Challenges for exploration and exploitation of oil and gas on the outer continental shelf: UNCLOS Article 82 and the Brazilian case

Laís Palazzo Almada

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ABSTRACT

The thesis examines the main challenges Brazil might face upon oil and gas production on the continental shelf beyond 200 nautical miles, also known as the outer continental shelf. In this case, Article 82 of the United Nations Convention on the Law of the Sea (UNCLOS) imposes a compensation that States shall pay through a vague and ambiguous provision.

The thesis is structured into two parts. The first part reviews the international literature and the Technical Studies issued by the International Seabed Authority (ISA) on Article 82 of UNCLOS. In addition, it investigates the oil and gas industry practice and the Brazilian framework: statutory laws and regulatory rules. The thesis briefly deals with oil and gas regimes in Brazil and details how the State calculates and collects its oil and gas royalty. Then, the second part of the thesis analyses possible Brazilian and international actors dealing with Article 82 and what might be their role in implementing this provision. The international legal instruments that might facilitate the implementation of Article 82 were also examined. In addition, the thesis compares the Brazilian framework with possible interpretations of UNCLOS Article 82 and assesses whether Brazil is entitled to the developing States exemption. Finally, it deals with two specific cases: one in which the oil and gas reservoir is located on the inner and the outer continental shelf and another case in which the reservoir is under national jurisdiction and the Area, as well as their implications.

The thesis argues that it is important for Brazil to apply a similar methodology the State adopts to its domestic oil and gas royalty to UNCLOS Article 82. Such similarity is more likely to keep the economic interest in producing on the outer continental shelf and may as well assure the balance provided in the Concession Contract Model. This suggestion is also consistent with the text and the spirit of the Convention and aligned with the Sustainable Development Goals of the United Nations. In conclusion, it seems that, so far, Brazil has only taken the necessary steps to offer the areas for exploration and exploitation. The effective implementation of Article 82 depends on some political definitions by the Brazilian government, internally, and some further steps at the international level.

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LIST OF ACRONYMS

ANP – Agência Nacional de Petróleo, Gás Natural e Biocombustíveis [National Agency of Oil, Natural Gas, and Biofuel]

boe - barrels of oil equivalent

CNPE – Conselho Nacional de Política Energética [National Energy Policy Council]

CIRM – Comissão Interministerial para os Recursos do Mar [Inter-ministerial Commission for the Marine Resources]

EEZ – Exclusive Economic Zone

EPE – Empresa de Pesquisa Energética [Energy Research Officer]

ILA - International Law Association

IOPCF - International Oil Pollution Compensation Fund

JDA - Joint Development Agreement

LEPLAC - Plano de Levantamento da Plataforma Continental Brasileira [Brazilian Continental Shelf Survey Project]

LNG – liquefied natural gas

NM - nautical miles

OCS – outer continental shelf

UN – United Nations

UNCLOS – United Nations Convention on the Law of the Sea

UNCLOS III – Third United Nations Conference on the Law of the Sea, the

UA – Unitization Agreement

UOA – Unit Operating Agreement

MFA - Minister of Foreign Affairs

MME – Ministro de Minas e Energia [Minister of Mines and Energy]

PPSA –Pré-sal Petróleo S.A. [Pre-Salt Petroleum Co.]

PSA – Production Sharing Agreement

RD&I - research, development, and innovation

REMAC - Reconhecimento Global da Margem Continental Brasileira [Global Recognition of the Brazilian Continental Margin]

SPLOS – States Parties to the United Nations Convention on the Law of the Sea

WG – Working Group

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INTRODUCTION

The United Nations Convention on the Law of the Sea (UNCLOS) was adopted on 10 December 1982 at Montego Bay, Jamaica. The final Act was adopted after almost ten years of negotiations and eleven discussion sessions [1]. UNCLOS – hereinafter also referred to as the Convention – is recognized as a "package deal" due to not accepting any reservations or exceptions unless when expressly permitted by the Convention[2]. In this sense, "trade-offs were made between state delegations with the aim of achieving consensus and comprehensive coverage of key issues."[3] Articles 76 and 82 of UNCLOS are clear examples of the balances made during the negotiations, compromising the interests of the broad-shelf States and those States wishing to limit the continental shelf to 200 nautical miles. Thus, UNCLOS Article 82 provides for a system of revenue sharing while Article 76 recognize States jurisdiction over the continental shelf beyond 200 nautical miles when they meet a geomorphological criterion for determining its outer limit – hereinafter referred to as the outer continental shelf (OCS)[4].

Brazil was the second State to make a submission to the Commission on the Limits of the Continental Shelf (CLCS). The Brazilian original submission pursuant to Article 76 of UNCLOS comprises an area of 911,847 square kilometers of the continental shelf beyond 200 nautical miles. Brazil presented three partially revised submissions. The revised submission of the oriental and

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[1] United Nations. Office of Legal Affairs, "Treaty Collection". Available at https://treaties.un.org/Pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&clang=_en. Accessed on 10 August 2022.

[2] United Nations Convention on the Law of the Sea, Montego Bay, 10 December 1982 (adopted 10 December 1982, entered into force 16 November 1994), 1833 UNTS 3 [hereinafter UNCLOS], Article 309.

[3] UK Parliament. UNCLOS: the law of the sea in the 21st century. Available at: https://publications.parliament.uk/pa/ld5802/ldselect/ldintrel/159/15904.htm. Accessed on 17 July 2022.

[4] Center for Ocean and Law Policy; University of Virginia School of Law, *UNCLOS 1982 a Commentary* (Dordrecht, Martinus Nijhoff Publishers, 1993), p. 841. The area established according to paragraphs 4-6 of Article 76 will be called outer continental shelf (OCS) in this thesis. This area is also refereed in the literature as the extended continental shelf. Despite the widely used terminology, "there is in law only a single continental shelf rather than an inner continental shelf and a separate extended or outer continental shelf". *Delimitation of the Maritime Boundary in the Atlantic Ocean (Ghana/Côte d'Ivoire), Judgment, ITLOS Reports 2017*, p. 4. Available at: https://www.itlos.org/fileadmin/itlos/documents/cases/case_no.23_merits/23_published_texts/C23_Judgment_20170923.pdf. Accessed on 06 October 2022.

meridional margin acceded almost one million square kilometers to the Brazilian claim[5]. In other words, the non-living resources from almost two million square kilometers may be subject to Article 82 compensation. In 2019, the CLSC made recommendations with no amendments on the revised submission in respect of the Brazilian Southern Region. Brazil expressed its concurrence with the views and general conclusions of the Subcommission approved by the Commission[6].

Brazil has early recognized the importance of the outer continental shelf, it invested millions in research to limit this area and secure its resources[7]. In 1987 it begun the *Plano de Levantamento da Plataforma Continental Brasileira* [Brazilian Continental Shelf Survey Project or LEPLAC][8]. Brazil occupies a distinctive position in the offshore oil and gas industry, being in the 16th position of proven reserves in the world in 2021, evaluated at 11,2 billion barrels. Although in 2021 Brazilian production decreased by 1,5% compared to 2020, it reached 1,1 billion barrels, an average of 2,9 million barrels per day. By the end of that year, Brazil had 685 areas under contract: 246 blocks under the exploration phase, 38 fields in the development phase, and 401 producing fields.[9] The main interest of the State in the OCS is oil and gas exploration and exploitation.

It is noteworthy that the Brazilian oil and gas industry is widely known for being a pioneer in developing technology to explore and produce on ultra-deep water in the pre-salt cluster. In 2021

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[5] Alexandre Pereira da Silva, "Brazil and the Implementation of Article 82 of the United Nations Convention on the Law of the Sea: Setting the Stage for the Bidding Rounds", *The International Journal of Marine and Coastal Law*, n36 (2021) pp. 574-598.

[6] CLCS, Progress of work in the Commission on the Limits of the Continental Shelf, Statement by the Chair. CLCS/51/1 (13 December 2019). Available at: https://undocs.org/en/clcs/51/1

[7] "New Zealand's NZ$44 million programme of marine surveying embarked upon in 1996 once it ratified the LOSC in preparation for making its Article 76 submissions is but one example. Brazil and particularly Russia are reported to have spent millions. The levels of investment and involvement by states indicates the importance with which Articles 76 and 82 are viewed." George Mingay, "Article 82 of the LOS Convention - Revenue Sharing - the Mining Industry's Perspective", *International Journal of Marine and Coastal Law*, vol. 21, no. 3, September 2006, p. 340.

[8] The Project was legally established later by the Presidential Decree No. 98.145 of 1989. Brazilian Navy, "Plano de Levantamento da Plataforma Continental Brasileira" ["Brazilian Continental Shelf Survey Project"]. Available at: <https://www.marinha.mil.br/secirm/pt-br/leplac>. Accessed on 23 August 2022.

[9] Agência Nacional de Petróleo, Gás Natural e Biocombustíveis, *Anuário Estatístico Brasileiro do Petróleo, Gás Natural e Biocombustíveis 2022*, Rio de Janeiro, ANP, 2022. pp. 5; 53. Available at: https://www.gov.br/anp/pt-br/centrais-de-conteudo/publicacoes/anuario-estatistico/arquivos-anuario-estatistico-2022/anuario2022.pdf. Proved oil and gas reserves are the estimated quantities of crude oil, natural gas, and natural gas liquids which geological and engineering data demonstrate with reasonable certainty to be recoverable in future years from known reservoirs under existing economic and operating conditions.

Petrobras, the Brazilian National Oil and Gas Company[10], drilled the deepest well in Brazil, accounting for around 7,700 meters. The well, called Monai, is located at 145 kilometers off the coast, in a water column of 2,366 meters. The well also broke the record for the largest layer of salt ever drilled in the country, measuring approximately 4,850 m[11].

The Brazilian Government is working on initiatives to strengthen oil and gas exploration and production. In this scenario, even though Brazil has not defined the limits of its continental shelf, the country offered to license three exploratory blocks located partially beyond 200 nautical miles (NM) from the coastal baselines. The final limit will be set after the recommendation of the CLCS – Commission on the Limits of Continental Shelf, but it is important to note that there is no dispute with opposite or adjacent States or unresolved land or maritime disputes. Furthermore, the areas offered for oil and gas exploitation and exploration are located in the Southern Region of the Brazilian partial revised submission to which the CLCS has already made its recommendation for delineating the outer limit of the continental shelf. Thus, there is no juridical uncertainty about whether these areas are part of the Brazilian continental shelf or not. Despite that, there were no bidders for these three areas[12].

It is also important to note that the Brazilian Government recognizes that its entitlement to the continental shelf is *ipso iure* and *ab initio*[13], therefore the application of Article 82 is not contingent

[10] Petrobras is a publicly held corporation which the Brazilian Government holds 50,26% of its common shares with voting right. Petrobras, "Profile: About us". Available at https://petrobras.com.br/en/about-us/profile/ and Petrobras, "Investidores" ["Investors"]. Available at: https://www.investidorpetrobras.com.br/visao-geral/composicao-acionaria/. Accessed on 11 August 2022.

[11] Brazil Energy Insight. "Petrobras Concludes Drilling of the Monai Well, the Deepest in Brazil History". Available at: <https://brazilenergyinsight.com/2021/12/10/petrobras-concludes-drilling-of-the-monai-well-the-deepest-in-brazil-history/>. Accessed on 11 August 2022.

[12] Out of the 92 areas offered, only five blocks located in the Santos basin were acquired.

[13] Grupo de Trabalho sobre exploração e produção de petróleo e gás natural para além das 200 milhas náuticas. [Working Group on the Exploration and Production of Oil and Natural Gas beyond 200 NM] "Resolução CNPE nº 23, de 18 de outubro de 2019. Relatório Final." ["Resolution CNPE No. 23 of 18 October 2019. Final Report.] (06 February 2020). Same interpretation as Aldo Chircop, "Article 82: Payments and Contributions with respect to the exploitation of the continental shelf beyond 200 nautical miles" in *United Nations Convention of the Law of the Sea: a commentary*. Alexander Proelss, ed. (C.H. Beck Hart Nomos, Oxford: 2017). Chircop also reminder that the concept is a customary international law inaugurated by Truman Proclamation on the Continental Shelf of 1945, which states that 'the continental shelf may be regarded as an extension of the land-mass of the coastal nation and thus naturally appurtenant to it." Aldo Chircop, "Article 82: Payments and Contributions with respect to the exploitation of the continental shelf beyond 200 nautical miles" in United Nations Convention of the Law of the Sea: a commentary. Alexander Proelss, ed. (C.H. Beck Hart Nomos, Oxford), p. 389.

on the final definition of the outer limit of the outer continental shelf. By December 2022, there is no production in the OCS in the world, and Article 82 of the Convention remains a dormant clause. Article 82 states that:

> Payments and contributions with respect to the exploitation of the continental shelf beyond 200 nautical miles
>
> 1. The coastal State shall make payments or contributions in kind in respect of the exploitation of the non-living resources of the continental shelf beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured.
>
> 2. The payments and contributions shall be made annually with respect to all production at a site after the first five years of production at that site. For the sixth year, the rate of payment or contribution shall be 1 per cent of the value or volume of production at the site. The rate shall increase by 1 per cent for each subsequent year until the twelfth year and shall remain at 7 per cent thereafter. Production does not include resources used in connection with exploitation.
>
> 3. A developing State which is a net importer of a mineral resource produced from its continental shelf is exempt from making such payments or contributions in respect of that mineral resource.
>
> 4. The payments or contributions shall be made through the Authority, which shall distribute them to States Parties to this Convention, on the basis of equitable sharing criteria, taking into account the interests and needs of developing States, particularly the least developed and the land-locked among them.

The provision has no precedent, and it is the first provision in a multilateral treaty to introduce an international royalty, a type of revenue generation instrument on natural resource production within national jurisdiction[14].

[14] Aldo Chircop, "Implementation of Article 82 of the United Nations Convention on the Law of the Sea: the Challenge for Canada", In The Law of the Seabed: Access, Uses, and Protection of Seabed Resources, Catherine Banet ed. (Leiden, Koninklijke Brill), chap16, p.371. Harrison does not consider Article 82 compensation as a royalty. Rowland J. Harrison, "Article 82 of UNCLOS: The day of reckoning approaches". Journal of World Energy Law and Business (2017), p. 498.

The scope of Article 82 is not limited to oil and gas, but it includes all non-living resources, which might be gas hydrates, manganese nodules, sand, gravel, titanium, thorium, iron, nickel, copper, cobalt, gold, and diamonds. As a matter of fact, the Brazilian primary interest so far is oil and gas exploration and exploitation. On the other hand, the interpretation and challenges of the application of Article 82 for each one of these resources might be different. Considering this, the current research paper aims to raise awareness of the main issues that Brazil shall face in discharging its obligation under UNCLOS Article 82 exclusively for oil and gas.

This is an important topic to Brazil as a potential payer of Article 82 compensation. In this context, the research mainly focuses on the first three paragraphs of Article 82 of the Convention. Despite the importance of the fair distribution of the revenues, this provision in paragraph 4 is related more to the International Seabed Authority (ISA or the Authority) and the beneficiaries than to the OCS States and it shall not be addressed.

In the first part, this research paper sets the basis for understanding the Brazilian case. The first Chapter addresses the negotiations and balances involving article 82 and the *quid pro quo* relation between Articles 76 and 82. It briefly describes the history of the sessions of the Third United Nations Conference on the Law of the Sea, a valuable source in interpreting the Convention. The Brazilian submissions claiming the outer continental shelf and the history of the recommendations of the Commission on the Limits of the Continental Shelf are also described.

The key elements of Article 82 of UNCLOS are highlighted in the Section 2 of the first Chapter, including the views expressed in the International Seabed Authority Technical Papers. Article 82 of the Convention is vague and ambiguous. This unique provision also has several gaps, some of which result from the difficult compromise between broad margin States and land-locked or geographically disadvantaged ones. The analysis was dived into four parts.

Article 82 mentions payments and contributions in kind but it does not indicate who is entitled to choose between the two options or if a State might change its choice once elected. Moreover, in the case of payments, it is not clarified which currencies can be used and, in the case of contributions in kind, when the legal title over the resource actually passes. Payments and contributions shall be made annually. The provision, however, does not specify when over the year it must be done or if it is possible to be made more than once during the twelve-month period. In order to determine the beginning of payments, in the sixth year of production, it is necessary to set

the commencement date. This is a key question not only for the OCS State but also for the beneficiary States and the oil and gas industry. The profitability of the project might be influenced by this interpretation. On the other hand, it is necessary to understand the calculation basis, namely the volume and the value, when applicable, to be used to apply the rates and to determine the amount or volume due. Finally, the first chapter analyzes the obligation exception provided in paragraph 3 of UNCLOS Article 82. The provision sets an exemption for developing countries that are net importers of the mineral. There is no guidance on whether there is an authority to nominate the developing countries or any parameter to determine that. On the other hand, although the term "mineral" might be clear in some situations, for oil and gas the question remains. Shall they be considered altogether, as hydrocarbons, or should they be interpreted as different minerals?

The second Chapter of the first part deals with Brazilian characteristics. Brazil has two different regimes for oil and gas. The Production Sharing and the Concession regimes are summarily described as there might be differences in exploring the OCS under each of these regimes. The chapter also lists the basis established for OCS hydrocarbon exploration by the 17th Bidding Round[15] and analyses the legal opinion given for offering areas on the outer continental shelf. The review was given by representatives of the Ministry of Mines and Energy, the Civil Office of the Presidency, the Navy/Ministry of Defense, the Ministry of Foreign Affairs, the Ministry of Economy, and the National Agency of Oil, Natural Gas, and Biofuel (ANP). The last section of Chapter 2 describes how Brazil collects royalties by detailing rates, calculation bases, and exemptions, both for oil and for gas, separately. The national framework and the regulation issued by the ANP – the regulatory body – are important information for analyzing the fairness of the payments to be made through the International Seabed Authority.

Part two of this paper identifies the challenges in applying Article 82 in light of the Brazilian framework and other international relevant rules and principles and it is divided into two chapters. The first chapter deals with the probable actors and reviews the institutional arrangements that may arise from the implementation of Article 82 and the functions and roles of these institutions. Section 1 of Chapter 1, Part two, addresses the role and the functions of the International Seabed Authority *vis-à-vis* Article 82 of UNCLOS. The main issues are the type of legal instruments the

[15] Oil and gas licenses in Brazil are granted by the Federal Government through auctions, called Bidding Rounds.

ISA might adopt in applying Article 82 and the mechanisms the ISA might seek in the case of a dispute and its legitimacy in various situations in connection with Article 82 of the Convention. Section 2 analyzes the role of the governmental institutions in Brazil and what might be their attribution in implementing UNCLOS Article 82, namely, the Minister of Mines and Energy (MME), the Ministry of Foreign Affairs (MFA), the National Agency of Oil, Natural Gas, and Biofuel (ANP), the National Energy Policy Council (CNPE) and the Inter-ministerial Commission for the Marine Resources (CIRM).

Chapter 2, of Part two, dives into the Brazilian challenges, addressing compatibilities and conflicts with possible interpretations of Article 82, analyzing the general provisions, including the exemption provided in Article 82 (3) in the case of Brazil, and issues related to payments and currency. Although the Tender Protocol of the Brazilian 17th Bidding Round mentions specific rules applied for the areas located beyond 200 NM, mentioning Article 82 of UNCLOS and giving some fiscal incentive – reducing the national royalties once the obligation is trigged – it does not clarify if, or to what extent, the obligation differs from the national system. The Brazilian Government is aware that there are many points to be addressed at national and international levels before Brazil can discharge its obligation. Some of the questions were raised by the Working Group which analyzed the legality of offering areas beyond 200NM in the Bidding Round. This Working Group has already recognized that, upon production, the Brazilian Government shall define (i) if Brazil is entitled to the exemption for OCS developing States; (ii) if the discharge of its obligation can be done directly by the International Oil Company to the International Seabed Authority (ISA) on behalf of the Brazilian Government; and (iii) calculation basis of Article 82, specified as all production[16]. The first section analyzes the general provisions for implementing Article 82 and develops the questions raised by the Working Group along with the following related issues about currency, rates, and payments.

Although Article 82 of the Convention provides an option for payments or contributions in kind, the States are advised in unison by experts to make payments in order to avoid many issues and challenges arising from the second option, such as transportation and marketability[17]. Once the

[16] Grupo de Trabalho, "Resolução CNPE nº 23", p. 15-18.

[17] International Seabed Authority, *Implementation of Article 82 of the United Nations Convention on the Law of the Sea, ISA Technical Study: No.12* (Kingston: 2012), p. 31. Chircop, "Implementation of Article 82", note 14, p. 381.

Brazilian Government decided to offer the areas for exploration and exploitation under the Concession Regime, it clearly shows its intention to make payments, instead of contributions in kind. According to Law No. 9.846 of 26 October 1998[18], the title to hydrocarbons shall pass to the Concessionaire upon recovery, so the State is not entitled to any oil in kind.

Furthermore, the Convention mentions that payments shall be made annually, but it does not define when it might be done, and if it is done at the same time in the case of more than one field producing in the outer continental shelf, considering production "anniversary" will probably not be coincident. It is important to understand if the term production was also adopted as commercial production. This has a special meaning for the application of the progressive rate of payment or contribution mentioned in Article 82. In Brazil, where a progressive rate is adopted for Special Participation, payments [19] related to high production fields, the first fiscal measurement is considered commencement of production, which might occur in the exploration phase of the contract.

