with 167 members and the European Union (EU), the Authority is responsible for managing the denominated “Area”. The Agreement brought a redistribution of powers and competencies among States, ITLOS, the Authority and the Commission on the Limits of the Continental Shelf (CLCS) and that this redistribution is less visible if we consider other instances, such as UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks (ANDERSON, 1995, pp. 288-289). It is still open to discussion whether this redistribution of forces will entail the pulverization of universal interests (the principle of the CHM) from the plurality of interests and values (BOURREL, THIELE, CURRIE, 2018, p. 314).

Two main organs establish the policies and execute Authority’s mandate: the Assembly, in which all members are represented, and a Council of 36 members elected by the Assembly. The Council members are chosen according to a formula intended to assure equal representation of countries from several groups, including the ones which are involved with seabed mining activities. Besides, the Council represents five groups of interest: (i) Area-found minerals consumer members (or liquid importers); (ii) Area investors; (iii) Area-extracted minerals exporters members; (iv) developing States-Parties representatives; and, (v) other members according to equitable geographical distribution (MENEZES, 2015, p. 238; ZANELLA, 2017, p. 389).

One of the main achievements of Authority was the adoption, in the year 2000, of regulations relative to polymetallic nodules exploitation, serving as a reference from the first exploitation regulation instrument in the Area. Soon later, the Authority’s Council started working on another set of regulations, covering polymetallic sulfides and cobalt-rich ferromanganese crusts.⁸

⁸ “To date, the Authority has issued Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area (adopted 13 July 2000) which was later

The Authority holds annual workshops on several aspects of seabeds exploitation, emphasizing in measures to protect the marine environment from any hazardous consequences. In this context, it is possible to highlight the Workshop held October 2007 in Manoa, Hawaii, which resulted in recommendations for “areas of preservation reference”, e.g. Clarion-Clipperton zone, where nodules mining would be prohibited, allowing preservation of the natural environment (ISA, 2008a, p. 3).

The Authority exerts law-making competence in order to adopt a variety of rules and regulations (HARRISON, 2010, p. 7) beyond the decisions and the deliberations from international organs. The derived characteristics of international law norms generation which are not dependent on States consent led the former President of ITLOS, Rüdiger Wolfrum, to conclude that the Authority is one of the rare examples of an international management agency, with executive functions similar to those of the States, capable of creating international law administrative rules (ANTON, 2013, p. 18).

Mining activities can only be performed under a contract with the Authority.⁹ The contracts may be granted by entities which have the nationality of State-Parties or sponsorship from them (UNITED NATIONS, 1994a, p. 9; ISA, 2017a, p. 3). In the

updated and adopted 25 July 2013; the Regulations on Prospecting and Exploration for Polymetallic Sulphides in the Area (adopted 7 May 2010) and the Regulations on Prospecting and Exploration for Cobalt-Rich Crusts (adopted 27 July 2012).” (Disponível em <https://www.isa.org.jm/mining-code>. Accessed August 21, 2018).

⁹ About the functioning of Authority’s concessions for seabed exploitation, Kaiser de Souza highlights: “In the terms of the Convention, each pioneer investor is entitled to an exploitation area not exceeding 75,000 km². The pioneers which have not finished the delimitation of those 75,000 km² to the moment of their work plan submission may claim up to 150,000 km², but shall return the exceeding area within a 8-year deadline. The convention also determines that each pioneer investor confine another area with the same size and economic value, which becomes an Authority activities’ “reserved area”. This way, more than 1,800,000 km² Pacific and Indian oceans’ seabed have been assigned to pioneer investors and Authority.” (SOUZA, 2000, p. 455-465)

last years, though, interest in deep-waters mining, especially regarding ferromanganese crusts and polymetallic sulfides has been rising among several companies that now operate in waters inside the national zones of Papua New Guinea, Fiji and Tonga, being, the first, the pioneering country in commercial exploration leasing of bulky sulfide deposits in seabed, with mentioned leasing granted in 1997 to Nautilus Minerals (ISA, 2008b, p. 22). The ISA has approved 29 exploration contracts awarded to companies from China, Cook Islands, the United Kingdom of Great Britain and Northern Ireland, Belgium, Korea, Germany, France, Poland, Cuba, Bulgaria, Czech Republic, Tonga, Kiribati, India, Singapore, Russia, Brazil, and Japan for three different mineral resources: seafloor massive sulfides, ferromanganese crusts and polymetallic nodules (PETERSEN et alia, 2016, p. 184).¹⁰

2 THE LEGAL BASES FOR THE MINING CODE: THE ROLE OF THE ITLOS ADVISORY OPINION 17

Within the Law of the Sea international legal regime, established by Montego Bay Convention, the foundation of ITLOS, with advisory and dispute settlement competences, established a judicial control mechanism for the regime. Based on this competence, the ISA Council requested, on January 11th, 2010, an Advisory Opinion to ITLOS Seabed Disputes Chamber (SDC), which was published on February 1st, 2011.