Nevertheless, Article 82 is still a complex provision with many gaps and ambiguities. First, the moment in time to be used for determining the value will be crucial. Although ISA in Technical Study No. 4 suggests it shall be determined at the wellhead – referring to the time when the resource is captured and brought to the surface in the case of hydrocarbons – the prices of hydrocarbons change during the year, and payment will occur only once a year. Moreover, the national value of royalties is only determined on a monthly basis, in the national currency, Brazilian Real, and currency rates fluctuate on a daily basis. Petroleum has a global market, thus, a global price. The same cannot be said about natural gas, which is traded locally, with a great variety of pricing in different markets. Despite the distance from the coast and considering the possibility of liquefying natural gas from a floating facility, the matter of natural gas prices must be tackled.

[18] Brazil, Law 9.847 of 1997 (06 August 1997), Federal Official Gazette Supplement (07 August 1997).

[19] Special participation applies in circumstances where there are large production volumes or high profitability. It is payable on gross production revenue minus the value of royalties paid by the producer, production investments, operational costs, depreciation, and taxes. See Brazil, Presidential Decree No. 2.705 of 1998 (3 August 1998). Federal Official Gazette (4 August 1998), and Agência Nacional de Petróleo, Gás Natural e Biocombustíveis (ANP), Resolution ANP No. 870 of 2022 (24 March 2022), Federal Official Gazette (25 March 2022).

Concerning the meaning of "all production", it might be clear that the natural gas used for re-injection into the reservoir for enhancing production or flared for security reasons will not be considered in determining the payment amount. However, in Brazil not all the flared gas is exempt from royalty, thus, some doubts still remain. A similar problem is whether the gas re-injected in another reservoir, in the same field, or in another field should also be considered.

Finally, Section 2 of the last Chapter highlights some challenges that might arise when the hydrocarbon deposit is underneath the inner and the outer continental shelf or when the reservoir is located both within the national jurisdiction and in the Area. These and other concerns are shared among countries and were dealt with by some Technical Studies from the ISA. These views and the literature are analyzed in this paper in light of the Brazilian oil and gas framework and the rules of the National Agency of Oil, Natural Gas, and Biofuel.

The development of a regulation must improve the legal stability and certainty for companies and increase the interest in developing oil and gas exploration on the Brazilian outer continental shelf. In the absence of clear rules, companies will likely prefer to invest in areas within the 200 NM[20]. Different from other countries, Brazil issues a single license for exploration and exploitation and the contract is binding on the terms of the Tender Protocol. Because of that, it is extremely advisable that the State can define the terms it will discharge Article 82 obligation as soon as possible. Anticipating the challenges – and then policies and regulations – related to Article 82 also avoids other issues that may arise if there are licenses issued[21].

It is also conceivable that political and legal challenges are less costly before the commencement of production and a State begins to collect domestic revenues from that area. "Unless it has already made long-term commitments, the OCS State will have time to plan for smooth, cost-effective,

[20] Joanna Mossop. *The Continental Shelf Beyond 200 Nautical Miles: Rights and Responsibilities*. (Oxford, Oxford University Press, 2016), p. 125.

[21] Chircop suggests that wherever there is a royalty structure in place, ultimately an OCS State might have to consider grandfathering existing licenses. See International Seabed Authority (ISA), *Issues Associated with the implementation of Article 82 of the United Nations Convention on the Law of the Sea: ISA Technical Study no. 4* (Kingston: 2009), p. 50. In the Canadian case, operators have been notified that the OCS have not been defined yet and licenses can be reviewed due to CLCS recommendation. The definition of the outer limits in a final and binding manner provides greater certainty regarding the legality of their licenses. Aldo Chircop, "Implementation of Article 82", note 14, p. 375; 385.

and cost-equitable implementation." [22] Except for the obligation under Article 82 of the Convention, in most respects, the legal regime applied to the continental shelf beyond the 200 NM does not differ from the regime applied within the 200 NM[23]. In this sense, provisions from Article 82 are the key issue for developing economic activities on the outer continental shelf.

[22] Ibid. p. 50.

[23] Mossop, "*The Continental Shelf*", note 20, p. 123.

PART ONE – SETTING THE BASIS

The first part of the research paper reviews the relevant data for understanding the challenges that are addressed in the second part.

CHAPTER 1. THE CONVENTION

The United Nations Convention on the Law of the Sea is the main international treaty governing the oceans, including their soil and subsoil. The Convention is also known as the Constitution of the seas, as it sets the general framework and serves as the guide for other international agreements. The Convention entered into force in 1994 and, by July 2022, 167 States and the European Union are parties to the Convention[24].

Section A – Articles 76 and 82 of UNCLOS

Paragraph 1 – Background and history from Article 76 to Article 82

General Assembly Resolution No. 2750 C (XXV) represented an extraordinary political progress in determining a broad mandate for the Third United Nations Conference on the Law of the Sea (UNCLOS III). Contrary to the claims of the US and the USSR who advocated for constraining negotiations on (i) the width of the territorial sea, (ii) the regulation of the passage through international straits, and (iii) the preferential fishing rights, the resolution was the starting point for a novel Law of the Sea[25].

The acceptance of the United Nations as a legitimate and universal forum for negotiations, and the persistence, knowledge, and inventiveness of the negotiators have led to a result that can be

[24] United Nations. Office of Legal Affairs, "Treaty Collection".

[25] Luiz Filipe de Macedo Soares, "O Brasil e as negociações sobre Direito do Mar", In *Reflexões sobre a Convenção do Direito do Mar* / André Panno Beirão, Antônio Celso Alves Pereira (organizadores). (Brasília: FUNAG, 2014), p. 284. Available at http://funag.gov.br/loja/download/1091-Convencao_do_Direito_do_Mar.pdf. Macedo is a retired Diplomat who served the Brazilian Government for more than 50 years. For 20 years, between 1969 and 1989, he participated in many meetings in the framework of the Intergovernmental Oceanographic Commission - IOC. He took part in the last phase of the United Nations Conference on the Law of the Sea (1980-1982) and headed the Brazilian delegation to the Preparatory Commission for the Sea-Bed Authority and the International Tribunal on the Law of the Sea (1983-1985).

deemed surprising. Although few countries have not acceded to the Convention, there is no doubt that the Convention represents a huge advance in international law and, therefore, in international relations[26]. It is noteworthy that, with few exceptions, UNCLOS III adopted the consensus, differently from the voting process adopted in the previous United Nations Conferences, which from then on became the procedure adopted to the UN international conferences[27].

The negotiations were made on the premises of the common heritage of humankind[28], which guided some compromises that generated novel concepts such as the limits of the continental shelf. For the first time, abyssal depths began to have an owner: humanity. In order to define the area belonging to humankind, it was necessary to define the national jurisdiction of all coastal States[29]. The broad-margin States made greater claims to the seabed and its resources, while land-locked and geographically disadvantaged States objected to these proposals. As the negotiations advanced, having the majority of States recognized the entitlement of coastal States to at least 200M of EEZ and continental shelf, they alternatively lobbied for equitable compensation or rights of access to continental shelf mineral resources[30].

During the Second Session of UNCLOS III, the United States proposed a revenue-sharing scheme in which the coastal State with jurisdiction over the continental margin shall make. But,

> [i]t was not until the end of the Third Session in 1975 and the production of the Informal Single Negotiating Text (ISNT) that there emerged a common understanding on the basic principle that the coastal State would be obligated to make contributions related to the

[26] Ibid, p. 255. Soares states that UNCLOS is not universal. The statement might be understood as there are countries that have not signed or acceded to the Convention yet. One of them is the United States of America, which participated actively in the negotiations of UNCLOS III. More details can be found on: https://www.state.gov/law-of-the-sea-convention/. Accessed on 02 November 2022.

[27] Alexandre da Silva, "O Brasil e os 30 anos da Convenção das Nações Unidas sobre o Direito do Mar", *Revista Acadêmica, Vol. 84* (2012), pp74-130. The consensus procedure was also known as "Gentleman Agreement". "The requirement that there was to be no voting (except on occasional minor procedural matters) was meant to strengthen the consensus approach to collective decision-making, giving all delegations an equal voice." ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 13.

[28] The original provision and the text of UNCLOS adopted the expression common heritage of "mankind". Aligned with the UN's sustainable development goal no. 5, this author adopts the expression humankind for this paper.

[29] Soares, "O Brasil e as negociações sobre Direito do Mar", note 25, p. 272. Although the author mentions the High Seas (in Portuguese, alto-mar), the Convention reserves the principle of the common heritage of humankind to the Area. UNCLOS, Article 136.

[30] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p.15.

> development of the OCS which would endure until the adoption of the LOS Convention []. By this time the majority of delegations were in favour of the coastal State having at least 200M of EEZ and continental shelf.
>
> The remaining question concerned the criteria for determining the outer limit of the shelf (now understood as the outer edge of the continental margin) where this extended beyond 200M. However, the negotiation of the latter could not proceed without a compromise on revenue-sharing, and this was considered as the only way to achieve widespread support for the text.[31]

Only during the first revision of the ICNT, in 1979, the text of Article 82 was drafted as it is in the Convention. On the other hand, negotiators had also aimed for a stable continental shelf limit. Finally, the States agreed on an outer continental shelf based on scientific and technical criteria. The delimitation shall be made in accordance with Article 76, paragraph 4, that states as follow:

> Article 76
> Definition of the continental shelf
>
> 4. (a) For the purposes of this Convention, the coastal State shall establish the outer edge of the continental margin wherever the margin extends beyond 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, by either:
> (i) a line delineated in accordance with paragraph 7 by reference to the outermost fixed points at each of which the thickness of sedimentary rocks is at least 1 per cent of the shortest distance from such point to the foot of the continental slope; or
> (ii) a line delineated in accordance with paragraph 7 by reference to fixed points not more than 60 nautical miles from the foot of the continental slope.
> (b) In the absence of evidence to the contrary, the foot of the continental slope shall be determined as the point of maximum change in the gradient at its base.

Thus, the State jurisdiction may extend beyond 200 NM, an area called extended or outer continental shelf[32], which forms part of the continental shelf natural prolongation of the land

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[31] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 16.

[32] "[N]either of the terms "outer" or "extended" continental shelf are ideal or have gained universal acceptance. The term "outer continental shelf' suggests that there are distinct parts of the continental shelf while this is not legally the case. For its part the term "extended continental shelf' gives a somewhat misleading impression that coastal states are somehow extending or advancing claims to additional areas of continental shelf. This is not the case because the sovereign rights enjoyed by the coastal state over the continental shelf are inherent. Clive Schofield, "New Marine Resource Opportunities, Fresh Challenges", *University of Hawai'i Law Review* 35, no. 2 (2013), p. 718.

territory[33]. It is important to note that Article 77 of UNCLOS grants sovereign rights for the purpose of exploring and exploiting its natural resources. In other words, it provides jurisdiction over the soil and subsoil, but not over the waters superjacent to the seabed[34].

To compromise on the extension of the continental shelf of the Coastal States and the consequent encroachment of the Area, recognized as a common heritage of humankind[35], the negotiators established payments or compensation in kind from the resources exploited in the outer continental shelf in Article 82, considered as a *quid pro quo*[36]. Mossop and Armas-Pfirter classify this provision as a limitation on the rights of the coastal State.[37] The last issue to be agreed on was the rate of the payments or contributions[38]. The suggestions during the negotiations varied from a scale-up to 17 percent to a ceiling of 5 percent proposed by the United States[39]. Finally, the USSR proposed a rate increase of one percent for each year following the fifth year of production until

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[33] Jia Yu, and Wu Ji-Lu, "The Outer Continental Shelf of Coastal States and the Common Heritage of Mankind", *Ocean Development and International Law*, vol. 42, No. 4 (2011), pp. 317-328.

[34] UNCLOS, Article 78. (1). The rights of the coastal State over the continental shelf do not affect the legal status of the superjacent waters or of the air space above those waters. An illustration of marine areas, the maritime zones, and the continental shelf, can be seen at: https://www.un.org/depts/los/clcs_new/marinezones.jpg.

[35] The delineation of the outer continental shelf of a coastal state also relates to the international community. Jia Yu, and Wu Ji-Lu, "The Outer Continental Shelf of Coastal States", note 33, p. 320. Also, UNCLOS, Article 136. "The Area and its resources are the common heritage of mankind." Nevertheless, the CLCS only accepts intervention from directly affected State, as stated in the Brazilian case as follow: "Only in the case of a dispute between States with opposite or adjacent coasts or in other cases of unresolved land or maritime disputes would the Commission be required to consider communications from States other than the submitting one. Consequently, the Commission concluded that the content of the letter from the United States should not be taken into consideration by the Commission." CLCS, Progress of work in the Commission of the Continental Shelf, Statement by the Chair, CLCS/42 (14 September 2004). Available at: https://undocs.org/en/CLCS/42.

[36] The dictionary Oxford Languages defines the expression as "a favor or advantage granted in return for something".

[37] Mossop. *The Continental Shelf"*, note 20, p.129.

[38] In the begging some countries were advocating that the revenue share system would apply to the whole extension of the continental shelf. For instance, at the fourth session (1976), Austria proposed the contribution over the inner and the outer continental shelf, at a rate of 5% and 10%, respectively. Center for Ocean and Law Policy; *UNCLOS 1982 a Commentary*, note 4, p. 937.

[39] At the resumed seventh session (1978), Seychelles suggested that payments and contributions would be made at a fixed rate of 10 percent. At the eighth session (1979), several States suggested modifying the system of payments contained in Article 82. Sri Lanka proposed a system based on three stages of commercial production. From the first to the fifth years of production at each individual site, the coastal State would annually pay 4 percent of the value of the resources produced; from the sixth to the tenth years, 8 percent; and from the tenth to the twentieth years, 17 percent. After the twentieth year, the rate would be 15 percent unless otherwise negotiated. Center for Ocean and Law Policy, *UNCLOS 1982 a Commentary*, note 4, p. 935; 943.

the twelfth year, when the rate would remain at seven percent, reflecting the maximum rate of payment proposed by Austria in the sixth session (1977).[40]

Paragraph 2 – The Brazilian Outer Continental Shelf

In 1970, Decree-Law No. 1.098 of 25 March 1970 expanded the Brazilian territorial sea from 12 to 200 miles[41], incorporating to national sovereignty an area equivalent roughly to one-third of the land territory[42]. Brazilian State aimed to secure the needs of its population and its defense. At this time there was no international law dealing with the territorial sea that could be used to make a dispute over the Brazilian decision. Moreover, the two coastal bordering States, Argentina and Uruguay had established the same distance for their territorial sea[43].

During the Third Conference, Brazil expressed its view that the 200NM territorial sea was adequate to secure and protect the interests of Coastal States, but also recognize the wide acceptance of the concept of the 200NM exclusive economic zone. To compromise all interested parties, Brazil accepted the EEZ concept as supported by the African States that advocated it secures "full sovereignty over the resources of the zone and sovereign rights for the purpose of exploration of the resources therein"[44].

Since 1967, at the United Nations General Assembly and the Committee on the Seabed, the Brazilian government had been intensively learning about the economic potential of the seabed and the ocean. Internally, the National Department of Mineral Production (DNPM), the Directorate

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[40] Ibid, p. 940-941; 943-944.

[41] The sovereignty over the territorial sea extends to the air space over the territorial sea as well as to its seabed and subsoil.

[42] "The Brazilian 200-mile territorial sea came almost 18 years after the pioneering Declaration of Santiago, which was signed on August 18, 1952, by Chile, Ecuador and Peru, which claimed a 200-mile maritime zone. (…) Thus, Brazil's conversion to a 200-mile territorial sea was more due to internal affairs, especially pleasing nationalist sectors, than anything else. In the Congress, even the members of opposition supported the Executive's decision." Alexandre Pereira da Silva, "Dealing with Articles 76 and 82 of the United Nations Convention on the Law of the Sea: Legal and Political Challenges for Brazil." *Ocean Yearbook, 28* (2014) p. 151.

[43] Silva, "O Brasil e os 30 anos", note. 27. See also United Nations, Official Records of the Third United Nations Conference on the Law of the Sea, 187th Plenary meeting, Volume XVII (A/CONF.62/SR.187), p. 39: "In juridical terms, no international norm then existed which set a maximum limit on national sovereignty or jurisdiction over the sea."

[44] Silva. "Dealing with Articles 76 and 82", note 42, p. 152.

of Hydrography and Navigation (DHN) of the Brazilian Navy, and Petrobras launched the first major integrated program of marine geological research, in 1969, and committed significant resources to the project[45].

Thus, before a consensus was reached in the UNCLOS III, due to the results of the REMAC Project - *Projeto de Reconhecimento Global da Margem Continental Brasileira* [Global Recognition of the Brazilian Continental Margin Project] (1969-1979)[46], Brazil had great certainty that its continental shelf would go further than 200 nautical miles, although it did not have sufficient data to establish the outer edge of the continental margin, nor had it developed research accordingly to all parameters of the future Convention[47].

Besides that, Petrobras had already been working intensively in geological survey and prospecting. In 1973, it began to produce the *Guaricema* Field, located in Sergipe, where the very first offshore well was drilled in Brazil in 1968. A few years later, in 1976, it drilled in the *Garoupa* field, the first one in the Campos Basin, where the pre-salt play would be discovered in the future. By the time, offshore oil was the most palpable short-term wealth on the continental shelf[48].

During the discussions of UNCLOS III, the changes in the Brazilian Delegation were rare, allowing delegates in each of the three Committees to reach a high level of specialization and influence. Even before the end of the negotiations, the Brazilian Government had the initiative to invite the other States that share the same language[49] to work together on the translation of the Convention into Portuguese[50]. As in any other international instrument, in order to be ratified, and authorized by the Legislative Power, it was necessary to translate the Convention into the official

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[45] Soares, "O Brasil e as negociações sobre Direito do Mar", note 25, p.281. Different from other sources, Soares called the Project GEOMAR.

[46] Different sources cite slightly different dates. For instance, the PGGM - Programa de Geologia e Geofísica Marinha [Marine Geology and Geophysics Program] refers to GEOMAR in 1969, but REMAC from 1970 to 1985.

[47] Airton Ronaldo Longo. *Em busca do Consenso: Terceira Conferência das Nações Unidas sobre o Direito do Mar [Looking for a consensus: the Third United Nations on Law of the Sea Conference]*. (Brasília, Secretaria da Comissão Interministerial para os Recursos do Mar, 2014), p. 56. Available at: https://www.marinha.mil.br/secirm/sites/www.marinha.mil.br.secirm/files/em_busca_do_consenso.pdf

[48] Soares, "O Brasil e as negociações sobre Direito do Mar", note 25, pp. .280-281.

[49] Angola, Cape Verde, Guinea-Bissau, Mozambique, Portugal and São Tomé and Príncipe.

[50] Soares, "O Brasil e as negociações sobre Direito do Mar", note 25, p. 304.

language. The Convention, thus, is the very first international instrument with identical legal text in all Portuguese-speaking countries[51].

At the 187th plenary meeting of the resumed eleventh session of UNCLOS III, the Brazilian representative stated that:

> Emphasis should be given to the importance of the regime for the continental shelf as established by the new Convention, for that regime not only provides a multilateral juridical basis for the sovereign rights of the coastal State over the energy and mineral resources of the sea-bed to a distance of 200 miles from the coastline but also expressly recognizes the extension of those rights beyond this limit, up to the outer edge of the continental margin. []
>
> Furthermore, it is our understanding that in accordance with the Convention the coastal State has the exclusive right to construct and authorize the construction, operation, and use of all types of installations and structures within the maritime areas under its sovereignty or jurisdiction and that there are no exceptions to this right. In other words, no State has the right to place or operate any type of installation or structure in the exclusive economic zone or on the continental shelf without the consent of the coastal State[52].

It was clear the importance given to the energy and minerals from the inner[53] and the outer continental shelf, and the correlatives rights – necessary means – to explore the resources.

Brazil signed the Convention on 10 December 1982, the same day of its adoption, and ratified it on 22 December 1988. The Convention entered into force on 16 November 1994. During this hiatus, although not yet in force, UNCLOS influenced the Brazilian framework. The Brazilian Constitution proclaimed on 5 October 1988, adopted the concepts of the territorial sea, the EEZ, and declared the natural resources of the continental shelf as State property, in accordance with the Convention[54]. The Brazilian EEZ has been called Blue Amazon, a reference to its wealth.

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[51] Ibid.

[52] A/CONF.62/SR.187 (187th Plenary meeting).

[53] Regarding to the non-acceptance of the concept of an inner and an outer continental shelf in international law, see note 4.

[54] Maria Helena Fonseca de Souza Rolim, "A CONVENMAR e a proteção do meio ambiente marinho: impacto na evolução e codificação do direito do mar – as ações implementadas pelo Brasil e seus reflexos no direito nacional", In *Reflexões sobre a Convenção do Direito do Mar* / André Panno Beirão, Antônio Celso Alves Pereira

Later, in 1993, the Brazilian legislation defined the continental shelf. Law No. 8.617 stated that:

> Article 11. The Brazilian continental shelf comprises the seabed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental shelf does not extend up to that distance.
>
> Sole paragraph. The outer limit of the continental shelf shall be fixed in accordance with the criteria established in Article 76 of the United Nations Convention on the Law of the Sea, signed in Montego Bay on 10 December 1982.

As Egede noted, although the law defines the continental shelf in accordance with the UNCLOS, it does not provide any specific rule for the outer part of the continental shelf. For instance, it does not mention the obligation established by UNCLOS Article 82 to make payments or contributions in kind in respect of the exploration of non-living resources in that area. [55] At that time, however, the Brazilian Government believed the State would have no obligation under Article 82 of the Convention. Probably this is the reason why there is no mention of this article in the legislation from 1993[56]. Ambassador Calero Rodrigues stated in the Foreign Affairs Commission of the Congress in 1980 that the Convention met the interests of the country as Brazil was entitled to the outer continental shelf but would not be affected by the obligation to make payments or contributions as it would be entitled to the exemption for the developing countries[57]. In the 80s, Brazil was heavily dependent on oil imports[58].

(organizadores). (Brasília: FUNAG, 2014), p. 369. A version of Brazilian Constitution in English is available at: https://www.oas.org/es/sla/ddi/docs/acceso_informacion_base_dc_leyes_pais_b_1_en.pdf. Note this version is from 2010. Since 2010 many Constitutional Amendments were enacted and the text might not be updated.

[55] Edwin Egede. "Submission of Brazil and Article 76 if the Law of the Sea Convention (LOSC) 1982." *International Journal of Marine and Coastal Law*, vol. 21, no. 1, (2006) pp. 33-56.

[56] Brazil became a net petroleum exporter in 2015, after the discovery of the huge reservoirs of the pre-salt layer in Santos Basin in 2007. As of 2022, Brazil is a net importer of natural gas.

[57] Silva. “Dealing with Articles 76 and 82”, note 42, p. 168.

[58] More information on oil and natural gas production, consumption and imports can be found on Part two, Chapter 2, Section 1.

Brazil was not only the second State to make a submission to the Commission on the Limits of the Continental Shelf, but also the first developing country to do so[59]. The Brazilian submission was based on the Brazilian Continental Shelf Survey Project called LEPLAC - *Plano de Levantamento da Plataforma Continental Brasileira*, with the participation of the Navy's Directorate of Hydrography and Navigation, with technical and scientific support from Petrobras[60].

The project started in 1986 to collect sufficient data to support Brazilian submission in 2004. Initially, the area on the continental shelf beyond 200 NM from the baselines from which the breadth of the territorial sea was equal to 911, 847 square kilometers. In 2005, Brazil transmitted an Addendum to the Chairman of the Subcommission[61] and in the next year, presented the three Executive Summary, identifying a new claim area of 953,525 km^2 in the oriental and meridional margin revised submission[62].

The possibility of claiming a broader area than the original submission seems to be in accordance with the provision in Article 76 of the Convention that recognizes that the right of a State to the continental shelf does not depend on occupation or express proclamation. Analyzing the time limit established in the UNCLOS, Professor Egede concluded:

> There is no suggestion that the ten-year limit under article 4 of annex II, which applies to the original submission, applies to a revised or new submission that is made after the CLCS's recommendation. Neither does it appear to extend to submissions made by a coastal State in respect of certain parts of its continental shelf after a previous partial submission within the time limit. However such State would be expected to make such submission in good faith within a reasonable time.[63] (emphasis added)

The result of the three partial submissions and the original claim can be seen in Figure 1. The red line indicates the Economic Exclusive Zone (200 NM). The light blue area shows the claim of the

[59] Egede, "Submission of Brazil", note 55, p. 34.

[60] Silva. "Dealing with Articles 76 and 82", note 42, p. 159.

[61] CLCS, Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the progress of work in the Commission, CLCS/48 (7 October 2005). Available at: https://undocs.org/en/CLCS/48

[62] Silva, "Brazil and the Implementation", note 5, pp. 574-598.

[63] Egede, "Submission of Brazil", note 55, p. 38.

original submission to the CLCS. The dark blue area corresponds to the area added by the three revised submissions, as indicated.

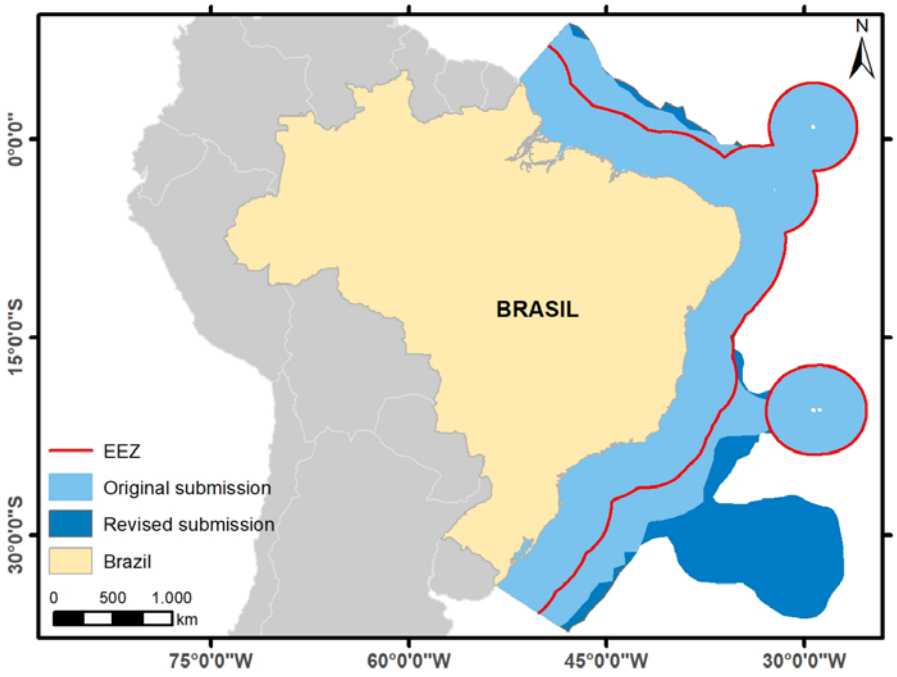

Figure 1: Submissions of Brazil to the CLCS
Source: made by the author, based on Navy, personal communication.

In 2019, the CLCS made recommendations on the revised submission in respect of the Brazilian Southern Region. Brazil expressed its concurrence with the views and general conclusions of the Subcommission[64] approved by the Commission[65].

Once the exploration in the outer continental shelf commences, it is expected that, if Brazil concludes it is not entitled to the exception provided by Article 82(3), it shall comply with Article 82 of the Convention. It is important to remember that in the same opportunity that Brazil announced it would sign the Convention, it also strongly supported the principle of the common heritage of humankind that if it is not embodied in Article 82 of UNCLOS[66], at least guided this

[64] CLCS. Summary of the Recommendations prepared by the Subcommission established by the Commission on the Limits of the Continental Shelf to consider the Submission made by Brazil. Available at: https://www.un.org/depts/los/clcs_new/submissions_files/bra04/Summary_Recommendations_Brazil.pdf

[65] CLSC, Statement by the Chairman of the Commission on the Limits of the Continental Shelf on the progress of work in the Commission, CLCS/108 (29 March 2019). Available at: https://undocs.org/en/clcs/108

[66] There is no consensus whether the principle of common heritage of humankind is applicable to the outer continental shelf. The Committee on Legal Issues of the Outer Continental Shelf from the International Law Association (ILA-

provision. In this context, revenue sharing was a way to reconcile broad-margin States' interests and at the same time provide compensation for diminishing the Area, defined as the common heritage of humankind.

Finally, in the only opportunity that Brazil has offered an area for exploration and exploitation partially located on the outer continental shelf, it mentioned Article 82 of the United Nations Convention of Law of the Sea in the Tender Protocol to reinforce its commitment to the provisions of the Convention[67].

Section B – Article 82's Key elements

Article 82 does not provide much guidance on how to implement it. It is relatively brief when compared to the Part XI of UNCLOS which deals with the activities in the Area. The vagueness and ambiguity of the article are due to the necessity to compromise conflicting interests[68].

There is no international State practice in applying Article 82 because by 2022 there is no country producing non-living resources from the OCS, although some areas were offered for exploration and/or exploitation[69]. There is a sparse national practice, and it does not go much further than

CLIOCS) concluded that, despite being under national jurisdiction, the outer continental shelf is governed by this principle. International Law Association (ILA) *Outer Continental Shelf. International Law Association Reports of Conferences, 73* (Rio de Janeiro: 2008) pp. 1044-1102. On the other hand, experts on Chatham House meeting concluded: "UNCLOS III negotiation process does not evidence the final consensual intention of the negotiators (as distinct from the numerous negotiating exchanges) to characterize the obligation to make payments or contributions as an application of the common heritage principle. On the contrary, the finalized text expressly limits the application of the common heritage principle to Part XI, i.e., to the Area and its resources, and Article 82 eschews altogether any reference to the principle." ISA, *Issues Associated with the Implementation of Article 82*, note 21, p.23. Also see Mossop, "*The Continental Shelf*", note 20, pp. 128-129.

[67] For more details see Chapter 2, item 2.1.2.

[68] Chircop, "Article 82: Payments and Contributions", note 13, p. 641.

[69] Four countries have commenced exploration activities in areas beyond 200NM: (i) Canada (Newfoundland and Labrador), (ii) the United States, (iii) New Zealand, and (iv) Norway. Mossop. "*The Continental Shelf*". note 20, p. 38. First production in the OCS is expected to occur in the late 2020s in Canada. The first discovery in Bay du Nord was made by Equinor in 2013, followed by additional discoveries in 2015, 2016 and 2020. In April 2022, the Government of Canada approved the environmental assessment. See more in Equinor, "The Bay du Nord project". Available at: https://www.equinor.com/where-we-are/canada-bay-du-nord. Accessed on 04 October 2022.

reproducing the terms of the Convention or making a general reference to the obligation to make payments or contributions in kind[70].

This section analyzes the key elements of UNCLOS Article 82 in the light of the literature and the International Seabed Authority Technical Studies, although the ISA has not been given an assessment power for the determination of the precise amount of payment or in-kind contribution.

Paragraph 1 – Payments and contributions

Article 82 (1) states that the coastal State shall make payments or contributions in kind in respect of the exploitation of the non-living resources of the outer continental shelf. The first question that arises is to whom belongs the choice of how must the obligation be discharged? In the literature, authors agree that the choice belongs to the coastal State. First, there is no guidance in the article that could be interpreted in another way. Mossop mentions that this conclusion is in accordance with the negotiating texts from 1975. On the other hand, as a matter of fact, only the paying State would be in a position to do so[71].

Once the option is made, it is also important to consider whether the State could change the modality of payment in the subsequent years. Considering the intent of the UNCLOS was to "make it easier to States to fulfil their obligation in article 82"[72] the answer should be positive. In light of this, Mossop also considers it would be possible for a State to make a combined payment and

[70] The US, a non-party to UNCLOS, included a "lease stipulation" providing the operator might pay for the obligation in case the US became a party to the Convention. Chircop. "Article 82: Payments and Contributions", note 13. The full text of United States Lease Stipulation No. 4 (Gulf of Mexico, 2008) is available in the International Seabed Authority (ISA), *Non-living resources of the continental shelf beyond 200 nautical miles: speculations on the implementation of Article 82 of the United Nations Convention on the Law of the Sea: ISA Technical Study no. 5* (Kingston: 2010), pp. 7-8. Canada first mentioned the obligation under Article 82 of the Convention in 2013, also in broad terms, warning the operators "additional terms and conditions may be applied through legislation, regulations, amendments to licences or otherwise." Aldo Chircop. "Implementation of Article 82", note 14, p.391.

[71] Mossop. "*The Continental Shelf*", note 20, p. 131. Also see Center for Ocean and Law Policy; *UNCLOS 1982 a Commentary*, note 4, p. 945.

[72] Mossop. "*The Continental Shelf*", note 20, p. 131.

contribution[73]. It is totally conceivable that payments and contributions in kind should be equally valuable. In this sense, there is no reason to prevent combined payments.

It seems clear that choosing only one modality of payment would be easier. Likewise, it is easier to fulfill the obligation in Article 82 in the same way year after year. However, this is not enough to prevent a country from changing from payments into contributions in kind or the other way around, or even from making combined payments as analyzed.

The ISA Technical Studies strongly encourage States to make payments rather than contributions in kind[74], given that this option would raise more questions and greater complexity[75]. This modality of payments demands transportation and risk arrangements between the OCS State and the Authority. Moreover, Article 82 does not clarify how the Authority would deal with the costs associated with receiving, holding, and distributing the contributions[76]. If the distribution is not to be made in kind, there may also be brokerage costs.[77]

The contribution is a percentage of the production. So, it might be clear that a State can discharge its obligation by transferring the correct volume of the mineral, such as oil and gas, produced from the site located in the OCS. But there is no clarification on whether a State could offer the same type of non-living resource extracted from another area, another sort of resource, or even the

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[73] Ibid. ILA consider the combination inconsistent with the legal text that used the "or" instead of "and". ILA, *Outer Continental Shelf*, note 66, p. 1053. However, Mossop ("*The Continental Shelf*", note 20) calls attention to other inconsistences in the article also notes that although paragraphs 1 and 4 mention "or" paragraph 2 mentions "and".

[74] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. X. Chircop noted that the recommendation shall be made by State Parties to the Convention. Aldo Chircop, "Implementation of Article 82", note 14, p. 378.

[75] It was suggested that States Parties to the Convention might make a recommendation on that issue. Aldo Chircop. "Implementation of Article 82", p. 378. Difficulty in receiving payments in kind has also been faced domestically. In the past the United States had a Royalty-in-Kind program (RIK) which provides the federal government with the option of receiving production royalty payments in value or in kind, which were closed-out in 2010. The program was considered controversial and was ended to ensure transparency, accuracy, and fairness. (https://www.doi.gov/news/pressreleases/Interior-Completing-Close-Out-of-Royalty-in-Kind-Program). See also: https://www.gao.gov/products/gao-09-744

[76] Chircop. "Article 82: Payments and Contributions", note 13, para. 14.

[77] Ideally, even when receiving contributions in kind, the distribution shall be made a in convertible currency to avoid the same issues as receiving contributions in kind but it might be the interest of a beneficiary State to receive its share in kind. The Convention does not specify this situation and the issue is likely to be part of ISA regulation which is not in place yet. Logde states that article 82 does not provide guidance on if the Authority shall distribute the contributions in the form of resources. Michael W. Lodge. "The International Seabed Authority and Article 82 of the UN Convention on the Law of the Sea". *International Journal of Marine and Coastal Law*, vol. 21, no. 3, (Koninklijke Brill NV, 2006), p. 326.

equivalent value in technical assistance or technology transfer. Mossop suggests that not all kinds of commodities could be used because it would impose to ISA a huge challenge on an already costly transaction[78]. The author explains her position by taking grains as an example, but she does not clearly conclude if the oil and gas compensation would be made in cobalt or nickel, which could be found in the deep seabed[79].

Even when considering the same resource, such as oil and gas, discharging the obligation with hydrocarbons from another field, in other words, produced from another area, imposes even further complexity in applying Article 82. It would require a mechanism to determine whether the oil transferred is more or less valuable than the oil produced and thus if the contribution should be given in a larger or a smaller volume[80]. Chircop advocates that the meaning of the expression should be an actual share of the resource produced[81].

Making payments raises another kind of issue. Firstly, the value of production. Lodge suggests the value "as a practical matter" would be calculated based on the average price of the year[82]. Different from Lodge, Chircop do not propose adopting an annual average price, but the price of the resource at the time they are being produced. In the case of oil and gas, the well-head value should be considered[83]. In the Working Paper prepared for the Beijing Workshop, Chircop includes the expression in the "Framework for a Model Article 82 Agreement", but he did not define it nor made any clarification. It might be totally reasonable for countries such as Canada and USA where the expression is widely used, but it does not give much guidance for other countries such as Brazil. The ISA Technical Study 4 explains that:

> The meaning of "value" for the purposes of calculating the applicable percentage will need to be clarified for the non-living resource concerned. This could refer to the well-head value

[78] Mossop. "*The Continental Shelf*", note 20, p.132.

[79] Ibid.

[80] Chircop. "Article 82: Payments and Contributions", note 13, p. 647.

[81] Chircop. "Implementation of Article 82", note 14, p. 381. The author seems to review his previous interpretation.

[82] Lodge. "The International Seabed Authority and Article 82", note 77, p. 326.

[83] In a more recent study, Chircop also indicates the possibility to consider the value at the time the resource is sold, especially for natural gas, which is usually priced at the point of distribution. Chircop, "Implementation of Article 82", note 14, p.383. Similarly, the *travaux préparatoires* suggests that the value shall be presumably market prices at the time of production. Center for Ocean and Law Policy; *UNCLOS 1982 a Commentary*, note 4, p. 946.

in the case of hydrocarbons, i.e., when the product is brought to the surface, but before transportation.[84]

Further research on the Canadian practice shows that the well-head value considers a monthly average of Sales Value, allowing the deduction of transportation costs. In the Saskatchewan province, it is defined as expenses incurred from the physical loading, movement, and unloading of oil by truck, from the point of origin to a valid Custody Transfer Point. It is important to note that not all transportation costs are deductible for royalty purposes. [85]

The methodology used by the Saskatchewan province considers all sales transactions. Thus, in order to assess the well-head value, the institution in charge of the calculation must have access to all sales details. In the case a country does not apply this calculation for internal reasons –national royalty or tax payments, for instance – the adoption of the well-head value the same way as the Canadian practice might impose a huge transaction cost on the OCS State[86].

Another main issue is the currency of the payments. Although Annex III of UNCLOS refers to the basic conditions of prospecting, exploration, and exploitation in the Area, it does not directly apply to Article 82, it could serve as guidance[87]. Article 13 (12) of Annex III states that payments shall be made in freely usable currencies or currencies that are freely available and effectively usable on the major foreign exchange markets. Moreover, the fees and overhead charges from the ISA are fixed in US dollars[88].

The International Law Association also suggests that payments could be done on a related type of convertible payment unit, such as the Special Drawing Rights (SDRs) used by the International

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[84] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. xv.

[85] Available at https://pubsaskdev.blob.core.windows.net/pubsask-prod/84568/84568-PR-IC09_Well-head_Value_Crude_Oil_(November_2017)_.pdf. Accessed on 01 August 2022.

[86] Canada, Alberta, British Columbia and Saskatchewan have adopted Petrinex, an online system for volumetric and price reporting. See https://www.bcogc.ca/energy-professionals/online-systems/petrinex/

[87] Mossop, "*The Continental Shelf*", note 20, p. 133.

[88] It is interesting to note that, in accordance with Article 13 (12) cited, ISBA/21/C/19 established the amount in US dollars and mentions "or its equivalent in a freely convertible currency" (https://isa.org.jm/files/files/documents/isba-21c-19_6.pdf). The same language is not used in ISBA/19/A/12, which only fixed the amount in US dollars (https://isa.org.jm/files/files/documents/isba-19a-12_0.pdf).

Monetary Fund (IMF)[89]. The possibility to adopt more than one currency or unit for payments by different States opens space for questions about currency fluctuation.

Paragraph 2 – Annually and rates

"Annually" should be understood as a 12-month period. It might be coincident with the calendar year or financial/fiscal year. Both might vary from country to country. ISA Technical Study No. 4 suggests that although the Convention refers to annually, the OCS State and the Authority might agree on a regular schedule of payments in a shorter period. More frequent payments intend to preserve the value of the compensation. The discretion to determine when in the year the payments would be done relies on the paying State[90]. As said before, payments and contributions shall be of the same value[91]. If the payments are made closer to the date of production, they should better reflect the market value of the resource. Moreover, beneficiary States would be better off receiving the compensation earlier.

In the case of contributions in kind, more than one transfer over a 12-month period would reduce the costs of storage and the impact of variation on prices, especially if they drop sharply. Oil and gas prices are extremely volatile, as can be seen in Figure 2. Considering the last 10 years, oil prices were relatively stable, around $ 100-120/barrel, from 2012 to mid-2014, but it reached $46/barrel in January 2015 and then $28 in January 2016, from there on they started to raise again. During 2018-2020 it mainly fluctuated around $60-$80. In April 2020, during the Covid-19 pandemic, there was a sharp drop in consumption and the prices were below $20. Two years later, it was back to the hundreds level mainly due to the Russia-Ukraine crisis[92].

[89] ILA, *Outer Continental Shelf*, note 66, p. 1051.

[90] ILA, *Outer Continental Shelf*, note 66, p. 1054.

[91] International Seabed Authority, *"A Study of key terms in Article 82 of the United Nations Convention on the Law of the Sea. ISA Technical Study: No. 15"* (Kingston: 2016), p. 11.

[92] Lower price on 20 April 2022, $17,36. Macrotends. Brent Crude Oil Prices - 10 Year Daily Chart. Available at https://www.macrotrends.net/2480/brent-crude-oil-prices-10-year-daily-chart. Accessed on 11 August 2022.

Figure 2: Brent Crude Oil Prices – 10-Year Daily Chart

Domestic practices usually are to collect royalties monthly[93]. In Brazil, for instance, the revenues are also distributed monthly. If the country decides to transfer the costs of complying with Article 82 to the industry, the State will likely collect domestic royalties and international royalties at the same time, and only one payment through ISA per year may impose complexity, especially if the currency of industry obligation to the country is different from the currency of payments to be done under Article 82 of the Convention.