The Council of the Authority set out issues to be dealt with by the Tribunal, about legal responsibility and Convention

¹⁰ “Seventeen of these contracts are for exploration for polymetallic nodules in the Clarion-Clipperton Fracture Zone (16) and Central Indian Ocean Basin (1). There are seven contracts for exploration for polymetallic sulfides in the South West Indian Ridge, Central Indian Ridge and the Mid-Atlantic Ridge and five contracts for exploration for cobalt-rich crusts in the Western Pacific Ocean.” (Disponível em <https://www.isa.org/jm/deep-seabed-minerals-contractors>. Acesso em July 11, 2019).

States-Parties obligations; about the sponsorship of activities in seabed according to Convention Part XI and the 1994 Agreement; on the extent of the liability of the Member State for failure to comply with the Convention and the 1994 Agreement, by an entity sponsored in accordance with Article 153, paragraph 2 (b), of the Convention¹¹; and on the appropriate needs and measures the sponsoring State shall perform in order to comply with its responsibilities, according to article 139¹², Annex III of the Convention and the 1994 Agreement.

The Chamber understood that the sponsoring State acts as a contributor to the realization of common interests of States in the proper application of the principle of the CHM, which demands reliable observance of obligations imposed in Part XI, and also according to Convention art. 153, paragraph 4.¹³ It must be noticed that the Convention requires a specific act which must emanate from the will of the States or States of nationality and effective control. Such action consists in the decision of sponsoring, the endorsement (ITLOS, 2011, p. 74).

¹¹ Art. 153. Paragraph 2: “Activities in the Area shall be carried out as prescribed in paragraph 3: (a) by the Enterprise, and (b) in association with the Authority by States Parties, or state enterprises or natural or juridical persons which possess the nationality of States Parties or are effectively controlled by them or their nationals, when sponsored by such States, or any 79 group of the foregoing which meets the requirements provided in this Part and in Annex III.”

¹² “Art. 139: Responsibility to ensure compliance and liability for damage: 1. States Parties shall have the responsibility to ensure that activities in the Area, whether carried out by States Parties, or state enterprises or natural or juridical persons which possess the nationality of States Parties or are effectively controlled by them or their nationals, shall be carried out in conformity with this Part. The same responsibility applies to international organizations for activities in the Area carried out by such organizations.”

¹³ “The Authority shall exercise such control over activities in the Area as is necessary for the purpose of securing compliance with the relevant provisions of this Part and the Annexes relating thereto, and the rules, regulations and procedures of the Authority, and the plans of work approved in accordance with paragraph 3. States Parties shall assist the Authority by taking all measures necessary to ensure such compliance in accordance with article 139.”

The notions of due diligence commitments and responsibilities management are connected. The Chamber mentions the Judgement from the International Court of Justice (ICJ) about cellulose plants at the Uruguay river, where the “obligation to adopt regulatory or administrative measures either individually or jointly and to enforce them is an obligation of conduct” was highlighted (ICJ, 2010, p. 77). Thus, reckons the Chamber, the sponsoring State is compelled to adopt “laws and regulations” and to take administrative measures which are, within the framework of its legal system, reasonably appropriate for securing compliance by persons under its jurisdiction. Due diligence standards may vary over time, and it depends on risk levels and involved activities. This due diligence obligation makes the sponsoring State perform measures within its legal system (ITLOS, 2011, p. 37). Thus, the adoption of laws, regulations, and administrative measures in domestic law system is the “reasonably appropriate” test for due diligence (VROMMAN, 2012, p. 91).

In this sense, the Chamber pointed out the sponsoring State’s direct obligations:

(...) the obligation to assist the Authority in the exercise of control over activities in the Area; the obligation to apply a precautionary approach; the obligation to apply best environmental practices; the obligation to take measures to ensure the provision of guarantees in the event of an emergency order by the Authority for protection of the marine environment; the obligation to ensure the availability of recourse for compensation in respect of damage caused by pollution; and the obligation to conduct environmental impact assessments (*idem*, p. 38).