It is also possible to infer that "annually" is based on the year of production. In this case, if there is production in more than one site, would a State have multiple obligations due on different dates? Consequently, ISA would have multiple due dates to administer. Having fixed dates and adjusting the values according to the site anniversary seems to be easier. When implementing Article 82, the ISA should consider administrative issues, such as receiving and distribution costs, when agreeing with payment schedules[94]. In Nigeria, domestic royalties are due quarterly, the same periodicity as the Special Participation in Brazil[95]. Maybe that frequency would balance the disadvantages of only one payment a year and the trade-offs of excessive transactions.

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[93] Brazil, Newfoundland and Labrador/Canada, Australia and United States collect royalties monthly. ISA, *A Study of key terms in Article 82*, note 91.

[94] Different dates of commencement for different sites might not be convenient to the industry, and a prorated solution could be adopted. ISA, "*Implementation of Article 82 of the United Nations*", note 17, p. 22.

[95] Ibid. For Special Participation, see note 19.

Payments or contributions are to be made on a pre-set scale. The rate shall be 1 per cent of the value or volume of production at the site in the sixth year of production, increasing by 1 per cent for each subsequent year until the twelfth year, and shall remain at 7 per cent thereafter. In the first five years of production, no obligation is due. This period is called the grace period. It is said that the grace period was set to allow companies to recover some exploratory and production costs[96]. The grace period is also, arguably, a period that would allow the OCS State to accumulate domestic royalty income[97]. However, Chircop suggests that the grace period and the incremental scale were based more on a need to compromise[98].

Oil and gas exploration and exploitation costs are indeed extremely high and even higher in the first years and on deep-water areas. The ISA Technical Study No. 4 states that: "Given the expensive modern day offshore development in a deep-water environment, it remains to be seen whether the grace period and the progressively incremental rate are sufficient for a developer to recoup development costs as was intended by the UNCLOS"[99]. Since then, the costs of deep-water production fell especially due to the reduction of drilling/construction time, despite being still much higher than in shallow waters. Lift costs have also dropped.[100]

One of the countries supporting the grace period was the United States of America[101]. In 1995 the US adopted the Deepwater Royalty Relief Act (DWRRA), an extensive program for oil and gas deep-water projects in the Gulf of Mexico. It expired in 2000 when the US Government adopted a

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[96] Mossop. "*The Continental Shelf*", note 20, p. 127.

[97] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p.35

[98] Chircop, "Article 82: Payments and Contributions", note 13, p. 648.

[99] Ibid, p. 34.

[100] See Petrobras, "Pre-salt". Available at: https://petrobras.com.br/en/our-activities/performance-areas/oil-and-gas-exploration-and-production/pre-salt/. Accessed on 04 October 2022. In 2022, Petrobras drilled a deep-water well in 35 days. In 20 years, the company reached a reduction of proximately 60%. Engenharia hoje, Petrobras bate recorde, e constrói poço offshore de águas profundas na Bacia de Campos. A empresa petrolífera economizou cerca de R$ 40 milhões" [Petrobras beats record, it built an offshore deep water well in Campos Bay. The oil company saved around 40 million reais]. Available at: https://engenhariahoje.com/tie-business/petrobras-bate-recorde-e-constroi-poco-offshore-de-aguas-profundas-na-bacia-de-campos/?ref=social. Accessed on 04 October 2022. Also, "Another modern trend is to create subsea developments in which connected systems of pipelines on the sea floor direct hydrocarbons from individual wells to a single platform. This sort of development makes deep-water oil exploitation more economic by reducing the size and number of platforms need". Mossop. "*The Continental Shelf*", note 20, pp 37-38.

[101] ISA, *Issues Associated with the Implementation of Article 82*, note21.

program that provided lower amounts of royalty relief[102]. For licenses issued after 2010, the application of royalty relief is only available for companies under certain scenarios.[103] Deep-water oil and gas fields demand huge investments but also provide high revenues.

To determine the applicable rate, it is necessary to define the commencement of production and consequently, the year of production. The International Law Association (ILA) expressed that the elaboration of the range of possible interpretations and applications of the relevant terms of Article 82 should reflect their usage within the oil and gas industry for hydrocarbons[104]. In this sense, it would be adequate to consider the year of production as the commercial production rather than the first oil. Commentators have the same opinion. Thus, small production during the exploration phase[105], such as from a well test, should not be considered production.

One question is if the counting of grace period or years of production may be suspended or interrupted. Continuity of production, in general, should not be a requirement for the timeframe. In the oil and gas industry, many interruptions are usual and, moreover, expected – as various maintenance campaigns. In case of *force majeure* or accident, one might argue the clock should stop running[106].

Lease Stipulations for the OCS in the Gulf of Mexico issued by the United States specify that a production year runs for 365 days a year commencing from the date of commencement of production, irrespective of whether there is continuity in commercial production[107]. The Brazilian Special Participation – a government take collected based on a pre-set scale per year of production

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[102] Bureau of Ocean Energy Management, "Royalty Relief". Available at: https://www.boem.gov/oil-gas-energy/energy-economics/royalty-relief#:~:text=The%20Deepwater%20Royalty%20Relief%20Act,providing%20economic%20incentives%20to%20operators. Accessed on 03 August 2022.

[103] These scenarios include end-of-life and special case royalty relief. For more information see Code of Federal Regulation, § 203.0 Available at: https://www.ecfr.gov/current/title-30/chapter-II/subchapter-A/part-203.

[104] ILA, *Outer Continental Shelf*, note 66, pp. 1049-1050.

[105] "There are several stages of hydrocarbon exploitation. First, general information about an area's subsurface geology is obtained using a variety of methods, including seismic surveys, gravity surveys and magnetic surveys. Where surveys indicate the possibility of hydrocarbon deposits, exploration wells are drilled to analyse the geology of the sediments and to determine whether commercially viable accumulations of hydrocarbons are present. If successful, appraisal wells are then drilled to obtain further information about the reservoir, such as the quantity and quality of the resource and the percentage of oil that can be recovered." Mossop, "*The Continental Shelf*". note 20, p.37.

[106] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p.52.

[107] Chircop, "Article 82: Payments and Contributions", note 14, p.647.

– does not provide for time suspension during the production phase[108]. Considering the domestic system and the interests of the country, there is no reason to suspend the timeframe[109]. Once a country issues a production lease, it aims to collect the revenue and usually elaborates many mechanisms to avoid speculative behavior[110]. A stipulation for suspension would be inconsistent with that. Arguably, the suspension would benefit the State instead of the company, but it is undeniable that any suspension would be in prejudice to the beneficiaries. Therefore, any provision setting for time counting suspension should consider the interests of the least developed and the land-locked and be consistent with the industry practices.

Paragraph 3 – Calculation basis

Article 82 of UNCLOS provides that payments or contributions in kind shall be made in respect of all production at a site but exempt resources used in connection with exploitation. All production refers to gross production. The *travaux préparatoires* may be used to confirm the meaning of the provision[111]. The preparatory work of the Convention shows that suggestions to adopt a net revenue were rejected due to the difficulty of determining a net value and concerns about the high cost of oil and gas exploration and exploitation, minimizing the overall profits[112].

[108] There is an exception for extended well tests used to evaluate the productivity and characteristics of a reservoir. Extended well test usually occurs in the exploration phase, as part of Discovery Assessment Plan. The ANP regulation provides for a legal fiction when consider that as production to collect special participation. Consequently, it considers only the period of production and thus admits suspension. The Resolution ANP No. 870 of 2022 states:
§ 7º For the purposes of calculating the special participation the production phase begins to count from the extraction of the first oil or gas of a given field, even if in long-term testing.
§ 8º The closure of the long-term testing phase suspends the counting of the production phase period for the purposes of calculating the special. (Translated by the author)

[109] Chircop advocates that the grace period shall be interrupted if there is discontinuity in the production as a matter of fairness. Aldo Chircop. "Implementation of Article 82", note 14, p.382.

[110] The United Kingdom charge a rental at an escalating rate on each sq km that the Licence covers. Rentals encourage Licensees to surrender acreage they do not want to exploit. ISA, *Non-living resources of the continental shelf beyond 200 nautical miles*, note 70, p. 35. Brazil has a similar provision. See Law 9.478 of 1997, Article 45, IV. "Art. 45. The Concession Contract shall provide for the following government participation, established in the Tender Protocol: [] IV fees for the occupation or retention of the area. (Translated by the author).

[111] *Vienna Convention on the Law of Treaties*, Vienna, 23 May 1969, Article 32.

[112] Center for Ocean and Law Policy, *UNCLOS 1982 a Commentary*, note 4, p. 936. Mossop, "*The Continental Shelf*", note 20, p. 127. ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 17.

The expression "at a site" can raise different interpretations. Considering oil and gas, it might be read as a resource field, geological structure, well site, license area, unit, project area, and a whole development area subject to multiple licenses[113]. The meaning of site is relevant to set the rate applicable to that production. In other words, the meaning of "site" may have a great impact on payments or contributions. A narrow interpretation – such as each well as an independent site – would lead to a reduction in revenue sharing[114] and excessive administrative costs for both the OCS State and the Authority. On the other hand, excessively broad interpretation, such as the development area, might lead to an unfair result. Chircop advocates that the license area might be considered because fiscal and contractual arrangements tend to be defined for the concerned license area[115]. In the Beijing Workshop, the issue was left to be determined by the OCS State[116].

Finally, it is necessary to establish the scope of the expression "resources used in connection with exploitation" to determine payments or contributions in kind. The consensus of commentators is that the resource can not be read as financial or human resources, or any activity related to prospecting and exploration[117]. Considering that it was a clear intention to consider the gross production, the exception shall be interpreted in a restricted manner. The industry practice shall give the ordinary meaning. The ILA concluded:

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[113] As Chircop pointed, some deposits may be layered over each other in the same field. Aldo Chircop. "Implementation of Article 82", note 14, p. 383. A good example of this is *Marlin Leste* in Brazil, where up to 3 formations can be seen laying each other. For more details, see https://api.mziq.com/mzfilemanager/v2/d/25fdf098-34f5-4608-b7fa-17d60b2de47d/c04364ac-24ba-c4ec-03ea-b0251ac93876?origin=1 (slide 6). Also see ISA, *A Study of key terms in Article 82*, note 91.

[114] Hypothetically, it should also allow the OCS State to deliberately reduce the payment or contribution deciding to produce a greater volume through a well in the grace period rather than through a paying well.

[115] Chircop. "Article 82: Payments and Contributions", note 13, para.17.

[116] ISA, *Implementation of Article 82 of the United Nations*, note 17, p. 22.

[117] ISA, A *Study of key terms in Article 82*, note 91. ILA, *Outer Continental Shelf*, note 66, p. 1069. "Certain hydrocarbons used for production purposes are deductible in most jurisdictions (*e.g*. USA, UK, Australia, Alberta, Nigeria) but not in others (*e.g.* Brazil). Productions purposes may include drilling for resources, gathering resources on a lease, pumping resources onshore, and subjecting the resource to initial treatment, or the operation of gas processing plants." As an example, the US royalty "is not payable on resources used on or for the benefit of the lease which may include off-lease uses". ISA, A *Study of key terms in Article 82*, note 91, p. 13. Some offshore installations use natural gas produced to generate electricity and for other source of power. A broader interpretation of Article 82 could significantly expand the exemption in a way that might be in conflict with the conclusion that the intention of the Article was to consider the gross production. Brazil adopted the gross production ("total production volume") as the calculation basis whereas the other State legislations although do not expressly refer to a net production, it provides for a number of deductions.

> The industry, within this context, held 'resources' to refer to the initial (less commercially valuable) mixtures of oil, gas and/or water that are produced from a site which are pumped back into the petroleum reservoir in order to assist its more efficient exploitation. The Committee was in favour of this definition rather than broader ones.[118]

The ILA concedes that a wider interpretation might be adopted because the Convention appears to leave coastal States with considerable discretion as to how it should be interpreted[119]. According to industry practices, resources used in connection with exploitation might mean natural gas used for re-injection into the reservoir to enhance production or flared gas. A more intricate question is whether all re-injected and flared gas shall be excluded from Article 82 obligation. Most jurisdictions provide deductions for reasonable losses, unavoidable losses, or losses up to a certain prescribed limit[120].

The natural gas consumed in the offshore unit might have different interpretations. One may argue that it is used to enhance production, but this would be contentious at least. Chircop suggests it would include the production of energy for operations[121]. Natural gas may be used to generate power in the platform, not only in the processing plant but also for housing and other purposes. Depending on the technology, the volume of hydrocarbons consumed in the unit can vary a lot, because some of them use other energy sources such as diesel. In this sense, the hydrocarbons consumed in the unit would not be in accordance with the definition of "in connection with the exploitation" given by the industry.

Furthermore, if the gas is re-injected in a reservoir located in another license area and the license is defined as a site, should it be included in the calculation basis? In this case, it is not used in connection with the site production, although it might increase other field production. Similarly, in order to avoid resource waste and to contribute to the UN *Sustainable Development Goal 13 – Take urgent action to combat climate change and its impacts,* should any levy be imposed on some

[118] ILA, *Outer Continental Shelf*, note 66, p. 1069.

[119] Ibid, p. 1057.

[120] ISA, *A Study of key terms in Article 82*, note 91.

[121] Chircop, "Implementation of Article 82", note 14, p. 382.

flared gas[122]? Limiting the amount of natural gas that can be deducted by the calculation basis on Article 82 should be a way to lead oil companies to reduce gas flaring.

Lastly, opinions converge to ultimately recognize that the calculation method rests on the Coastal State and, as a result, the State has some discretion on the interpretation of the term[123], as long as it is made in good faith. Mossop highlighted that a requirement of good faith might avoid extreme interpretations of the Convention[124].

Paragraph 4 – Obligation exemption

Article 82 (3) provides for an exemption for a developing State which is a net importer of a mineral resource in respect of that mineral resource. The language adopted in this paragraph differs from Paragraph (1) which refers to non-living resources. The ILA [125] concluded that although there are different terms, they might have the same meaning, as there is no clue in the negotiation work that the States intended to distinguish minerals from other non-living resources.

The collateral rule (paragraph 3) should be read consistently with the basic rule set out in 82 (1), as treaty terms should be interpreted in their context and in light of the object and purpose of the treaty. Oil and gas were the most feasible resource to be explored on the outer continental shelf by the time of negotiations. It would be expected that if the negotiators had the intention to differ non-living resources from minerals (inorganic matter), they would have expressly discussed about oil and gas (organic matter)[126]. Therefore, the divergence might be considered a "draft problem" or a

[122] Gas flaring is a method of disposing of the associated gas that comes from oil production. It can be flared for safety reasons to de-pressurize equipment and manage unpredictable and large pressure variations, but a great amount of gas is flared for economical and logistical reasons. In 2015, the World Bank and the UN Secretary-General launched the Zero Routine Flaring by 2030 (ZRF) initiative. For more information on gas flaring see: https://www.worldbank.org/en/programs/gasflaringreduction/gas-flaring-explained

[123] ILA, *Outer Continental Shelf*, note 66.

[124] Mossop, "*The Continental Shelf*", note 20, p. 128.

[125] ILA, *Outer Continental Shelf*, note 66.

[126] Vienna Convention, Article 31 (1). Mossop also considers that the interpretation of mineral resources being a sub-category of non-living resources, thus the exemption do not include hydrocarbons would be unusual in the light of the policy behind the article. Mossop, "*The Continental Shelf*", note 20, p. 135.

"minor inconsistency"[127]. So, the requirement for the exemption is to be a net importer of the resource.

Particularly for oil and gas, it is important to conclude whether they shall be considered together, as hydrocarbons, or independently. On one hand, one might consider oil and gas are developed together, so the economic analysis should rely on both. On the other hand, considering the differences in reservoirs, transportation, and storage requirements, that influence production, and consumption volumes and consequently national balances, oil and gas shall be considered different "minerals". In the literature, no reference was found to oil and natural gas as a single "mineral" – being treated as hydrocarbons. In the case of Brazil, it is important because Brazil is a net exporter of oil, but a net importer of natural gas[128].

The exemption is only provided for developing States. The Convention, however, does not clarify any criteria to define a developing country nor did the *travaux préparatoires*[129]. The UN system does not establish a system to designate developed or developing countries. The World Trade Organization allows States to self-identify themselves as developing States. The World Bank is phasing out the use of the term "developing world" or developing countries[130], but the lists of developing countries usually presented as referring to that database consider the low and middle income[131].

In the absence of a designated authority to determine the developing States under Article 82, Mossop advocates that the coastal State is the "final arbiter" to determine whether it is a developing state. The determination is to be made in good faith. The author also suggests that if the ISA publishes a list of developing countries, States not on that list should present a reasonable argument

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[127] ISA, *Issues Associated with the Implementation of Article 82*, note 21. Also, Chircop. "Article 82: Payments and Contributions", note 13, para. 19.

[128] An overview of net importer/exporters be found at Enerdata. World Energy & Climate Statistics – Yearbook 2022. Available at: https://yearbook.enerdata.net/crude-oil/crude-oil-balance-trade-data.html for oil and at https://yearbook.enerdata.net/natural-gas/balance-trade-world-data.html for natural gas. Accessed on 08 August 2022.

[129] Center for Ocean and Law Policy; *UNCLOS 1982 a Commentary*, note 4, p. 946.

[130] See World Bank Blogs, Should we continue to use the term "developing world"? (16 November 2015). Available at: https://blogs.worldbank.org/opendata/should-we-continue-use-term-developing-world#:~:text=The%20low%2C%20lower%2Dmiddle%2C,as%20the%20%E2%80%9Cdeveloping%20world.%E2%80%9D

[131] Mossop, "*The Continental Shelf*", note 20, p. 134.

to consider themselves as developing to avoid being deemed in bad faith[132]. Egede agrees that the State shall establish to the ISA that it is a net importer of the particular mineral resource produced in its outer continental shelf. It is reasonable to expect that the country shows its balance to be entitled to the exemption[133].

[132] In that case, it would be a role for ISA to consider this issue. Ibid. pp. 134-135.

[133] Egede, "Submission of Brazil", note 55, pp. 35-36.

CHAPTER 2. BRAZILIAN OIL AND GAS FRAMEWORK

The chapter reviews the Brazilian oil and gas framework, on the legal and regulatory levels. Acknowledging how Brazil collects its national royalties is essential to recognize compatibilities and conflicts with possible interpretations of Article 82.

Section A – Brazil Oil and Gas mixed regime

Paragraph 1 – Brief description and main characteristics

Petrobras was established by the Law No. 2.004 of 1953 as a Brazilian state-controlled oil and gas company. Under this law, Petrobras was given the monopoly on oil and gas exploration and exploitation. Since the Constitution of 1967, the hydrocarbon monopoly has had a constitutional status[134]. However, the 1967 Constitution did not mention how this monopoly should be exercised but it set forth the sole requirement that it must be done under the law. In the 1970s Petrobras was allowed to enter into risk services contracts with private international oil companies[135].

Only in 1988 did the Constitution include more restrictive provisions. Its original version had reinforced the oil and gas monopoly and had established the prohibition of contracting with other companies. The restriction lasted until 1995 when Constitutional Amendment 9 allowed the Federal Union pursuant to the law to contract the exploration and the mining of oil and natural gas, and other fluid hydrocarbons whilst maintaining the federal monopoly over them. The same Amendment provided for the enactment of a National Regulatory Agency[136].

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[134] Brazil, Federal Constitution of 1967 (24 January 1967), Federal Official Gazette (24 January 1967), Article 162. "Art. 162. Research and mining of oil in national territory constitute a monopoly of the Union, under the terms of the law." (Translated by the author).

[135] Laís Palazzo Almada. "Oil & Gas Industry in Brazil: a brief history and legal framework". *Panorama of Brazilian Law*, 2018, Vol.1 (1) (Rio de Janeiro: 2013), p.223-252.

[136] Brazil, Constitutional Amendment No. 9 of 1995 (9 November 1995). Federal Official Gazette (10 November 1995).
"Art.1 Paragraph 1 of Article 177 of the Federal Constitution takes effect with the following wording:
§ 1 The Union may contract with state or private companies to carry out the activities provided for in items I to IV of this article, subject to the conditions established by law.
Art. 2. Include a paragraph, to be listed as § 2, with the following wording, changing the current § 2 to § 3, in art. 177 of the Federal Constitution:
§ 2 The law referred to in § 1 will provide for:
I - the guarantee of the supply of petroleum derivatives throughout the national territory;
II - the contracting conditions;

The Petroleum Law, Law No. 9.478 of 1997[137], created the National Agency of Oil, Natural Gas, and Biofuel (ANP) as an independent agency and established the Concession Model for the exploration and exploitation of oil and gas in Brazil. The law established a mandatory auction procedure to grant the right to explore and produce, called Bidding Rounds. In summary, the ANP publishes the draft of the tender protocol, which specify the schedule of the mandatory events and publications, such as technical, legal, fiscal, and environmental seminars, and the announcement of the areas of the blocks, among others. This draft and the draft of the Concession Contract are subjected to consultation and public hearings.

Then, the bids are offered within a sealed envelope by pre-registered companies in a public session and are opened in the same opportunity. The bid winner will be defined by the signature bonus[138] and the Minimum Exploratory Program (PEM) offered[139]. The winning companies are thus qualified to sign the contract with the ANP. The qualification comprises the review of documentation to evidence the legal, tax, and labor compliance, and the economic, financial, and technical capacity of the bidders. The main characteristics of the actions and the Concession Contract are defined in the Petroleum Law and Resolution ANP No. 18 of 2015[140].

The Contract provides exclusive rights to carry out surveys, exploration drilling, and production of oil and gas within a defined geographical area. Once produced, the Operator acquires title to hydrocarbons and, at the same time, a duty to pay royalties begins. In the Concession Model, the royalties are fixed in the tender protocol. The royalty rate is 10% but can be reduced up to 5% according to the geological risks, production expectations, and other relevant factors[141]. There is no right to collect royalties in kind under the Concession Model.

III - the structure and attributions of the regulatory body of the Union's monopoly." (Translated by the author)

[137] An unofficial English version can be found at: <https://www.ariae.org/servicio-documental/lei-9478-de-6-de-agosto-de-1997>. Note that this is the original version and some Articles may have been amended.

[138] The amount of money the company must offer to pay at the time the lease is issued as the "cash bonus."

[139] In the first 13 Bidding Rounds, the local content (goods and services provided by Brazilian companies) should also conform the offer and it was considered to determine the winner.

[140] ANP, Resolution ANP No. 08 (19 March 2015). Available at: https://atosoficiais.com.br/anp/resolucao-n-18-2015?origin=instituicao#:~:text=1%C2%BA%20Fica%20aprovado%20o%20regulamento,Art

[141] This provision has not changed since the law was enacted, but the default royalties were 10% and the majority of the fields paid royalties at this rate. Almada, "Oil & Gas Industry in Brazil". From the 14th Bidding Round (2017) distinct royalties for the new frontier areas and mature basins of greater risks were set. In 2018, ANP approved Resolution No. 749/2018, which established a kind of royalty relief to mature fields. ANP. Regulatory changes related

Special Participation is a levy due to the Brazilian government for the exploration and production of oil and natural gas with respect to substantial volumes of production or high profitability of a field. Not only does the Brazilian Constitution provides for royalties when it mentions financial compensation for hydrocarbon exploitation, but it also provides for a profit share, which is called Special Participation by the law[142].

Special Participation is calculated considering the gross revenue less the deductible expenses: (i) royalties, (ii) exploration investments, (iii) development investments, (iv) production costs, and (v) decommissioning provision costs. Although this levy is provided by all Concession Contracts, only a few fields actually collect this government participation[143]. Thus, it is not expected that special participation compromises the profitability of the enterprise.

Over the 17 Bidding Rounds, the Model Contracts have been updated but the major provisions are the same. Considering the last one (2021), it provides an exploration period of seven years that may be extended in the cases the Contract provides for it. During this period, the units of work (UWs) committed in the PEM (Minimum Exploratory Program) must be completed. The activities may be seismic acquisition and reprocessing, potential methods (gravimetric, magnetometric, and gradiometric), and exploration drilling, among others. Each of them corresponds to an equivalent UW[144].

All the activities are developed at the operator's own risk, including finding – or not – hydrocarbons. If the exploration phase proves successful, the company shall make a Declaration

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to the Oil and Natural Gas sector. (26 November 2021) Available at: https://www.gov.br/anp/en/rounds-anp/about-the-bidding-rounds/regulatory-changes-related-to-the-oil-and-natural-gas-sector. Accessed on 22 August 2022.

[142] ANP, Seminário "Aprimoramento dos Instrumentos Regulatórios relativos aos procedimentos de apuração da Participação Especial" (29 June 2022). Available at: https://www.gov.br/anp/pt-br/acesso-a-informacao/agenda-eventos/seminariorevisaoranp8702022.pdf

[143] Ibid. Considering the second and third quarters of 2021, only 14 fields paid the special participation: *Albacora Leste*, *Barracuda*, *Jubarte*, *Leste de Urucu*, *Tupi*, *Manati*, *Marlim Leste*, *Marlim Sul*, *Mexilhão*, *Rio Urucu*, *Roncador*, *Sapinhoá*, *Tartaruga Verde*, and *Lapa*; all offshore, except for *Rio Urucu and Leste de Urucu*, two major onshore gas field. The Special Participation is calculated quarterly based on a "net revenue" and each quarter is autonomous, in the sense that it is possible that a field collects the levy in one quarter but do not in the previous or/and in the subsequent one. Rafael Chaves Camacho, Special Participation Coordinator, ANP, personal communication (January 2022).

[144] ANP. "Edital e Modelo do Contrato: Edital (versão em Inglês). [Tender protocol and model of the concession: Tender protocol (English version)]", (5 August 2021), Item 6.3.2 and Annex XIV. Available at: https://www.gov.br/anp/pt-br/rodadas-anp/rodadas-concluidas/concessao-de-blocos-exploratorios/17a-rodada-licitacoes-blocos/edital

of Commerciality, which initiates the 27 years of the production phase. The contract can be extended upon the request of the Contractor or by the ANP determination, which can be refused based on non-commerciality. If the exploration does not prove the commercial presence of oil or gas, the area shall be relinquished at the end of the exploration period and the contract terminated[145].

In 2010, after Petrobras announced the discovery of a large-scale reserve in the pre-salt play, three new laws were enacted, and major changes were introduced to the Brazilian regulatory Framework. First, Law No. 12.276 of 2010[146] creates the legal basis for the Onerous Assignment and the Capitalization of Petrobras. Through this contract, the Federal Government assigned to Petrobras the right of exploration and production on non-granted areas located in the pre-salt, up to a limit of 5 billion boe (barrels of oil equivalent). The main goal of this transaction was to allow Petrobras to attract new investors and to keep the Federal Union as the main shareholder[147].

Then, Law No. 12.304 of 2010 provided the legal basis for the formation of PPSA – *Pré-sal Petróleo S.A.*, a public company under the Ministry of Mines and Energy. It was established in November 2013, and it is mainly responsible for (i) managing production-sharing contracts, representing the Federal Union and defending its interests in the operational committee, (ii) managing oil and natural gas commercial activities, and (iv) representing the Federal Government on unitization agreements[148].

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[145] Ibid.

[146] Brazil, Law No. 12.276 of 2010 (30 June 2010). Federal Official Gazette Supplement (30 June 2010).

[147] For more details, see: Luciana Braga, Oil in Brazil: Organization and fiscal regimes (6 December 2018). Available at: https://www.encyclopedie-energie.org/en/oil-in-brazil-organization-and-fiscal-regimes/. In the past, the Onerous Assignment Agreements were also considered by ANP as a legal regime. The most recent version of the website cites only the regimes of concession and production sharing as part of the mixed regulatory regime. ANP. "The regimes of concession and production sharing" (26 November 2021) Available at: https://www.gov.br/anp/en/rounds-anp/about-the-bidding-rounds/the-regimes-of-concession-and-production-sharing Accessed on 12 August 2022. Considering the legal limitation on the maximum volume to be extracted in the Onerous Assignment Contract and the existence of surplus volumes to the contracted, the National Council of Energy Policy (CNPE) authorized the ANP to hold the Round of Bids for Production Sharing for Excess Volumes to those contracted under the Onerous Assignment regime in Pre-salt areas. CNPE. Resolution CNPE No. 08 (10 May 2019). Available at: https://www.gov.br/anp/pt-br/servicos/legislacao-da-anp/rl/cnpe/resolucao-cnpe-n08-2019.pdf.

[148] Brazil, Law No. 12.304 of 2010 (02 August 2010), Federal Official Gazette (03 August 2010). Brazil, Presidential Decree No. 8.063 of 2013 (1 August 2013). Federal Official Gazette (2 August 2013).

Finally, Production Sharing Regime was established by Law No 12.351 of 2010 and is applicable to the geographical area defined under the law, the pre-salt polygon[149], and the strategic areas. This duality of the legal framework is called the mixed regulatory regime. Different from the Concession Regime, auctions are not a mandatory procedure, and the Federal Union can either directly contract Petrobras for exploration and production of oil and gas or promote Bidding Rounds.

Originally, the law provided for an exclusive operation of Petrobras and its mandatory participation with a minimum of 30 per cent in the consortium. The first Production Sharing Bidding Round took place in 2013 and it was the only one governed by the exclusive operation rule. The Libra area was offered and sold to the consortium formed by Petrobras, Shell, Total, CNPC, and CNOOC. There was no offer from other companies or consortiums[150].

This law was amended by Law No 13.365 of 2016, which removed the obligation for Petrobras to be the sole operator of the pre-salt area. On the other hand, it introduced a preemptive right to Petrobras over the operation in the blocks to be offered in the Bidding Rounds under the Production Sharing Agreement. Upon exercising the preemptive right, Petrobras shall participate in the consortium holding a minimum of 30% of participating interests. Presidential Decree No. 9.041 of 2017 stipulates that Petrobras might refuse to sign the Production Sharing Agreement (PSA) if the offer is above the minimum established in the tender protocol and the company has no commercial interest in the consortium[151].

The Bidding Round under PSA is regulated by Resolution ANP No. 24 of 2013 and the mandatory steps are very similar to the ones under Concession Regime. However, in this case, companies shall be qualified before placing their offers. The winner is determined by the highest exceeding

[149] The Pre-salt Polygon is the area of around 150.000 km2 established in the Pre-salt Law. The Pre-salt geological is a geological province located below a layer of evaporite deposits formed approximately 120 million years ago. Luciana Palmeira Braga and Olavo Bentes David, "Why the unitization process is an important issue when dealing with the Brazilian Pre-salt Polygon." *Journal of World Energy Law and Business*, (Oxford University Press: 2018), pp.1–17.

[150] Luciana Braga. "Oil in Brazil: evolution of exploration and production" (29 November 2018). Available at: https://www.encyclopedie-energie.org/en/oil-in-brazil-evolution-of-exploration-production/

[151] The consequence of an offer that Petrobras considered not economically feasible was one of the major issues of the original provision of Law No 12.351/2010.

oil portion (profit oil), equal to or over the minimum specified in the tender protocol. The company shall also pay a signing bonus in the amount fixed in the tender protocol.

The consortia that explore the pre-salt are composed of the Pré-sal Petróleo S.A. (PPSA), representing the Federal Union and the companies that won the bid. Although PPSA has no financial commitment, it plays an important role in business decisions[152]. The Production Sharing regime gives the Brazilian State greater control over its reserves with PPSA acting as a manager in the contract. The model raised harsh criticism, mainly because the interests of the Federal Union may not be coincident with the interests of the companies, which improves the business risks for oil companies[153].

The contracts are signed by the Minister of Mines and Energy, on behalf of the Federal Union and the consortia, formed by the PPSA, the winner company(ies), and Petrobras, if it decides to exercise the preemptive right or is one of the winner companies. Under PSA, the minimum exploratory programme is defined in the tender protocol and in the contract[154]. In summary:

> These activities are performed at IOC [International Oil Company]'s account and own risk. Once held a commercial discovery, the IOC is entitled to recover its investments through a portion of the production, known as "cost oil." After deducting the costs of production according to specific methodology established in the Contract, the "profit oil" is shared between the host State and the IOC.[155]

In Brazil, profit oil is paid in kind and is the result of the total production minus the cost oil and the royalties. According to the law, royalties are fixed at 15% and are paid in Brazilian reais. Typically, the PSA specifies that the exploration phase shall be a single period of seven years, starting on the date of execution of the Agreement, and may be extended at the discretion of the

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[152] Actually, PPSA has a great power under the Production Sharing Regime. This power might be illustrated by the clauses of the Consortia Agreement provided by ANP:
"5.3. The Manager [PPSA] shall have an undivided share of zero percent (0%) of the Consortium's rights and obligations and fifty percent (50%) of votes in the resolutions of the Operating Committee, in addition to the casting vote and the veto power, pursuant to the Production Sharing Agreement and its annexes."

[153] Programa de Aprimoramento das Licitações de Exploração e Produção de Petróleo e Gás Natural – BidSIM. *Metodologia para Classificação de Áreas Estratégicas*. (Brasília: 2021). Available at: https://www.gov.br/mme/pt-br/assuntos/secretarias/petroleo-gas-natural-e-biocombustiveis/programa-para-aprimoramento-das-licitacoes-de-exploracao-e-producao-de-petroleo-e-gas-natural-2013-bidsim/SCT_1_Relatorio_Final.pdf

[154] Law No. 12.351 of 2010, Articles 20 and 15, VII.

[155] Claudia Zacour, *Apud* Almada, "Oil & Gas Industry in Brazil", p. 230.

ANP. The contract shall be in force for 35 years, which is the maximum that Law No. 12.351 of 2010 stipulates[156].

As mentioned, the Production Sharing Regime may apply to strategic areas. These areas shall be stipulated by the Resolution of the CNPE[157]. Law No. 12.351 of 2010 defines:

> strategic area: region of interest for national development, delimited in an act of the Executive Power, characterized by low exploratory risk and high production potential of oil, natural gas, and other fluid hydrocarbons. (Article 2, V)

The Pre-salt polygon is within 200NM, thus any area in the outer continental shelf is not *ab initio* under the Production Sharing Regime and there is little, if any, geological knowledge to support any area as a low exploratory risk region so far. However, in the future, if the region proves to be of low exploratory risk and high production potential, there is no legal impairment to contract these areas under a PSA. Despite that, it is less likely to occur because royalties are higher in this regime and there is no provision providing for cases of reduction.

To confer greater celerity in awarding areas for oil and gas exploration and exploitation, the Resolution CNPE No. 17 of 2017 authorized ANP to implement the Open Acreage, a continuous process of offering these areas. Initially, only areas with marginal accumulations and exploratory blocks offered on previous Bidding Rounds could be acquired through the Open Acreage process.

The Open Acreage system is simpler than the Bidding Rounds. There is a single registration process that is valid for all cycles of auctions through Open Acreage and the registration fee is reduced. Any registered company may make a declaration of interest, paying the bid bond. Each cycle shall be concluded within 120 days from the date that one or more declarations of interest for any blocks or areas are approved. Upon approval, a new Open Acreage Cycle is opened, and

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[156] ANP. "Edital e modelo dos contratos de partilha de produção" ["Tender Protocol and Production Sharing Agreement Model"]. (14 October 2021). Available at https://www.gov.br/anp/pt-br/rodadas-anp/rodadas-concluidas/partilha-de-producao/6a-rodada-partilha-producao-pre-sal/edital-e-modelo-do-contrato

[157] CNPE declared the following areas as strategic areas: (i) *Titã* and *Saturno* (CNPE, Resolution 4 of 4 May 2018, Federal Official Gazette 11 May 2018. Available at: https://www.in.gov.br/web/dou/-/despachos-do-presidente-da-republica-13969602; (ii) *Bumerangue* (CNPE, Resolution 18 of 17 December 2018, Federal Official Gazette 19 December 2018. Available at https://www.in.gov.br/web/dou/-/despachos-do-presidente-da-republica-55882663); and (iii) *Ametista* (CNPE, Resolution 4 of 2022 (23 June 2022), Federal Official Gazette (24 August 2022). Available at https://www.in.gov.br/en/web/dou/-/despacho-do-presidente-da-republica-424473842).

the schedule is published.[158] After the submission of bids, the winners are submitted to legal and technical qualifications[159].

In July 2021, the CNPE, the National Energy Policy Council, authorized the ANP to define and offer actions for onshore and offshore areas, despite having – or having not – been offered before at a Bidding Round, excluding areas in the pre-salt polygon. In December 2021, Resolution CNPE No. 27 of 2021 extended the scope of Open Acreage to make it the preferred system to offer areas and to allow offering areas under the Production Sharing Regime. The same resolution revoked Resolution CNPE No. 03 of 2020 that prevented the Open Acreage for blocks located beyond 200 NM. Thus, at any moment the areas beyond 200NM can receive a declaration of interest in this process and be awarded 120 days later.

As of August 2022, the ANP has carried out: 17 Bidding Rounds of exploratory blocks; four rounds exclusively for mature fields, both under the concession regime, and six Bidding Rounds for the pre-salt area and strategic areas, under the production sharing agreement. The ANP has also promoted three Cycles of Open Acreage under the Concession Regime.

Currently available in the Open Acreage portfolio, there are 11 pre-salt areas and 1.009 exploratory blocks (post-salt areas), the last ones located in 17 Brazilian sedimentary basins, totaling 462.548 square kilometers[160].

Paragraph 2 – The OCS and the 17th Bidding Round

The 17th Bidding Round was the first one to offer an area for oil and gas exploration and exploitation in the Brazilian continental shelf beyond 200 NM. The three blocks offered are

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[158] ANP. "Open Acreage". Available at: https://www.gov.br/anp/en/rounds-anp/open-acreage/. Accessed on 22 August 2022. ANP. "Open Acreage – Concession". Available at: https://www.gov.br/anp/en/rounds-anp/open-acreage/oac. Accessed on 22 August 2022. "For [exploratory] blocks, the signature bonus and the minimum exploration program (PEM) are the bidding criteria to define the winner of the public session for submission of bids. For [production] areas, the signature bonus is the only bidding criterion. ANP, Tender Protocol (09 august 2022). Available at: https://www.gov.br/anp/pt-br/rodadas-anp/oferta-permanente/opc/arquivos/edital/edital-opc-ingles-08092022.docx

[159] Ibid.

[160] Agência Nacional do Petróleo, Gás Natural e Biocombustíveis. Investments and opportunities in Brazil (15 September 2022). Available at: https://www.gov.br/anp/pt-br/assuntos/investments-opportunities-in-brazil

partially located in the OCS but within the limits of the CLCS recommendation of 2011[161] recognized as in accordance with Article 76 (4) of the Convention.

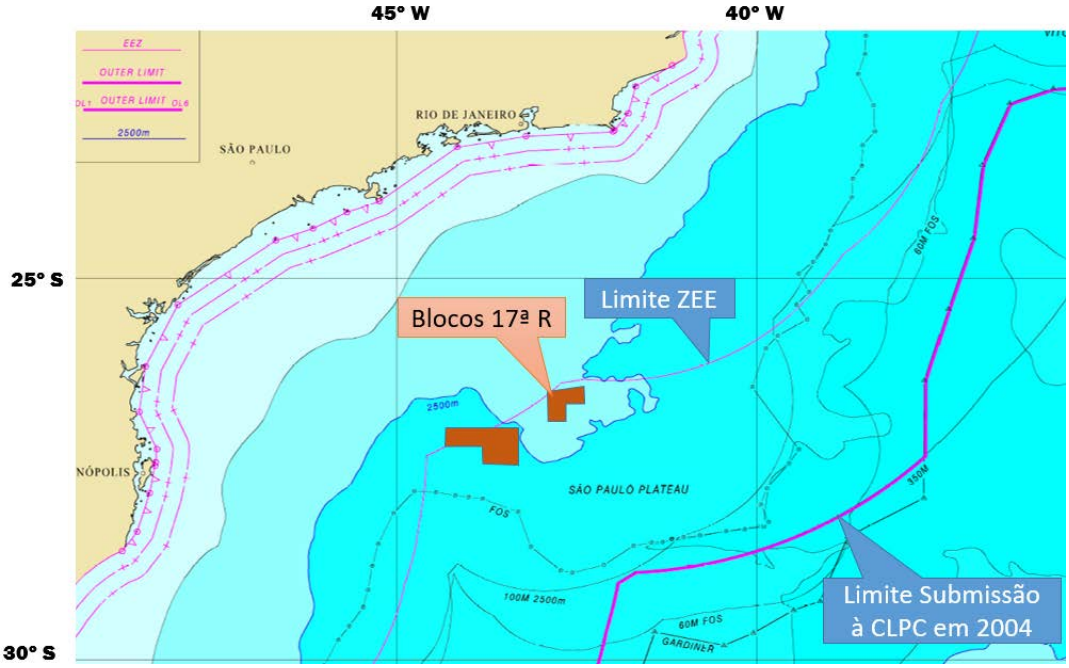

Figure 3: Areas offered in the 17th Bidding Round
Source: Grupo de Trabalho, "Resolução CNPE nº 23"

In Figure 3, the three offered areas are fulfilled in orange, one further north and two located in the southern area[162]. The thin lilac line shows the limit of the exclusive economic zone (ZEE in Portuguese). The thick lilac line corresponds to the limit of the outer edge of the continental margin submitted to the Commission on the Limits of the Continental Shelf in 2004 and approved by the CLCS in 2011 [163].

[161] Grupo de Trabalho. "Resolução CNPE nº 23", p. 3-4.

[162] Originally, the Resolution CNPE 24 of 2019 set for the offering of 6 blocks totally or partially located beyond 200NM. Later, the same area was grouped to form three blocks, all of them only partially located in the OCS Grupo de Trabalho, "Resolução CNPE nº 23", p.18. The three areas can be seen in detail at: https://www.gov.br/anp/pt-br/rodadas-anp/rodadas-concluidas/concessao-de-blocos-exploratorios/17a-rodada-licitacoes-blocos/arquivos/areas-oferta/santos.pdf. Accessed on 18 August 2022.