The precautionary approach is an integral part of the general obligation of due diligence, but Tanaka (2013) comments the Chamber is less clear on how the integration of the precautionary approach and the general obligation of due diligence occurred

in international law since the origin and function of the precautionary approach differ from those of the obligation of due diligence.

The fact the Regulation 31 embraces environmental protection measures according to the precautionary principle shows a normative addition to the Law of the Sea that hadn't been included in the Convention, and neither – until then – into customary law (ANTON, 2013, p. 19) with a binding characteristic (HARRISON, 2014, p. 38), even though the principle has emerged from a Declaration, instrument which has no equivalence to the binding power of a ratified Treaty¹⁴. Based on the Advisory Opinion 17, ITLOS has decided that, although the Principle 15 of the Rio Declaration is not legally binding, it has obligatory application (ZANELLA; CABRAL, 2017, p. 249; ITLOS, 2011, p. 127).¹⁵

On the commitment of the obligation to applying the best environmental practices, the Chamber highlighted the sponsored contractor's need to perform an environmental impact evaluation, provided in the 1994 Agreement Annex I (UNITED NATIONS, 1994a, p. 10). The obligation to apply the best environmental conduct has to be seen as a part of the 'due diligence'. In this sense, the Nodules Regulation mentions best available technol-

¹⁴ The mentioned Regulation 31 (Protection and preservation of the marine environment) is related to Part V (Protection and preservation of the marine environment) of the ISBA/19/C/17 (2013): “1. The Authority shall, in accordance with the Convention and the Agreement, establish and keep under periodic review environmental rules, regulations and procedures to ensure effective protection for the marine environment from harmful effects which may arise from activities in the Area. 2. In order to ensure effective protection for the marine environment from harmful effects which may arise from activities in the Area, the Authority and sponsoring States shall apply a *precautionary approach*, as reflected in principle 15 of the Rio Declaration, and best environmental practices.” (author's italics)

¹⁵ “127. The provisions of the aforementioned Regulations transform this non-binding statement of the precautionary approach in the Rio Declaration into a binding obligation. The implementation of the precautionary approach as defined in these Regulations is one of the obligations of sponsoring States.” (ITLOS, 2011)

ogy but since these two concepts are not the same, “best environmental practices” require a combination of the most appropriate measures, which includes available technology (VROMMAN, 2012, p. 91).

Besides that, such commitments are equally applicable to developed and developing countries, except for the dispositions in Rio Declaration Principle 15, referred to in the Authority Regulation on Polymetallic Nodules (ISA, 2018, p. 8). The Chamber addresses, this way, that the interests and particular needs of developing States should be implemented to allow developing States to participate in seabed mining in equal terms with developed States. This approach aimed to avoid “sponsoring States of convenience”. If developing States were allowed to apply differentiated regulatory measures for the protection of the environment, supposedly, companies from developed States would relocate themselves to developing States (VROMMAN, 2012, p. 92). Concerning the paragraphs 161 and 162 of the Advisory Opinion (in particular the reference to “capabilities”) is possible to interpret that the “requirements for applying the precautionary approach may be stricter for the developed than for the developing sponsoring States” (OYARCE, 2018, p. 321)¹⁶.

Another topic to be highlighted in the Advisory Opinion 17 was when the sponsoring State fulfills all the commitments within its reach and, nevertheless, environmental damage occurs. The Chamber concluded that, in this case, a Fund which should provide compensation would be instituted by the Authority (PLAKOKEFALOS, 2013, p. 21). Hereof, the Chamber concluded that “full reparation for the injury caused by the internationally wrongful act shall take the form of restitution, compensation, and satisfaction, either singly or in combination.” (ITLOS, 2011, p. 58).

¹⁶ “162. Furthermore, the reference to “capabilities” is only a broad and imprecise reference to the differences in developed and developing States. What counts in a specific situation is the level of scientific knowledge and technical capability available to a given State in the relevant scientific and technical fields.”

The sponsoring State's responsibility for failing to comply with commitments and due diligence requires the establishment of a causality nexus between defects and damages. Such responsibility is caused by a sponsored contractor's damage or failure to accomplish its commitments, with these not being presumed (ITLOS, 2011). In this regard, sponsoring State and sponsored contractor liabilities exist in parallel, and are not joint and several. The provision of the Advisory Opinion that the sponsoring states have no residual liability concerning activities in the Area released these states from an excessive burden of liability although Tanaka (2013) observes it may open up the possibility of uncompensated damages.

The Chamber pointed out that the Convention requires the adoption of laws, regulations and administrative measures by the sponsoring State within its legal system with the function of guaranteeing the right management from the contractor, according to its obligations, in a way that exempts the State from its responsibility in case of environmental damage (TANAKA, 2013). Such rules and administrative measures may include commitment mechanisms for an active survey of the contractor's performed activities, as well as coordination with the Authority's guidelines. The Chamber showed the need for such rules as a requirement for the accomplishment of due to the diligence commitment relative to the States that search for responsibility exemption.

In terms of the measures adopted by the sponsoring States, the Chamber pointed out that, regarding marine environment protection, "the laws and regulations and administrative measures of the sponsoring State cannot be less stringent than those adopted by the Authority." (TANAKA, 2013, p. 75). The dispositions the sponsoring State might consider necessary to include in its national legislation may regard, namely, sponsored contractor's financial viability and technical competence, sponsorship certificate emission conditions and sanctions due to contractors noncompliance (*idem*, *ibidem*).

Advisory Opinion 17 is a historical decision, once it generates *opinio juris* on legal obligations over sponsoring States in order to apply a protective approach and better environmental practices. These are positive developments for the Area's marine environment protection. Regarding protective approach, the Advisory Opinion is significant for it identified the existence of a "tendency" to turn this approach into part of customary international Law (TANIELU, 2013, pp. 30-31). Hence, the understandings developed by ITLOS came to establish seabeds sustainable exploitation parameters, which concepts and measures ended up, afterward, used in the composition of the Authority's Mining Code draft, highlighting the preventive procedure for control and processing of environmental impact documents and the Authority monitoring over the activities (ISA, 2017a, p. 5).

3 THE MINING CODE'S DRAFT: REGULATIONS, AND PROCEDURES

The 'Mining Code' refers to the comprehensive set of rules, regulations, and procedures issued by the Authority to regulate prospecting and exploitation of marine minerals in the Area. In this sense, all rules, regulations, and procedures are issued within a general legal framework established by the LOSC and its 1994 implementing Agreement relating to deep seabed mining.

The first discussions about the creation of a Mining Code started right after the Authority's institutionalization.¹⁷ In

¹⁷ "A set of rules to govern exploration for mineral resources in areas of the deep seabed beyond the jurisdiction of individual countries will be the priority item as the International Seabed Authority meets in Kingston on 16 March for the first portion of its two-part annual session. [...] The Authority began work on the seabed mining code in March 1997, as its first substantive business. The text now before it, a third draft that is not yet complete, was drawn up last August by the Legal and Technical Commission, a 22-member expert body elected by the Council. The Commission hopes to complete its text during the first week of the

2000, the Authority issued Regulations on Prospecting and Exploration for Polymetallic Nodules in the Area, which was further updated and approved in July 25th, 2013; Regulations on Prospecting and Exploration for Polymetallic Sulphides in the Area, approved in 2010; and Regulations on Prospecting and Exploration for Cobalt-Rich Crusts, approved in 2012. These regulations include the necessary forms to request exploration rights, as well as the exploration contracts' standard terms.

The complete set of these regulations composes part of the Mining Code, jointly with the Authority's Legal and Technical Commission Recommendations on contractor's guidance over the evaluation of environmental impact for polymetallic nodules exploitation. In the course of the negotiation process, several activities that started with preparatory works were performed in March 2014, when a stakeholder survey was launched by the Authority's Secretariat to request relevant information for developing a framework of regulations for minerals exploitation in the Area. The stakeholder survey was the first of a series of initiatives to start the development of a framework which pursues the best contemporary practices from experts' analyses and opinions.

In the middle of the following year, the Authority started performing inquiries for a posterior development of the Framework of Regulations for Mining Exploitation in the Area, a document that discusses exploitation contracts' financial terms. Still, in the same year, Authority members and interested parties were invited to do observations over the suggested framework, high-level issues, and action plan project, and also on the development and implementation of a payment mechanism for exploitation activities in the Area.