[163] Brazil has not established the outer limits of its continental shelf, once the CLCS has not given recommendation on all three revised submissions yet. Silva, "Brazil and the Implementation of Article 82", note 5, p. 577-578. The last recommendation of the CLCS was issued in 2019, based on the revised submission of 2015. Available at : Microsoft Word - 2019_03_08_COM_REC_BRAREV.docx (un.org)

In preparation for this bid, the CNPE formed a Working Group (WG) to analyse the legal and political aspects of the production on the OCS. Nevertheless, three legal opinions from the ANP, the Minister of Foreign Affairs (MFA), and the Navy had been issued before in response to a requisition by the MME. Silva analyses these opinions as follows:

> [T]he legal adviser of the ANP (..) expressed the view that this matter demands a previous 'explicit and unequivocal manifestation' from the MFA confirming that the continental shelf was extended beyond 200 M.
>
> In a similar approach, the legal adviser of the MFA pointed out that 'the lack of clearly outer limits, even if only in relation to part of the continental shelf, can bring an enormous legal uncertainty, especially for investors', concluding that the definition by the CNPE of blocks to be bid that are beyond 200 M 'would not be sufficient'. Thus, he recommended that Brazil should first 'establish the outer limits of part of its continental shelf on the basis of the CLCS recommendations and deposit with the Secretary-General of the United Nations charts and relevant information' so that these limits become 'final and binding'.
>
> Finally, the legal adviser of the Navy supported the understanding that Brazil can exploit the resources of the continental shelf beyond 200 M without final examination of the CLCS, either because the Santos basin is an area not included under the 2007 remarks of the CLCS or because the LOSC grants that the rights of the coastal State over the continental shelf (within or beyond 200 M) do not depend on any express proclamation.
>
> In summary, although the legal opinions diverge on the interpretation and application of Article 76, they agree, at least implicitly, on two main aspects: (i) Brazil is a paying State under Article 82, and (ii) the domestic legislation is silent on this issue. Consequently, a legal amendment or even a new act is necessary to implement the international royalty under the domestic regime.[164]

Howsoever, these legal opinions were delivered to the MME and considered by the Working Group. Only the Final Report of the WG was published and supported the promotion of the 17th Bidding Round[165]. The report analyzed the OCS exploration for Santos Basin, an area to which

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[164] Silva, "Brazil and the Implementation", note 5, pp. 584-585.

[165] ANP. "Áreas em oferta" (20 July 2021). Available at: https://www.gov.br/anp/pt-br/rodadas-anp/rodadas-concluidas/concessao-de-blocos-exploratorios/17a-rodada-licitacoes-blocos/areas-oferta. According to Silva ("Brazil and the Implementation", note 5, p.586) "It was a technical and political rather than legal composition; [] legal experts did not take part in the Working Group". Despite the Resolution CNPE No. 23 of 2019 do not mention any legal representatives, legal advisers of the government bodies were nominated to participate in the WG (for instance, Artur

there were no further recommendations from the CLCS in 2011. The areas are located in the sector SS-AUP5 and were identified during the preparation for the 16th Bidding Round. Further geological knowledge led ANP to suggest the inclusion of blocks in this sector in the 17th Bidding Round[166].

First, the WG takes into consideration the ISA Technical Study 5 which states that the exploration of the resources of the OCS does not depend on the establishment of the outer limits of the continental shelf. Then, the WG collected information from other countries through communications made between the Brazilian MFA and its foreign representatives. All countries – Canada, the United States, New Zealand, Norway, Turkey, and Russia – responded there is no production on their OCS thus no payment has been done.

Domestically, the WG considered that Law No. 8.617 of 1993 states that the continental shelf is defined in accordance with the UNCLOS and the CLCS agreed on the submission over the target area in Santos Basin. Moreover, Law No. 9.478 of 1997 provides that the rights over oil and gas exploration and production on the continental shelf belong to the Federal Union. Thus, the WG concluded that the areas to be offered in the Bidding Round were located on the continental shelf referred to by the Law No. 9.478 of 1997, so there is legal support to offer the areas for oil and gas exploration and exploitation.

Concerning the need – or not – for any legislative modification to implement UNCLOS Article 82, the WG highlighted the Convention was ratified by Brazil and consequently is in force in the national framework. That being said, the Working Group analysed the legal nature of the contribution. It concluded Article 82 obligation is not a type of tax, but an obligation of the Brazilian State which emerged internally through the Presidential Decree No. 1.530 of 1995.[167]

Watt Neto and Daniela Ferreira Marques are Federal Attorneys. Marcus Vinicius de Oliveira is a legal advisor in the Navy) and two Federal Attorneys took part as guests. CNPE. Resolution No. 23 (19 December 2019). Available at: https://www.gov.br/mme/pt-br/assuntos/conselhos-e-comites/cnpe/resolucoes-do-cnpe/arquivos/2019/resolucao_23_cnpe_institui_gt.pdf

[166] Grupo de Trabalho. "Resolução CNPE nº 23", p. 4.

[167] Grupo de Trabalho. "Resolução CNPE nº 23." The previous opinion of the Federal Attorney from the MFA considers that the Convention, as a treaty internalized into the domestic framework has "at least status of law". MFA. "Parecer 27/2019/GABCONJUR/CONJUR-MRE/CGU/AGU" Brasília: 07 October 2019 (Personal communication). Brazil follows the civil law system, which means there is a normative hierarchical structure. In Brazil, this structurer is as follows, beginning from the top: the Constitution, Complementary Law and Ordinary Law (also referred only as Law); Presidential Decree; and, finally, the under legal level (also referred as regulation).

This finding is extremely important because, according to the Brazilian Constitution, all taxes shall be established by law enacted by the Legislative Branch.[168]

The Final Report also points out that although the international obligation is placed on the State, the economic burden might be supported by oil companies. Additionally, it considers it is "natural" under the Concession Regime that the companies support all the burdens related to the production of hydrocarbons[169] and the contract shall provide for the fulfilment of this obligation. The WG considered inquiring the ISA about the possibility of companies making payments on behalf of the Brazilian Government.

Besides the fact that UNCLOS is in force in Brazil, so, there is a legal basis in domestic legislation to implement it, the principle of *pacta sunt servanda* applies to agreements between the Government and the private sector. In the case of oil and gas contracts under the Concession regime, the law also expressly stipulates so:

> The concession implies, as for the concessionaire, its obligation to explore, at its own expense and risk, and in case of success, produce petroleum or natural gas in a given block, entitling it to the property of the goods once produced, subject to the relevant fiscal

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At the international level, some scholars advocate for a "global tax". See RM Bird and J Mintz, 'Sharing the wealth: Article 82 of UNCLOS – The first global tax?' (2019) 4 British Tax Review 537–556, at pp. 538–544 *Apud* Silva, "Brazil and the Implementation", note 5, p. 579. Chircop recognize Article 82 obligation as "a royalty, a type of revenue generation instrument applied to production from natural resources." Chircop, "Implementation of Article 82", note 14, pp. 378-379. Chircop also points that UNCLOS III negotiators avoided referring to the Article 82 obligation as tax. Aldo Chircop, "Non-Living Resources: Operationalizing Article 82 of the United Nations Convention on the Law of the Sea: A New Role for the International Seabed Authority?". *Ocean Yearbook 18* (2004), p. 398.

[168]Brazil. Federal Constitution of 1988. (05 October 1988). Federal Official Gazette (08 October 1988), Article 150, I. Royalties currently paid in Brazil according to Brazilian legislation are not considered taxes as well. They are classified by the Federal Supreme Court as profit sharing or financial compensation, not an indemnity (in Portuguese: "participação no resultado, ou compensação financeira, não uma indenização"). Supremo Tribunal Federal, Ação Direta de Inconstitucionalidade 4.846, Espírito Santo (09 October 2019). Available at: https://jurisprudencia.stf.jus.br/pages/search/sjur419131/false. Accessed on 08 September 2022.

[169]The Report stated that "it is natural that all the exploration burdens be passed to the concessionaires and treated as an inherent expense of the extraction of oil and natural gas. It is understood that the concession agreement must contain rules to guarantee the fulfilment of any obligations that might be imposed to the concessionaires with reference to the payment of the contribution to the ISA". Silva. "Dealing with Article 76 and 82", note 42, p. 857. This kind of provision is not unusual and was considered by experts that stated the OCS State may direct the Article 82's costs to the Oil Company by regulation or contract. ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 30.

> burdens and legal or contractual participation. (Law No. 9.478 of 1999, Article 26) (Translated by the author) (emphasis added)

Consequently, there is legal room to enact oil and gas obligations through the Concession Contracts and it has been done over the years, for instance for the local content and for the obligation to invest in oil and gas research, development, and innovation (RD&I)[170].

Finally, regarding the exemption provided by UNCLOS Article 82 (3), the Working Group raises many issues and points that Brazil might – or not – be entitled to the exemption[171]. Regarding collecting and distributing the domestic royalties, the WG understands that the existing rules apply to the inner and the outer continental shelf and no legislative modification is required[172].

The Tender Protocol and the Concession Contract Model for the 17th Bidding Round do not give much guidance on how Article 82 would be eventually implemented but it mentions that the concessionary will be liable for the financial burden of the payment of the amounts payable to

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[170] Local content is the minimum amount of Brazilian goods and services to be applied in the contract. It has been required since the First Bidding Round (1998) albeit no legal provision. In 2010 the Law No. 9.478 of 1997 was amended to provide that CNPE shall: "induce the increase of the minimum indexes of local content of goods and services, to be observed in bidding rounds for concession and production sharing contracts" (Article 2, X) (Translated by the author). The contracts provide for RD&I, stating as: "The Contracted Party shall be required to direct funds for activities of research, development, and innovation in the areas of interest and topics relevant to the Petroleum, Natural Gas, and Biofuels industry, in amount equivalent to, at least, one percent (1%) of the Gross Value of the annual Production of Oil and Gas, when the Volume of Inspected Production of the Field for Production in bathymetric depth over four hundred (400) meters, in any quarter of the calendar year, is higher than the following volumes established by Decree No. 2,705/1998". This clause is based on the general legal provision that attributes to ANP the duty to "foster research and the adoption of new technologies in exploration, production, transport, refining and processing" (Translated by the author) (Law No. 9.478 of 1997, Article 7, X).

[171] The Final Report mentions the legal opinion of the MFA, Parecer nº 027/2019/GABCONJUR/CONJUR-MRE/CGU/AGU, which considers that depending on the methodology, Brazil should be entitled to the exemption, leaving open these questions: (a) how a developing state is defined? (b) what criteria are used to define a net importer? (c) when such criteria shall be observed (eg, from the adoption of the UNCLOS, its entry into force or the use of resources)? (d) how long will such an exemption apply? The Final Report also states that the legal opinion given by the Navy do not considers Brazil as a net importer.

[172] This is aligned with the International Tribunal in the Law of the Sea. It stated that: "Article 76 of the Convention embodies the concept of a single continental shelf. In accordance with article 77, paragraphs 1 and 2, of the Convention, the coastal State exercises exclusive sovereign rights over the continental shelf in its entirety without any distinction being made between the shelf within 200 nm and the shelf beyond that limit." *Delimitation of the maritime boundary in the Bay of Bengal (Bangladesh/Myanmar), Judgment, ITLOS Reports 2012*, p. 4. Available at: https://www.itlos.org/fileadmin/itlos/documents/cases/case_no_16/published/C16-J-14_mar_12.pdf. Accessed on 06 October 2022.

[SIC] the International Seabed Authority pursuant to article 82 of the UNCLOS.[173] In compensation, they provide that the 10% rate may be gradually reduced by 1% per annum starting from the sixth (6th) year, as long as the compensation is paid through the International Seabed Authority. The obligations due under the Contract if Article 82 is trigged would be summarised as follow:

Table 1
Royalty and Article 82 compensation per year

Year of production	Compensation of Article 82	Royalty	Total
Year 1 a 5	0	10%	10%
Year 6	1%	9%	10%
Year 7	2%	8%	10%
Year 8	3%	7%	10%
Year 9	4%	6%	10%
Year 10	5%	5%	10%
Year 11	6%	5%	11%
Year 12 (and subsequent years)	7%	5%	12%

Source: elaborated by the author

Despite the language adopted by the WG and reflected in Tender Protocol, the economic burden will be – in fact – only partially supported by oil and gas companies. Up to the limit allowed by law, the Federal Union is "waiving" part of the national revenues to compensate for the amount due under the Convention. Only from the eleventh year of production[174], the concessionary will effectively burden some extra costs.

Silva considers the royalty reduction provided for these blocks as "doubtful at best", wondering if Article 82 could be considered as a "pertinent factor" to allow the scale down[175]. Law No. 9.478 of 1997 provides that royalties can be reduced accordingly to: (i) geological risks, (ii) production

[173] ANP. "Tender protocol and model of the concession agreement." (06 October 2021). Available at: <https://www.gov.br/anp/en/rounds-anp/bidding-rounds/17th-bidding-round/draft-of-the-tender-protocol-and-draft-of-the-concession-agreement>. Accessed on 22 August 2022.

[174] "The life of oil wells is measured in decades with peak production occurring about a decade after discovery." Mingay, "Article 82 of the LOS Convention", note 7, p. 337.

[175] "Hence, the Working Group considered Article 82 a 'pertinent factor' that would allow the ANP to reduce the domestic royalty rate from 10 to 5 per cent. However, such an approach seems doubtful at best. On the one hand, the expression 'other pertinent factors' appears to be broad enough to encompass Article 82. On the other hand, the previous aspects stipulated in the disposition (geological risks and production expectations) are linked to technical aspects of the exploitation of the blocks – clearly, this is not the case for such a treaty provision." Silva, "Brazil and the Implementation", note 5, pp. 584-585.

expectations, and (iii) other pertinent factors. First, the WG does mention some possible reasons why the ANP would reduce the royalty rates, not only the international obligation but also the high water column (around 3.000 meters) and the great distance from the coast. The legal competence for such consideration and eventual reduction belongs exclusively to the ANP. In the Tender Protocol, the ANP did not state its specific reasons for this reduction, just as it did not do it for the other areas in which royalties were fixed at 7,5%[176].

On the other hand, with the adoption of the expression "other pertinent factors", the Legislative Power gave the authority for the ANP to consider the whole picture and decide, thus it is a discretionary administrative act. Considering the legislative technique, the adoption of this expression demonstrates that the list set in the law is not exhaustive. The ANP did not publish any notice of judicial litigation against this provision of the Tender Protocol or the Concession Contract Model.

Section B – Brazilian Royalty Regime

Law No. 9.847 of 1997, which established the Concession Regime, provides for four government participation: (i) signing bonus, (ii) royalties, (iii) special participation, and (iv) fees for the occupation or retention of the area[177]. Only royalties and special participation are payable upon production. In this chapter, royalties are analyzed in detail. Article 47 of Petroleum Law states:

> The royalties must be paid monthly, in local currency, from the date of the commencement of the commercial production of each field, in an amount corresponding to 10% (ten per cent) of the production of petroleum or natural gas.

The amount due shall be calculated by the operator and paid until the last day of the subsequent month. The receipt shall be presented to the ANP until the fifth working day after the payment.

[176] Considering the current geological risks, the expected production and other relevant factors, ANP may reduce royalties, at its discretion, up to five percent (5%) of the production of oil or natural gas, pursuant to art. 47, paragraph 1 of Law No. 9,478/1997. ANP. "Tender protocol and model of the concession agreement." (06 October 2021).

[177] Law No. 9.847 of 1997, Article 45. Fees for the occupation or retention of the area shall be done annually, defined by the square kilometer or specification of the definition of the block, in the form of regulation by the President of the Republic.

Within the same period, the statement of its calculation shall also be presented in the format standardized by the ANP[178].

The criteria for calculating the value of royalties shall be established by Presidential Decree according to the market prices of oil, natural gas, or condensate, product specifications, and the location of the field. Under the law, the Presidential Decree No. 2.705 of 1998 set the statutory provisions for calculating and collecting royalties. Basically:

Royalties = contractual rates x production value

Production value = (volume of oil x oil reference price) + (volume of NG x NG reference price) [179]

The Presidential Decree defines the date of commencement of production as the date on which the first measurement of volumes of oil or natural gas takes place at one of the respective production measurement points in the field[180].

Usually, a royalty levy does not apply to small amounts of hydrocarbons produced during well tests in the exploration phase, because royalties usually apply to commercial production. This industry practice is also generally valid in Brazil. Yet, if the concessionaire decides to run an extended well test for more than 72 hours of flow, the company shall get consent from the ANP. In this case, the ANP will require that there is an approved measurement system in place and royalties will be due[181].

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[178] Brazil, Decree No. 2.705 of 1998, Article 18. The format is available at: ANP, "Concessionários: prazos e documentos" [Concessionaires: deadlines and documents] (4 October 2021). https://www.gov.br/anp/pt-br/assuntos/royalties-e-outras-participacoes/arq-royalties/arquivos-concessionarios-prazos-e-documentos/cpd-demonstrativo-apuracao-royalties.xls

[179] In some cases detailed below, the value will consider sales price.

[180] Resolution ANP No. 874 of 2022 adopts the expression "fiscal measurement points". Both are referred in this paper as synonyms. ANP. Resolution No. 874 (19 April 2022). Available at: https://www.in.gov.br/en/web/dou/-/resolucao-anp-n-874-de-18-de-abril-de-2022-394180025. Technical Regulation of Fiscal Measurement is provided by Resolution ANP/Inmetro 01 of 2013. ANP, INMETRO. Resolution No. ANP/INMETRO 01 (17 June 2013). Available at: https://atosoficiais.com.br/anp/resolucao-conjunta-n-1-2013?origin=instituicao&q=inmetro.

[181] ANP. Teste de Poço. [Well Test]. (13 November 2020). Available at: https://www.gov.br/anp/pt-br/assuntos/exploracao-e-producao-de-oleo-e-gas/gestao-de-contratos-de-e-p/orientacoes-aos-concessionarios-e-contratados/teste-de-poco.
For instance, the well 3-BRSA-861-SPS, Lapa field, started to produce in October 2011 and produced as an extended well test until February 2012. The Declaration of Commerciality only occurred on 19 December 2013. (https://www.gov.br/anp/pt-br/assuntos/exploracao-e-producao-de-oleo-e-gas/gestao-de-contratos-de-e-p/fase-de-

According to the decree, the total production volume is the sum of "any and all" amounts of oil or natural gas extracted each month from each field, expressed in the metric volume units adopted by the ANP. This shall include the amounts of oil or natural gas lost under the responsibility of the concessionaire; the quantities of oil or natural gas used in the execution of operations in the field; and the quantities of natural gas burned in flares to the detriment of its commercialization[182].

Only the amount of natural gas reinjected into the deposit and the quantities of natural gas burned in flares for safety reasons or proven operational necessity – provided that this burning is in reasonable quantities and compatible with the usual practices of the oil industry – are excluded. These quantities shall be previously approved by the ANP, or subsequently justified before it by the concessionaire, in writing and up to forty-eight hours after its occurrence[183]. The ANP provides great publicity on production data. On its website, it is possible to get production information and apply many filters[184] – among them, it is possible to see the monthly production of each field and the use of natural gas.

Although the ANP plays an important role in auditing the correct amount paid and doing all necessary calculations to distribute the government participation to States, Municipalities, and Funds, the regulatory body does not take part in the cash flow. The figure below presented in the Beijing Workshop[185] summarizes the cash flow and documents flow:

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producao/pd/lapa.pdf). During 2011-2012 the well produced 2.523.394,77 barrels of oil equivalent. (https://app.powerbi.com/view?r=eyJrIjoiNzVmNzI1MzQtNTY1NC00ZGVhLTk5N2ItNzBkMDNhY2IxZTIxIiwidCI6IjQ0OTlmNGZmLTI0YTYtNGI0Mi1iN2VmLTEyNGFmY2FkYzkxMyJ9&pageName=ReportSection5d2a9dbf43a00b3cad6e).

[182] Presidential Decree No. 2.705 of 1998, Article 3, XI.

[183] Ibid.

[184] ANP. "Painéis Dinâmicos de Produção de Petróleo e Gás Natural. Produção por Campo no Período" https://app.powerbi.com/view?r=eyJrIjoiNzVmNzI1MzQtNTY1NC00ZGVhLTk5N2ItNzBkMDNhY2IxZTIxIiwidCI6IjQ0OTlmNGZmLTI0YTYtNGI0Mi1iN2VmLTEyNGFmY2FkYzkxMyJ9&pageName=ReportSectioncfeaf75e0e3bad50ddc0 The data in the dashboard shows the total amount of production, without any deduction, so it is not the exactly the same volume used as calculation basis for royalties purposes. Some other relevant information to calculate the volume to be considered in the calculation, such as gas reinjection can be also found but separated (https://app.powerbi.com/view?r=eyJrIjoiNzVmNzI1MzQtNTY1NC00ZGVhLTk5N2ItNzBkMDNhY2IxZTIxIiwidCI6IjQ0OTlmNGZmLTI0YTYtNGI0Mi1iN2VmLTEyNGFmY2FkYzkxMyJ9&pageName=ReportSection16bd4784bb4b6d807ada

[185] International Workshop on Further Consideration of the Implementation of Article 82 of the United Nations Convention on the Law of the Sea, held in Beijing, China from 26-30 November 2012. More information available at: https://www.isa.org.jm/workshop/international-workshop-further-consideration-implementation-article-82-unclos

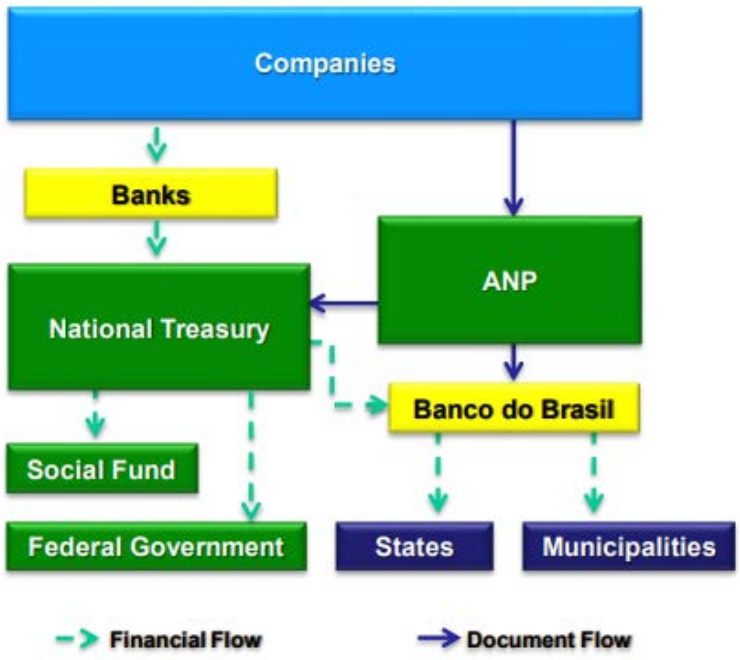

Figure 4: Royalty flow diagram
Source: CAX Sanches, 'The Brazilian oil and gas industry: Royalties' Presentation on International Workshop on the Implementation of the United Nations Convention on the Law of the Sea (Beijing, 25–30 November 2012). Personal communication.