The first draft on the regulations of contractual terms and seabeds exploitation is set up in February 2016, already showing the first ideas about the Code structure, was the object of a

coming session, and submit the results for approval by the Council and Assembly" (UNITED NATIONS, 1998).

series of comments from the involved parties, particularly national governments, non-governmental organizations (NGOs), research institutes and private sector entities. In this context, when it comes to contribution when elaborating the draft, there is a clear predominance of public and private actors from Europe and Asia. Among private actors, thirteen are corporations, and sixteen are third-sector organizations and marine research institutes. In these efforts' scope, it is worthy of notice the absence of Southern Atlantic representatives in the creation of an international legal instrument, which directly impacts on Seabed exploitation (ISA, 2016a, p. 1-2).

A series of themed workshops influenced the draft's construction. Workshops straightly related to the development of the Mining Code's specific areas were also held: Workshop on Mineral Exploitation in the Area (Singapore, June 2015); Workshop on Environmental Assessment and Management for Exploitation of Minerals in the Area (Surfer's Paradise, May 2016); Workshop on the Deep Seabed Mining Payment Regime Workshop (San Diego, May 2016); Workshop on Enhancing Stakeholder Participation and Transparency in the ISA Process (Ocho Rios, Jamaica, July 2016); Deep Seabed Mining – Payment Regime Workshop (London, December 2016); Workshop Towards and ISA Environmental Management Strategy for the Area (March 2017, Berlin, Germany); Workshop on the draft regulations for the exploitation of mineral resources in the Area: policy, legal and institutional considerations (London, February 2018)¹⁸.

About the Authority's published draft, it is noticed that the document is split into ten topics which explore definitions and settle ordinances on seabed exploitation. On the exploitation regime's applicable definitions, the Exploitation Regulations contain relatively few terms and definitions, being likely that later Regula-

¹⁸ All these formal meetings generated briefing papers, conference reports, and technical studies. See the ongoing development of regulations on the exploitation of mineral resources in the Area. (Disponível em: <https://www.isa.org.jm/instruments-juridiques/ongoing-development-regulations-exploitation-mineral-resources-area>. Acesso em July 12, 2019).

tions include internationally agreed terms, with higher conceptual precision (ISA, 2017a, p. 26).

Furthermore, the draft describes the approval process for seabed exploitation, which includes the elaboration of a viability study, an environmental impact report, and a financial plan (ISA, 2017a, p. 5). The process of hiring exploitation companies happens in a public manner, according to the principle of transparency in decision making over matters that may significantly impact the environment, allowing the determination of a process of the transparent review process. The principle of CHM gives foundation to the transparency principle, (to the detriment of the confidentiality, which is fundamental to investment and intellectual property issues), in the meaning of Advisory Opinion 17's contents of allowing the international community and international law subjects to effectively play the role of auditors (OLIVEIRA; ZUFFO, 2017, p. 32-33). Specialists affirm that there are indications that the management of seabed mining is not consistent with the CHM principle and part of this scenario is due to the lack of transparency in the work of the ISA (JAECKEL *at alia*, 2016, p. 203). Some recent analysis suggests that the ISA needs to develop additional rules, regulations, and procedures if it wants to align with the international standards of contemporary practices of transparency that have arisen from experiences in analogous industries (ARDRON; RUHL; JONES, 2018, p. 65).

Marine environment restoration will happen whenever the Council orders so. This competence is based in the Commission's recommendations which will account for the presumable efficacy of necessity-based techniques, technical viability, and cost-efficiency relation, based in a cost-benefit analysis, whenever such quantification can be reasonably evaluated (ISA, 2017a, p. 53). A Discussion Paper on the development and drafting of Regulations on Exploitation for Mineral Resources in the Area predicted the adoption of an Environmental Liability Trust Fund so that the Authority may, based on experts recommendations, guide other investigations, e.g., concerning marine ecosystems in the Area, and de-

velop institutional capabilities (ISA, 2017b, p. 72). Although different policy instruments such as an Environmental Liability Trust Fund, a seabed sustainability fund, or an environmental bond have been proposed under a Financial Payment Regime (NIJEN, PASSEL and SQUIRES, 2018, p. 135), as far as this research can verify, no details are available on these policies beyond the Endowment Fund, which “promotes and encourages the conduct of collaborative marine scientific research in the international seabed area.” (ISA, 2019a).

The Mining Code responsibilities regime is essential, regarding the Area environment, to activities that transcend mining. Ecosystems within the Area may house viable sources of energy, food, and medicines (ANTON, 2010, pp. 256-257). The International Community is still largely unaware of mining activities’ systemic consequences, even more, when considering trophic chains in regions that are not the mined ones (GLOVER et alia, 2018), despite the fact that some different simulated seafloor mining experiments (Japan, Germany, India and East European Consortium) revealed significant information on the potential impacts that may occur (SHARMA, 2015)¹⁹. This reality becomes even more worrying if the impacts of mining activities in States legal limits are considered²⁰.