In accordance with Law No. 9,478, only the government participation allocated to entities of the federal public administration shall be kept in the Federal Government Single Account. The other revenues are payable to the National Treasury but in an exclusive royalty or special participation account. This is to avoid that, due to variation in tax collection, the amount is subject to a "product allocation check,"[186] which can change the confirmed quantities that have already been determined to be transferred for an entity to a specific purpose.

Finally, Presidential Decree 2.705 of 1998 confers to the ANP the power to fix the reference price[187].

[186] In Portuguese: "contingenciamento de caixa". The only exception to the distribution system established by law is eventual judicial decision.

[187] Reference Price: price per unit of volume, expressed in national currency, for oil, natural gas or condensate produced in each field, to be established by the ANP, in accordance with the provisions of Chapter IV of Decree No. 2.705 of 1998 (Decree No 2.705 of 1998, Article 3, V).

Paragraph 1 – Royalty calculation for oil

The Resolution ANP No. 874 of 2022[188] establishes the criteria for fixing the reference price for the petroleum produced monthly in each field and it applies to both the Concession and Production Sharing Regimes. The prices calculated by the ANP are disclosed in Brazilian Reais per cubic meter. The reference price considers the physical-chemical and commercial characteristics of the oil steam[189].

To do that, the operator shall run a True Boiling Point (TBP)[190] test to obtain the respective fractions of light, medium, and heavy products curve for each national type of petroleum. The oil streams considered for the calculation of the petroleum reference price and their technical specifications – provided by the concessionaires and approved by the ANP – are published on the ANP's website[191].

[188] The prices are available at: ANP. "Preço de referência do petróleo. [Oil reference Price]" (02 September 2022) https://www.gov.br/anp/pt-br/assuntos/royalties-e-outras-participacoes/preco-de-referencia-do-petroleo.

[189] Resolution ANP 874 of 2022:
TYPES OR CHAINS OF PETROLEUM
Article. 3. The reference price of oil for a producing area is determined from the physical-chemical and commercial characteristics of the oil stream to which that area is linked.
§ 1 An oil stream, for the purposes of this Resolution, is a homogeneous (blend) mixture of oils used to represent the petroleum produced in one or more producing areas whose final quality is the result of the weighted average quality of the production of its constituent areas, as approved by the ANP.
§ 2 If an oil stream is composed of petroleum from more than one fiscal measurement point of production, the composition of the oil stream will be the result of the mixture of petroleum from the various fiscal measurement points weighted by the volumes measured at each fiscal measurement point.
§ 3 If an oil stream is composed of oil from producing areas that are fiscally measured in different production units, in which the joint production of the oils that make up other petroleum streams takes place, the volume produced in each concession must be individually estimated for each producing unit.
§ 4 the composition of the oil stream will be the result of the mixture of petroleum from each producing area weighted by their estimated volumes. (Translated by the author)

[190] "True Boiling Point (TBP) distillation is one of the most common experimental techniques for determination of petroleum properties.[] Through petroleum distillation curve (TBP), it is possible to evaluate the yields of the products that will be obtained in the refineries, as well as to establish operational strategies and process optimizations, as the cracking process." M. S. Lopes and others, "Extension of the TBP curve of petroleum using the correlation DESTMOL", *Procedia Engineering* 42 (2012) p. 726.

[191] ANP. "Preço de referência do petróleo: Veja abaixo as especificações técnicas das correntes de petróleo. [Oil Reference Price: See below the oil steams technical specification.]" (02 September 2022). Available at: https://www.gov.br/anp/pt-br/assuntos/royalties-e-outras-participacoes/preco-de-referencia-do-petroleo

The oil characteristics will be compared to an international price widely used by economic agents; the Brent oil pipeline system, published by a price information agency. Figure 5 illustrates the rationale for the methodology:

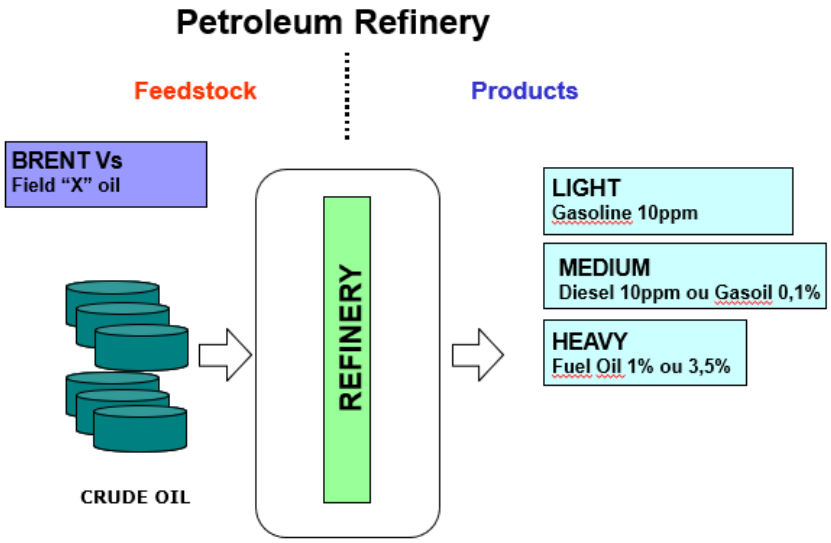

Figure 5: Estimative of petroleum products
Source: adapted from José Gutman, Thyago Grotti Vieira. Apresentação / Audiência No. 21 of 2008. Slide 7. (original in Portuguese). Available at: https://www.gov.br/anp/pt-br/assuntos/consultas-e-audiencias-publicas/consulta-audiencia-publica/arquivos-2008/cp-21-2008/apresentacao_21_2008.ppt

The reference price is fixed according to this formula:

Pref = ER x 6,2898 x (PPref + Dq)

All prices used in the calculation process are given in US dollars and the result shall be converted into Brazilian reais. The reference price (Pref) utilizes the average exchange rates for buying the US dollar, obtained with the Central Bank of Brazil, for that month (ER). The formula also considers the average value of daily oil prices in that month used as an international reference provided by a price information agency (Ppref), currently the Brent, and the quality differential (Dq) between domestic petroleum and reference petroleum. The quality differential considers sulphur content, total acid number, and Nitrogen[192].

[192] **Dq** = **VBPnac** - **VBPref** - **S** - **A** – **N**; in which:
VBPnac - gross value of domestic petroleum products, in US dollars per barrel;
VBPref - gross value of the reference petroleum derived products, in US dollars per barrel;
S - discount given to petroleum with a Sulphur content greater than 0.60% m/m, in US dollars per barrel;

Until the last business day of February of each year, the operators shall update the following information with the ANP regarding each national petroleum stream: (i) API gravity; (ii) sulphur content; (iii) total acidity number; (iv) amount of nitrogen; (v) list of producing areas of the oil stream with their respective share. However, if the medium daily density of the oil stream presents a variation greater than one degree in API gravity[193], the concessionaire shall inform the ANP and might be required to send a new True Boiling Point test.

The ANP monthly publishes the reference price of the petroleum produced on each field in the previous month – calculated according to the criteria outlined in the Resolution ANP 874 of 2022[194] – on its website. This price applies not only for royalty calculation but also for Special Participation and for the third-party participation paid to the landowner when exploration occurs onshore. It is noteworthy that royalties can be deducted from the gross revenue to determine the Special Participation amounts.

Paragraph 2 – Royalty Calculation for gas

The rules for natural gas royalties differ from the system adopted for petroleum. The reference price will be equal to the weighted average of the sale prices of natural gas agreed in the supply contracts between the concessionaire and the purchasers of natural gas produced in the concession area, minus the taxes levied on the sale and the transportation costs to the points of delivery to buyers[195]. Until the fifteenth of the month, the concessionaire shall inform the ANP of the quantities of natural gas sold, the sales prices, the transport tariffs, and the reference price of natural gas accordingly calculated[196].

A - discount given to petroleum with a TAN greater than 0.50 MGk OH/g, in US dollars per barrel;
N - discount given to petroleum with a nitrogen content greater than 0.25% m/m, in US dollars per barrel.

[193] API gravity: hydrometric scale used to determine the relative density of liquids, idealized by the American Petroleum Institute - API, together with the National Institute of Standards and Technology – NIST.

[194] The prices are available at: ANP "Preço de referência do gás natural [Natural Gas Reference Price]" (02 September 2022) https://www.gov.br/anp/pt-br/assuntos/royalties-e-outras-participacoes/preco-de-referencia-do-gas-natural.

[195] Presidential Decree 2.705 of 1998, Article 8.

[196] Ibid, Article 8, paragraph 1.

The ANP shall fix the reference price for natural gas at its own discretion: (i) in the absence of natural gas sales, (ii) in the absence of all sales information required by the ANP, or (iii) when the sales prices or the reported transport tariffs do not reflect the normal conditions of the national market[197]. Although the natural gas reference price calculated by ANP was set as an exception, in practice, only 10% to 15% of the natural gas royalties are paid using the average sales prices[198]. Most of the reference price is calculated according to the criteria of Resolution ANP No. 875 of 2022[199].

The reference price for natural gas under the Resolution ANP No. 875 of 2022 is also established considering the chemical characteristics. Thus, the concessionaire must forward to the ANP the compositional analysis of the natural gas obtained through a chromatography analysis, also indicating the heat value, by the fifth day of the month following the month in which production begins. Any variation in the heat value over 5% shall imply the duty to update this information[200]. After the chromatography analysis, it is possible to estimate the products of natural gas that can be obtained after processing and its respective volumes.

The Resolution provides the equation to determine: (i) the VCGN – volume of natural gas condensate (components with five or more carbon atoms), (ii) the VGLP – volume of liquefied petroleum gas (formed mainly by components with two and three carbon atoms) and (iii) the VGP – volume of processed gas (residual components)[201].

Each of these products has a corresponding price (PCGN, PGLP, and PGP, respectively). The methodology considers Natural Gasoline price, weighted by the density of n-pentane and the density of isobutane, for PCGN – price of condensate on natural gas. For PGLP – price of liquefied petroleum gas – the equation considers the Propane and Butane prices from Mont Belvieu

[197] Ibid, Article 8, paragraph 4.

[198] Roney Afonso Poyares. Regulatory Specialist. ANP. Personal Communication (July 2022).

[199] ANP. Resolution No. 875 (19 April 2022). Available at: https://in.gov.br/web/dou/-/resolucao-anp-n-875-de-18-de-abril-de-2022-394181891. Although the Resolution refers only to the Concession Regime Law, it is applicable to all royalty payments in Brazil.

[200] ANP. Resolution ANP No. 875, Articles 5 and 6.

[201] There were adopted the in the Portuguese acronyms.

(Texas/USA). The methodology to determine the PGP – price of processed gas considers the Henry Hub price (Louisiana/USA).

Figure 6 illustrates the rationale for the methodology:

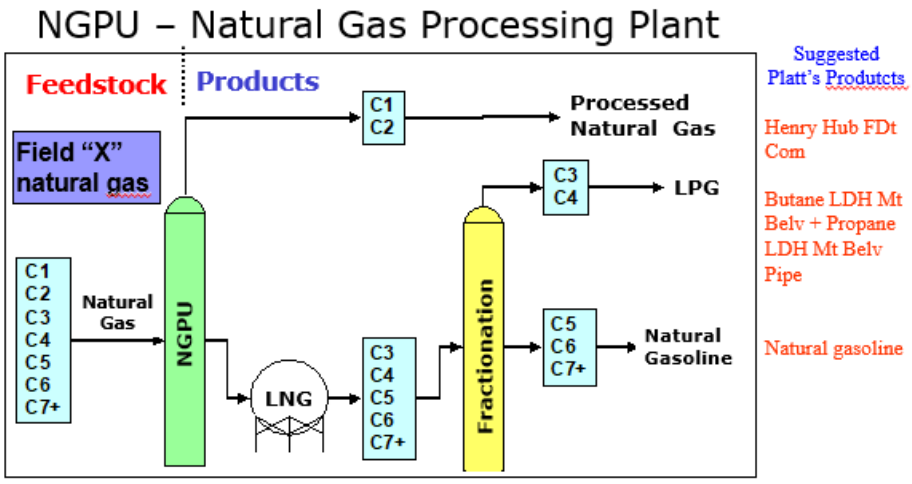

Figure 6: Estimative of natural gas products
Source: adapted from José Gutman, Thyago Grotti Vieira. Apresentação / Audiência No. 21 of 2008. Slide 8. (Original in Portuguese)

The prices adopted are provided by a price information agency. Prices shall be converted by the daily exchange rates average for buying the US dollar, obtained with the Central Bank of Brazil, for that month. The natural gas reference price (PRGN) is given in Brazilian Reais per cubic meter, taking into account the volume of each of the products and their value, by the following equation:

$$PRGN = (VCGN \times PCGN) + (VGLP \times PGLP) + (VGP \times PGP)$$

Not all the natural gas produced is considered for royalty payment. The Resolution ANP No. 806 of 2020[202], which regulates the procedures to reduce and control the flaring and loss of oil and natural gas, established the cases in which the concessionaire is exempted from payments: flaring or venting for (i) safety reasons, defined as the volume of natural gas flared to keep the operation in a safe condition or (ii) proven operational needs, defined as emergency reasons or in exploratory well tests with a total free flow time of up to 72 hours without economic use.

[202] ANP. Resolution No. 806 (20 January 2020). Available at: https://www.in.gov.br/en/web/dou/-/resolucao-n-806-de-17-de-janeiro-de-2020-238839783

These conditions are not self-declaratory but need to be approved by the ANP. The ordinary flaring/loss is established between 1,5% and 3% depending on the age of the asset. The forecasts volumes of natural gas flaring and venting shall be annually approved together with the Annual Production Programs (PAP) approval. All volumes exceeding the ordinary rates shall be deemed as extraordinary flaring[203].

The extraordinary flaring/loss shall be previously approved by the ANP in the following cases: (i) commissioning of a new offshore facility, (ii) extended well test, and (iii) early production[204]. In the case of extraordinary flaring due to operational limitations beyond the limits established for the asset, the concessionaire shall take actions to constrain the production and consequently the losses and seek afterward validation of the flaring by the ANP.

To give publicity, the ANP monthly publishes the reference price of natural gas produced on each field in the previous month on its website, for the purposes of collection of government participation, as well as the compositional analysis and heat value of the natural gas[205]. This price applies to royalty, Special Participation, and third-party participation calculation.

[203] Ibid.

[204] The ANP considers early production the production which begins before the approval of the Development Plan. ANP. Resolution ANP No. 8 of 2016 (24 February 2016). Available at: https://atosoficiais.com.br/anp/resolucao-n-8-2016

[205]ANP. Resolution ANP No. 875, Article 8. ANP. Preço de Referência do Gás Natural [Reference Price of Natural Gas] (22 August 2022). Available at: https://www.gov.br/anp/pt-br/assuntos/royalties-e-outras-participacoes/preco-de-referencia-do-gas-natural

PART TWO - CHALLENGES IN APPLYING ARTICLE 82

Part two address the challenges in applying Article 82 in light of the Brazilian framework and other international relevant rules and principles.

CHAPTER 1. INSTITUTIONAL ARRANGEMENTS

This chapter will review the institutional arrangements that may arise from the implementation of Article 82 and the functions and roles of these institutions.

Section A – The International Seabed Authority

Paragraph 1 – The role of ISA vis-à-vis Article 82

The International Seabed Authority is an inter-governmental organization established by UNCLOS in Part XI, which deals with the Area. The ISA has its headquarters in Jamaica and all States Parties to the Convention are *ipso facto* members of the Authority[206].

The principal organs of the Authority are the Assembly, the Council, and the Secretariat. The Assembly, where all 168 members are represented, is the supreme organ of the Authority and has the power to establish general policies in conformity with the relevant provisions of the Convention on any question or matter within the competence of the Authority. It is also under the competence of the Assembly both to discuss any question or matter within the competence of the Authority and to decide as to which organ of the Authority shall deal with any such question or matter not specifically entrusted to a particular organ consistent with the distribution of powers and functions among the organs of the Authority[207].

Although being beyond the scope of this thesis, it is noteworthy that the Assembly was given the power to consider and approve, upon recommendation of the Council, the rules, regulations, and procedures on the equitable sharing of benefits, both financial and other economic ones, derived from contributions made pursuant to Article 82, taking into particular consideration the interests

[206] UNCLOS, Article 145; Article 148.

[207] UNCLOS, Article 148 and Article 160. Article 160 also elucidates other powers of the Assembly.

and needs of developing States and peoples who have not attained full independence or another self-governing status. If the Assembly does not approve the recommendations of the Council, the Assembly shall return them to the Council for reconsideration in the light of the views expressed by the Assembly[208].

The Council is the executive organ of the Authority and consists of 36 members elected by the Assembly[209]. The Council develops specific policies to be pursued by the Authority, in conformity with the Convention and the general policies established by the Assembly. One of the main responsibilities of the Council is to supervise and coordinate the implementation of the regime established by UNCLOS for promoting and regulating the exploration and exploitation of deep-sea mining[210].

The Council is also responsible for recommending to the Assembly rules, regulations, and procedures on the equitable sharing of financial and other economic benefits derived from contributions made pursuant to Article 82[211]. The Convention provides for the Economic Planning Commission and the Legal and Technical Commission as organs of the Council[212]. However, the 1994 Agreement on Part XI temporarily merged their functions in the latter[213].

The Agreement on Part XI also provides for the Financial Committee in accordance with Article 162, paragraph 2(y), of the Convention[214]. It shall make recommendations on some issues, before the decisions of the Assembly and the Council, such as (i) draft financial rules, regulations, and procedures of the organs of the Authority and the financial management and internal financial

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[208] UNCLOS, Article 160 (2)(f).

[209] Although the Convention determine 36 members, the formula adopted by the ISA results in 37. So, one regional group have the right to designate a member to participate in the deliberations of the Council without the right to vote. International Seabed Authority, The Council (05 September 2022). Available at: https://www.isa.org.jm/authority/council/members

[210] International Seabed Authority, Structure and Mandate of the Council (05 September 2022). Available at: https://www.isa.org.jm/authority/council/structure-and-mandate

[211] UNCLOS, Article 162 (2)(o)(i).

[212] UNCLOS, Article 163 (1).

[213] Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, July 28, 1994, 1836 UNTS 3, Section 1, Paragraph 4. "The functions of the Economic Planning Commission shall be performed by the Legal and Technical Commission until such time as the Council decides otherwise or until the approval of the first plan of work for exploitation."

[214] UNCLOS, Article 162, (2)(y).

administration of the Authority; (ii) all relevant financial matters, including the proposed annual budget prepared by the Secretary-General of the Authority in accordance with Article 172 of the Convention and the financial aspects of the implementation of the work programmes of the Secretariat; (iii) the administrative budget; (iv) rules, regulations and procedures on the equitable sharing of financial and other economic benefits derived from activities in the Area, among others[215].

It is not clear if the Financial Committee is responsible for making recommendations on the sharing criteria in relation to Article 82. Article 162 (2) (y)expressly refers to the funds of the Authority and financial rules applied to the Area, but it is silent about the OCS contribution. Despite that, the ISA Technical Study No. 31 also considered the Article 82 provisions and concluded that "any of the distribution formulae developed in relation to article 140 could also be applied to distributions under article 82(4)"[216].

On the other hand, it seems more evident that the expenditures of the Authority in discharging its functions in relation to Article 82 shall receive consideration from the Financial Committee. The ISA Technical Study No. 31 states that Financial Committee shall have a role in determining a reasonable overhead charge. This conclusion assumes that "The [Beijing] workshop noted that the establishment of such a mechanism may entail additional costs for ISA, which could be recovered from the amounts collected."[217] It is important to note that, the Beijing workshop also considered that the costs might be supported by the regular budget of the ISA[218].

The Secretariat comprises a Secretary-General and an administrative officer. The functions of the Secretariat include: (i) producing publications, information bulletins, and analytical studies on the

[215] Agreement Relating to the Implementation of Part XI, Section 9, Paragraph 7.

[216] ISA, *Equitable Sharing of Financial and other Economic Benefits from Deep-Seabed Mining. ISA Technical Study: No. 31* (Kingston, 2021)., p.83.

[217] Ibid, p.81.