¹⁹ See also the MIDAS Project (Managing Impacts of Deep-sea resource exploitation), a multidisciplinary research programme on the environmental impacts of extracting mineral and energy resources from the deep-sea environment. (Disponível em <https://www.eu-midas.net/>. Acesso em 11 jul. 2019)

²⁰ “Coastal zones with a short timescale of connectivity to the High Seas are already facing, or may soon be exposed to, a number of significant challenges arising from the pollution, overfishing, mining or geoengineering experiments in the High Seas.” (POPOVA et alia, 2019, p. 92)

4 BASED ON THE PRECAUTIONARY PRINCIPLE, SHOULD THE AREA BE MINED?

In the SDC definitions, the precautionary principle reflects the environmental caution and protection requirements in light of available information uncertainties and inadequacies (KIM; ANTON, 2014, pp. 16-17). The precautionary principle is one of the Mining Code's Draft bases and is among the principles with the most significant prominence in regulations implemented by the Authority thus far so that the challenge consists in translate the abstract obligation into practical actions (JAECKEL, 2017, p. 1) The principle stresses the need for permanent seabed activities' monitoring and maintenance of the regime under regular inspection (HARRISON, 2014, p. 38). Principle 15, from the 1992 Rio Declaration on Environment and Development, is the common starting point to define the precautionary approach:

“In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation” (UNITED NATIONS, 1992a).

In 1998, a group of scientists and environmental activists, mainly from Anglo-Saxon universities and institutions, disclosed the denominated Wingspread Statement, making references to the Precautionary Principle, which resonated at an international level²¹. Facing the considerable risks from seabed mining, the appli-

²¹ “When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. In this context the proponent of an activity, rather than the public, should bear the burden of proof.” (WORLD HEALTH ORGANIZATION, 1998)

cation of the principle legally protects an area under the status of the CHM. Such principle dictates the cautious approach on performing activities in the environment, against possible harmful risks and impacts in such area (MITCHELL, 2012, p. 2).

Some legal scholars discuss the supposed difference between the precautionary approach and the precautionary principle. Dinnen (2013, p. 19) argues that at the philosophical level, the precautionary approach can be understood as the application of the precautionary principle that seems to be accepted as a legal norm. Phillippe Sands (2003, p. 268) adopts the 'precautionary principle' terminology and understands that the precautionary approach is the way as the US and some others prefer to call it. Also explains that the precautionary approach has been relied upon to protect especially the marine environment (*idem*, p. 269). Since the principle appears for the first time in the 1987 Convention for the protection of the marine environment of the North-East Atlantic²², it can be said that the precautionary principle is an idea that arose in the law of the sea (ZANELLA; CABRAL, 2017, p. 234).

Philippe Sands (2003, p. 272) states that among states there is no uniform understanding of the meaning of the precautionary principle and at the most general level, "it means that states agree to act carefully and with foresight when taking decisions which concern activities that may have an adverse impact on the environment.". The base of precautionary principle adduces that positive actions to protect the environment might be necessary before scientific proof of damage be supplied. The existence of two essential factors for unchaining the precautionary approach is, then,

²² "The Contracting Parties shall apply: (a) the precautionary principle, by virtue of which preventive measures are to be taken when there are reasonable grounds for concern that substances or energy introduced, directly or indirectly, into the marine environment may bring about hazards to human health, harm living resources and marine ecosystems, damage amenities or interfere with other legitimate uses of the sea, even when there is no conclusive evidence of a causal relationship between the inputs and the effects;" (Disponível em: <https://www.ospar.org/convention>. Acesso em: 10 jul. 2019)

noticeable: damage potential and uncertainty on impact causality or magnitude (TANIELU, 2013, p. 41).

The adoption of the precautionary principle allows decisions to be justified based on available information. Precaution may be defined as caution in advance; caution practiced in the presence of uncertainty or informed prudence. Precaution introduces a jeopardy restitution payment culture, a decision structure that avoids the occurrence of irreversible damage. The preventive approach does not necessarily restrain unknown-effect activities from proceeding but demands that, if so, they do it cautiously. Precaution includes researching and evaluating alternatives to the proposed action. Continuous monitoring and research are also an essential component of the preventive approach, intending to move towards scientifically determined risk management mechanisms (TANIELU, 2013, p. 30).

Rakhyun Kin and Donald Anton report the New Zealand experience in applying the precautionary principle, aimed at seabed mining: besides LOSC and the Convention on Biological Diversity, they point out that it is crucial to know the lessons learned by other States in the application of such principle (2014, p. 16). This measure does not only deal with the articulation with the third source of ICJ Statute article 38 (general principles of Law) but also deals with what the adequate cautions' considerations that decision-making processes from different States might regard and which, in a certain way, provide reasoning for the application of international law.

Besides limited efficacy, precautionary principle consolidation in the Mining Code context positions itself at a high level in the international regime for the Law of the Sea, following the precautionary approach towards which Advisory Opinion 17 indicated²³. Mitchell (2012, p. 3) suggests that such principle leads authori-

²³ The precautionary principle is evidenced in important parts of the Authority draft regarding exploitation process approval, as well as in the document's general principles, respectively: "4. The Commission shall determine if the proposed Plan of Work: (a) Optimizes the recovery and extraction of the Minerals; (b)

ties to adopt preventive measures in light of possible severe or even irreversible risks to the environment or human beings, an action which is necessary when facing damage uncertainty, or even if there is an absence of proof for the activity's cause-and-effect relation.

In *New Zealand vs Japan case (Southern Bluefin Tuna Case)*, ITLOS (1999) decided that Australia, Japan, and New Zealand should each refrain from conducting an experimental fishing program involving the taking of a catch of southern bluefin tuna, despite the fact that the Tribunal recognized that the parties acted consistently with the precautionary principle in fishing for Southern Bluefin Tuna. In this sense, it is essential to highlight that the Chamber stated that the link between an obligation of due diligence and the precautionary approach is implicit (ANTON, MAKGILL and PAYNE, 2011, p. 63). In this case, Japan contended that “the scientific evidence available showed that the implementation of its experimental fishing program would cause no further threat to the southern bluefin tuna stock.” (ITLOS, 1999, p. 296) On the other hand, Australia and New Zealand maintained that the scientific evidence available showed that “the amount of southern bluefin tuna taken under the experimental fishing program could endanger the existence of the stock.” (Idem, *ibidem*). In this case, ITLOS

Reflects the economic life of the Exploitation project; (c) Following the Commission's examination under regulation 21, provides for the effective protection of the Marine Environment in accordance with Article 145 of the Convention including the application of Best Environmental Practices and a *precautionary approach*; (d) Provides for the effective protection of human health and safety; [...] Draft Regulation 17. General principles. In furtherance of Part XI of the Convention and the Agreement, especially for ensuring the effective protection of the Marine Environment from harmful effects under Article 145 of the Convention, the Authority, sponsoring States and Contractors shall plan, implement and modify measures necessary for activities in the Area by applying the following principles: [...] (c) In the assessment and management of risks to the Marine Environment *the precautionary approach, as reflected in principle 15 of the Rio Declaration*, shall be applied, and the Best Available Scientific Evidence shall be taken into account [...].” (ISA, 2017, author's italics)

considered the uncertainties of the environmental impact based on the disagreement on significant scientific evidences.

However, the quality of the actions to be performed, considering the precautionary approach application, varies according to risks and uncertainties the activity presents (MITCHELL, 2012, 4; MILLER et alia, 2018). Grasping the base of interpretation for the precautionary approach only starting from the monitoring of ongoing activities, in order to build an application foundation, is not the right way of interpretation in light of CHM (MITCHELL, 2012, p. 6), once principle pursues avoiding environmental damage before they occur. In the context of the deep sea bed, there is no consistency yet in the availability of scientific data about the environmental consequences of the mining activities (KIM, 2017, p. 136; NIJEN, PASSEL and SQUIRES, 2018, p. 135; BEAULIEU, GRAEDEL and HANNINGTON, 2017, pp. 655-656); moreover considering the different geological structures as well as ecological systems involved in these exploitation activities that can vary from one region to another.

In the Advisory Opinion 17, the SDC has recognized the value of the customary law of the precautionary approach²⁴. It is possible to consider this understanding of the precautionary approach as customary law is not only related to the application of the Principle 15 of the Rio Declaration but rather to the argumentative substance of the principle in itself in terms of the observed legal practices. In this concern, it is relevant to ask what states consider (*opinio juris*) the right interpretation and application of the precautionary principle in the sea-bed mining context. It is in this measure that the precautionary principle will be gradually informed and consolidated from States' *opinio juris*, particularly observed in State legal environment mining activities, namely, on coastal re-

²⁴ “The Chamber observes that the precautionary approach has been incorporated into a growing number of international treaties and other instruments, many of which reflect the formulation of Principle 15 of the Rio Declaration. In the view of the Chamber, this has initiated a trend towards making this approach part of customary international law.” (ITLOS, 2011, 41)

gions or continental shelves. These statal legal practices and jurisprudence, which encapsulate concession contracts and judicial redress/compensation measures, will also inform, in a certain extent, the available scientific knowledge, in a repertoire of cases forming a national experiences catalog regarding different marine geological and ecosystemic environments.

Finally, the ongoing negotiating processes towards an international legally binding instrument under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction maybe can change and/or reinforce the scenario described in this article²⁵. A possibility of a new Treaty devoted to the conservation of the environment in the areas beyond the national jurisdictions can overlap the regime of LOSC for the Area. The concerns of the stakeholders with the environmental impacts of mining activities in the deep seabed are remarkable along with the sessions of negotiation²⁶.

FINAL CONSIDERATIONS

The formation of a legal framework over seabed has always been among the Authority's objectives. From Advisory Opinion 17 emerged legal foundations for the composition of a Draft for regulating Area mining activities. Once such region is of strategic interest for the mining sector's public and private entities,

²⁵ Disponível em: <https://www.un.org/bbnj/>. Acesso em: July 11, 2019.

²⁶ "The conservation and sustainable use of BBNJ is increasingly attracting international attention, as scientific information, albeit insufficient, reveals the richness and vulnerability of such biodiversity, particularly around seamounts, hydrothermal vents, sponges, and cold-water corals, while concerns grow about the increasing anthropogenic pressures posed by existing and emerging activities, such as fishing, mining, marine pollution, and bioprospecting in the deep sea." (Disponível em: <https://enb.iisd.org/vol25/enb25179e.html>. Acesso em: July 11, 2019)

it demands, from the Authority, a firm and international-consensus based attitude. Jointly, Advisory Opinion 17 defined essential guidelines for exploitation safety and sustainability, as it reinforces the responsibility limit and ranges of activity-involved States and third-parties.

Demanding due diligence measures from the involved parties for controlling seabed activities, the Authority supplies the exploitation activity with legal security and institutional stability without deviating parallel responsibility from the sponsoring State. Moreover, by requiring the precautionary approach as an element of due diligence, the Chamber extends its application to all relevant activities in the Area and not just the activities governed by the Regulations (FRENCH, 2011, p. 547).

Exploitation-proponent companies bear responsibility for examining activities risk impacts first. This way, the precautionary principle, as a center of the regulations, is consolidated in the draft. The adoption of the principle rises as a means to assure environmental impacts reduction due to the uncertain character of the consequences that seabed mining will produce. The Mining Code binding feature, as an addition derived from Montego-Bay regime, allows the application of the principle more broadly way and tends to materialize the Area-assigned legal character of the CHM.

The most significant scientific consensus on deep-sea mining is that there is no scientific basis for structuring a debate around it. To this day, in deep seabed governance, the principle of the CHM has tended more toward heritage than mankind — more to a *res communis*, revenues, and exploitation than to human dignity, equality, and ecological justice. Not only does the environmental impact depend on mining. The viability of extraction depends on the ecological impacts, and different minerals have different effects (PETERSEN et alia, 2016, p. 185).

Considering the ongoing arrangements for the mining activities in Seabed mining, it would be naive to expect greater caution from multilateral initiatives. Maybe some advances may emerge from the states regarding the sponsorship of mining companies,

which depend on the level of commitment to the precautionary principle. Moreover, it depends on the level of uncertainties about the systemic environmental impacts on seabed ecosystems. Therefore, Aline Jaeckel (2017, p. 12) adverts that before the commencement of mineral exploitation there is a window of opportunity materialized in some measures that align the ISA with the precautionary approach, among them, to ensure measures for the protection of vulnerable ecosystems.

The fact that states do not profit direct and immediately from mining activities can be a factor of influence. In other words, the more there is a universal distribution of the dividends, the higher will be the spillover of environmental impacts on marine resources, particularly in trophic chains and fisheries. States, rather than the Authority, are responsible for the recognition of the only consensus capable of binding them: the impacts of mining activities on the deep seabed are in a large extent unknown. And the known impacts indicate that – based on the precautionary principle – the Area should not by now be mined.

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