[218] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p.27. "The establishment of this mechanism may entail additional costs for the ISA. Consequently, this could be done through possibly: the regular budget of the ISA; or the ISA retaining an agreed percentage of the amounts collected to cover the associated costs. Possible role for the Finance Committee – Perhaps there is a possible role for the Finance Committee to recommend what would be a reasonable percentage for the ISA to retain to cover administrative costs. It was also argued that the Convention does not contemplate such a function for the Finance Committee and as a result, the Council of the ISA would have to mandate the Finance Committee to assume this task."

activities and decisions of ISA, and (ii) producing reports and other documents to facilitate the deliberations and decision-making by the other principal organs and their subsidiary bodies, and (iii) providing meeting services (translation, interpretation, and reporting services)[219].

Despite the importance of the role of ISA role in implementing Article 82, the Convention does not clarify the functions of the Authority besides receiving and distributing the payments and contributions to States Parties to the Convention on the basis of equitable sharing criteria. This lack of clarity is reflected in the ISA website[220], where, other than the functions over the Area, there is only a mention of the charts or lists of geographical coordinates of points indicating the outer limit lines of the continental shelf provided in Article 84 (2)[221].

The experts that collaborated with the ISA Technical Study 4 have early pointed out that "one major issue for the Authority is to determine the full extent of its mandate and related powers and functions as it discharges Article 82's responsibilities". However, they also concluded that the powers and functions of the Assembly and Council shall enable the Authority to perform its responsibilities[222].

To conclude what would be the functions of ISA *vis-à-vis* Article 82 of UNCLOS, it might be helpful to set which powers were excluded from the Authority during the negotiations of the Convention. It is noteworthy that not only the functions and powers of the ISA in relation to the outer continental shelf were discussed in UNCLOS III but also the question of who would be responsible for collecting and distributing the revenues from the OCS had remained open for a long time during the Conference. In summary:

> Pardo's original idea, on the eve of UNCLOS III, was for the payment to be made to the International Ocean Space Institutions that would emerge from the conference. UNCLOS

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[219] International Seabed Authority. The Secretariat (20 September 2022). Available at: https://www.isa.org.jm/secretariat

[220] "ISA is the organization through which States Parties to UNCLOS organize and control all mineral-resources-related activities in the Area for the benefit of mankind as a whole. In so doing, ISA has the mandate to ensure the effective protection of the marine environment from harmful effects that may arise from deep-seabed related activities." International Seabed Authority, About ISA (09 September 2022). Available at: https://www.isa.org.jm/index.php/about-isa

[221] International Seabed Authority, Article 84(2) - Charts and Lists of Geographical Coordinates (09 September 2022). Available at: https://www.isa.org.jm/index.php/deposit-charts

[222] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. xi; xv.

> III negotiators initially had different views on an appropriate international organization in Article 82. There were proposals designating the Authority as a beneficiary of the payments or contributions, but they did not receive the support necessary and were thus not included in the negotiating texts. The eventual compromise was to give the Authority the role, but limited it to receiving payments and contributions for the purpose of distribution to States Parties. [223] (emphasis added)

The proposals from New Zealand and Austria to give the Authority the power to decide by agreement the method of determining the "on site value and the cost of production" and, consequently, to enter into disputes concerning the execution of these tasks did not receive enough support. On the other hand, the suggestion of the United States that the "parties to this Convention shall agree on necessary payment and other relevant procedures" also did not succeed.[224] Mossop thus concluded it is possible to infer that the contributing State, not the ISA, determines the amount to be paid.[225]

This limited role along with the ambiguous and vague language of Article 82 of UNCLOS imposes a great challenge to ISA in delineating and implementing its functions. It is clear that the Authority is responsible for receiving payments to "facilitate the implementation of Article 82 and achieve its overall purposes"[226]. The role to be played by the ISA is to be outlined not only from the expressed text of Article 82 but also from the implicit functions derived from it in light of the spirit of the Convention[227].

Initially, the experts realized a more active role for ISA to facilitate the implementation of Article 82[228]. In addition to the suggestion of further studies, the group on Chatham House Seminar, the

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[223] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 23.

[224] Center for Ocean and Law Policy; *UNCLOS 1982 a Commentary*, note 4, pp. 938-939; 941.

[225] Mossop. "*The Continental Shelf*", note 20, p.130.

[226] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p.53.

[227] Ibid. Among other competences, the Convention provides that the Council shall recommend to the Assembly rules, regulations and procedures on the equitable sharing of financial and other economic benefits derived from activities in the Area and the payments and contributions made pursuant to Article 82, taking into particular consideration the interests and needs of the developing States and peoples who have not attained full independence or other self-governing status. (UNCLOS, Article 162 (2) (o) (i)). This competence, however, is beyond the scope of the thesis.

[228] It was suggested that the ISA could "undertake desk top monitoring" of the production in the outer continental shelf, but not assess or audit the activity. ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 37.

first international meeting of experts on this topic, proposed that the ISA should consider adopting guidelines[229] to assist the domestic implementation of Article 82 in consultation with interested parties, OCS, and other States. At that time, the prevailing idea was that the Authority should enter into a Model Article 82 Agreement with the OCS State[230].

Nevertheless, the conclusions of the representatives of key stakeholder groups in the Beijing Workshop in 2012 led it in another direction. First, the idea of a Model Agreement was replaced by the understanding of the need for a cooperative relationship. Likewise, a possible implementation agreement speculated by the Chatham House Seminar was dismissed. The experts considered two main options in discharging the administrative tasks involving the ISA and the OCS States: (i) a Memorandum of Understanding, and (ii) a voluntary guidance document. The latter was considered preferable amongst the participants[231].

The experts in Beijing Workshop also concluded that Article 82 comprises two kinds of relationships. First, the "mutual reciprocal duties among State Parties" related to the substantive duty to make payments or contributions in kind. The second one is related to the procedures for the compliance with Article 82, which is directly related to the ISA. Like all relationships under the Convention, the ISA and the OCS State shall be guided in good faith[232]. It is also advisable to act in a cooperative manner[233].

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[229] "The guidelines could address a range of matters including: the nature of the obligation in Article 82 and the options and related responsibilities of the OCS State, standard definitions (e.g., site, value, volume, production, etc.); defining the starting point of production for royalty purposes; the scale of payments and contributions and how They might be calculated consistently with Article 82; information on the Model Article 82 Agreement; the notices that should be given to the Authority by the OCS State and the information that, ideally, should be contained therein; recommendations concerning situations which might interrupt production and consequent payments and contributions in kind and for which the OCS State should give notice to the Authority, and so on." ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 56.

[230] Ibid. The Agreement would be a treaty in nature, governed by the Vienna Convention. ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 45.

[231] The suggestion was "interpretation agreement" under the Vienna Convention, similar to Part XI Implementation Agreement and Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks. ISA, *Issues Associated with the Implementation of Article 82*, note 21, Footnote 24. ISA, *Implementation of Article 82 of the United Nations*, note 17, p. 23. Also see: Vienna Convention, Article 31 (2) (a).

[232] UNCLOS, Article 300.

[233] ISA, *Implementation of Article 82 of the United Nations*, note 17, p. 19.

Considering the States parties as beneficiaries of Article 82, the ISA shall be deemed as a 'receiver' rather than a 'collector' of payments and contributions[234]. To do so, administrative procedures need to be established to allow the ISA to perform at least the following functions[235]:

- Banking instructions regarding payments[236].
- Acknowledging the receipt of payment or contribution in kind.
- Informing the Member States of payments and contributions received.
- Acting as a trustee of received amounts or contributions in kind until they are distributed to beneficiaries.
- Receiving notices from the OCS States.

These are all tasks that clearly fall within the role of ISA *vis-à-vis* UNCLOS Article 82. According to the Authority structure, the Council is responsible for developing procedures for the implementation of Article 82 to submit to the Assembly for its consideration and adoption. If the Assembly does not approve the recommendations of the Council, the Assembly shall return them to the Council for reconsideration in light of the views expressed by the Assembly[237].

Yet, the contributing State shall provide the ISA with minimum data to allow the Authority to receive payments or contributions and also, under a collaborative spirit, with information about production and calculation basis. In this case, the Secretariat should include in its publications, such as the annual reports – the public information voluntarily submitted[238]. Mossop considers that the information on the basis of the computation of payments and amounts due shall be disclosed as a corollary of the obligation to act in good faith. However, commentators recognize that if a State fails to comply with the transparency duty, it might not be possible to compel it[239].

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[234] ISA, *Implementation of Article 82 of the United Nations*, note 17, p. 19.

[235] Ibid.

[236] Although it is not clear how Article 82 revenues will be classed, it is probably that the revenues will be deposit in a special account established by the ISA Secretary-General. ISA, *Issues Associated with the Implementation of Article 82*, note 21, Footnote 164.

[237] UNCLOS, Article 160, (2)(f) (i).

[238] ISA, *Implementation of Article 82 of the United Nations*, note 17, p. 20.

[239] Mossop. *The Continental Shelf*", note 20, p. 131. ISA, *Issues Associated with the Implementation of Article 82*, note 21, p.37.

Paragraph 2 – The relationship between the ISA and the OCS State

Although Mr. Michael Lodge suggested, at the beginning of the Beijing Workshop, that "the [Workshop] ultimate aim is a consensual understanding amongst States Parties for a consistent and uniform State practice in the implementation of Article 82"[240], the experts could not reach a consensus on the matter. Actually, the advantages and disadvantages of a case-by-case or a standardized approach were analyzed.

On the one hand, the group considered that a procedure broadly applied would provide consistency, predictability, and efficiency, on the other hand, a customized relationship would leave desirable flexibility[241]. In fact, since 2012, the ISA has only produced one study focused on Article 82 (1) and (2), completed in March 2016: Technical Study 15 – A Study of Key Terms in article 82 of the United Nations Convention on Law of the Sea. Despite being an important review of oil and gas State practice and domestic legislation, it was supposed to be a contribution to further discussions[242], which did not take place.

An analysis of this Technical Study shows that, although academic commentators reached a consensus on the "meaning" of some terms, they were only able to narrow the interpretation but not to completely guide the implementation of Article 82. For instance, the value of production was defined as value based on gross production and fair market value at the wellhead. Some qualifications to "value" were added, but the meaning of a fair market value is still open, for instance, it is not defined whether it is a local or a global market. It is important to note that some countries collect royalty but others changed into a profit taxation system, increasing the contrast among them[243].

Moreover, is it expected for the ISA to move forward? Lodge suggests that "a common understanding between the Authority and its member States as to the basic methodology and procedures for the application of Article 82" is desirable to avoid further disputes between the ISA

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[240] ISA, *Implementation of Article 82 of the United Nations*, note 17, p. 13.

[241] ISA, *Implementation of Article 82 of the United Nations*, note 17, p. 20.

[242] ISA, *A Study of key terms in Article 82*, note 91, p. 6.

[243] ISA, *A Study of key terms in Article 82*, note 91, p.14.

and State parties or between States parties. The author, however, does not clarify "whether these methodologies are best developed on a bilateral basis between the Secretariat of the Authority and each member state affected, or through consultations and agreement between the Authority and all states parties affected, or through the Council[244]."

But under the Convention, the Authority has no mandate to monitor and control the contributions under Article 82 nor is answerable for the compliance of OCS States. Besides that, it is common sense that the ISA can not impose an interpretation of Article 82 over States[245]. Some experts in Beijing Workshop suggested that any further authoritative interpretation may be referred to States Parties to the United Nations Convention on the Law of the Sea (SPLOS)[246].

This view is not a consensus. First, it might be in contrast with the *travaux préparatoires* of the Convention, given that negotiators rejected the proposal that States shall agree on necessary payment. Second, despite the need for a consistent interpretation of Article 82 of UNCLOS, the extent of the power of SPLOS is controversial. While some delegations advocate for a role limited to budgetary and administrative issues, like the United Kingdom[247], others believe that the annual meetings, as the supreme body of the SPLOS, can discuss substantive issues[248].

If this is the supreme body, Article 82 seems to fall within what Professor Serdy sees as a better use of the annual meetings of States Parties to UNCLOS as it "can be resolved by achieving agreement among its parties on the interpretation of the existing text rather than seeking to

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[244] Lodge. "The International Seabed Authority and Article 82", note 77, p. 328. It is interesting to note that, as the expression "affected" was used in the first part of the sentence to define the contributing State, it is reasonable to infer that "all states parties affected" is related to all potential contributing States. If it is the case, it might reduce disputes, but the beneficiaries States may do not agree on contributing States understanding. Finally, it is important to note this opinion was given in 2006, prior to Beijing Workshop.

[245] ISA, *Implementation of Article 82 of the United Nations*, note 17, p.20. Mossop. *The Continental Shelf*", note 20, p. 125.

[246] ISA, *Implementation of Article 82 of the United Nations*, note 17, p.15. The same statement is on ISA, *A Study of key terms in Article 82*, note 91, p.5.

[247] UK Parliament. UNCLOS: the law of the sea in the 21st century. Note 3.

[248] Jia Yu, and Wu Ji-Lu, "The Outer Continental Shelf of Coastal States", note 33, p.326.

renegotiate it."[249] Jia Yu and Wu Ji-Lu highlight that some decisions adopted by the meeting of the State parties have the same effect as an explanation of the UNCLOS[250].

Despite some opinions against the normative power of SPLOS, some decisions taken in this forum regarding the interpretation of the Convention are being effective. One great example is exactly applied to the outer continental shelf. At the Eleventh Meeting of States Parties, it was decided that the ten-year time for making submissions to the CLCS shall be taken to have commenced on 13 May 1999 for the States that the Convention entered into force before this date[251]. So, it is reasonable to infer that if a similar decision is taken by the SPLOS regarding Article 82, it will have the same biding force over the OCS State.

A third view would be that the responsibility for implementing Article 82 of UNCLOS, thus interpreting its terms, ultimately lies with the OCS State. More recently, Article 82 was on the ISA agenda, but in relation to receiving and distributing benefits, leaving behind the responsibilities of coastal States[252]. Consequently, the idea that the ISA has no power to regulate substantive matters of the discharge of Article 82 was reinforced. Thus, another approach would be the contributing State leading this process. Then, any interested parties would assess the interpretation of the State to determine whether or not the OCS State is acting in good faith and in a manner that would not constitute an abuse of rights, in accordance with Article 300 of the Convention[253]. Any interpretation shall be "within the letter and spirit of Article 82 and the Convention as a whole"[254].

Despite the lack of normative power of the ISA, a Memorandum of Understanding would provide desirable predictability in the relationship between the Authority and the OCS State and would

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[249] Ibid.

[250] Jia Yu, and Wu Ji-Lu, "The Outer Continental Shelf of Coastal States", note 33, p. 326. Also, "The Ocean Law Specialist Group of the World Commission for Environmental Law and the International Union for Conservation of Nature also advocated for a 'revitalised' SPLOS, saying that: 'Regular meetings of States Parties are widely considered to be an essential tool for 'living' agreements, as otherwise they may become moribund and unable to adapt to changing circumstances'". UK Parliament. UNCLOS: the law of the sea in the 21st century. Note 3.

[251] SPLOS, Decision regarding the date of commencement of the ten-year period for making submissions to the Commission on the Limits of the Continental Shelf set out in article 4 of Annex II to the United Nations Convention on the Law of the Sea, SPLOS/72 (30 August-3 September 2004). Available at: https://undocs.org/SPLOS/72

[252] The equitable sharing criteria for Article 82 was Strategic Plan of the International Seabed Authority for the Period 2019–2023. Aldo Chircop, "Implementation of Article 82", note 14, p. 380.

[253] UNCLOS, Article 300.

[254] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 24.

facilitate a cooperative relationship. Whereas there is nothing in the Convention to oblige the States to enter into any kind of instrument with the ISA, there is also nothing preventing it.

Despite most experts in the Beijing Workshop preferred a non-binding guidance document, this document was still not issued about 10 years later. A Memorandum of Understanding (MoU) is not subject to an agreement beyond the signatory parties and would elucidate some of the issues related to Article 82, providing a better framework for the OCS State and its investors. It is a way to inaugurate the relationship between the ISA and the OCS State and fill some gaps[255]. The document would cover practical and administrative arrangements, such as[256]:

- Discharge option (payments or contributions in kind).
- Payment currency and banking instructions or contribution in kind arrangements.
- Payment/transfer schedule.
- OSC Notices: delimitation of the area, type of non-living resource, anticipated date of commercial production; suspension of production; announcement of forthcoming payment.
- ISA Notices: acknowledgment of receipt of all formal notices from the OCS State; receipting of payment or contribution in kind; annual statement of account certifying received payments or contributions.
- Disclosure of payments or contribution calculation.

Given the nature of the obligations, it is unlikely that parties would need to commit to a confidentiality agreement, as was early suggested by experts in the Chatham House Meeting[257].

It is undeniable that, although a Memorandum of Understanding has no legal effects over third parties, it shall serve as guidance, establishing the first State practice[258]. It is also a less formal instrument that could be implemented domestically and easier than a formal Agreement.

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[255] The Convention does not elucidate what kind of relationship the ISA shall establish with OCS States, if any, and when this relationship should begin. ISA, *Implementation of Article 82 of the United Nations*, note 17, p.19.

[256] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 51. Aldo Chircop, "Implementation of Article 82", note 14, p. 378. ISA, *Implementation of Article 82 of the United Nations*, note 17, pp. 22-23.

[257] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 53.

[258] "Also to be considered together with context in the interpretation of a treaty is any subsequent agreement or practice between States Parties which establishes their agreement concerning the interpretation or application of provisions." ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 11.

Finally, the MoU might predict a dispute resolution mechanism, at least for the issues connected to the execution of the arrangement. Disputes related to the MoU execution could be brought under the International Tribunal for the Law of the Sea jurisdiction by an agreement settled by the Memorandum of Understanding, in accordance with the Annex VI of UNCLOS[259]. But other disputes may arise beyond the execution of the MoU.

In the case that an OCS State fails to make payments or contributions, which measures would fall within the competence of the ISA? Mossop states the ISA has no coercive power[260]. Consequently, there is no standing in this matter. Howsoever, the Assembly of the ISA or its Council may seek an advisory opinion from the Seabed Disputes Chamber (SDC) on issues related to the receipt of the payment or contribution because it is within the scope of the activities of the Authority. Despite not being conclusive, "a State party that disregarded the legal view of the SDC expressed in an advisory opinion would face international condemnation."[261]

Dispute resolution is a different scenario. The Seabed Disputes Chamber would have no jurisdiction because Article 82 is not within the scope of Article 187, which delimitates the subject-matter to activities in the Area[262]. Egede has already stated that the Authority cannot be a party to proceedings concerning a dispute in respect of the outer limits of the continental shelf by virtue of its limited mandate to organize and control actives in the Area[263]. Similarly, it could be said the ISA could not be a party to proceedings concerning the amounts due or lack of payments considering its role as a receiver, not a collector, of the compensations provided in Article 82 of UNCLOS.

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[259] UNCLOS, Annex VI, Article 20 (2). ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 67.

[260] Mossop. "*The Continental Shelf*". note 20, p. 137.

[261] Ibid, p. 137-138.

[262] UNCLOS, Article 187. Mossop. "*The Continental Shelf*". note 20, p. 137. ISA, *Issues Associated with the Implementation of Article 82*, note 21. p. xviii; 46.

[263] Egede, "Submission of Brazil", note 55, p. 40.

Issues involving the interpretation and application of Article 82 may be clarified at a political, diplomatic, or technical level[264]. In this context, Professor Barnes noted that a dispute may be "managed", instead of settled if is compatible with the degree of the disagreement[265].

Section B – Brazilian institutional arrangements

This section will analyze the role of the governmental institutions in Brazil and what might be their role in implementing UNCLOS Article 82.

Paragraph 1 – Ministry of Mines and Energy and Ministry of Foreign Affairs

The Ministry of Mines and Energy (MME), is responsible for: (i) promoting studies of the Brazilian sedimentary basins and coordinating the multiannual planning studies of the oil and gas sector; (ii) proposing guidelines for bidding in areas for the exploration and production of oil and natural gas; (iii) proposing guidelines to be observed by the ANP for the preparation of drafts of the notices and production sharing contracts; (iv) coordinating the process of granting and authorizing the oil, natural gas, and biofuels sector; and (v) giving technical assistance for the CNPE, among others[266].

The MME is formed by four specific offices[267]: the Secretariat of Energy Planning and Development, the Secretariat of Electric Energy, the Secretariat of Geology, Mining, and Mineral Transformation, and the Secretariat of Petroleum, Natural Gas, and Biofuels. The last one is composed of: (i) Oil and Natural Gas Exploration and Production Policy Department; (ii) Natural Gas Department; (iii) Petroleum Derived Fuels Department; and (iv) Biofuels Department[268].

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[264] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 11.

[265] UK Parliament. UNCLOS: the law of the sea in the 21st century. Note 3.

[266] Ministério de Minas e Energia, *Secretaria de Petróleo e Gás Natural e Biocombustíveis* [Secretariat of Petroleum and Natural Gas, and Biofuels] (06 September 2022). Available at: https://www.gov.br/mme/pt-br/assuntos/secretarias/petroleo-gas-natural-e-biocombustiveis

[267] Translated from the original: "órgãos específicos singulares".

[268] Brazil, Presidential Decree No. 9.675 of 2019 (2 January 2019). Federal Official Gazette Supplement (2 January 2019), Article 2, II, "a".

The competencies aforementioned are performed by the Secretariat of Petroleum and Natural Gas, and Biofuels. The Oil and Natural Gas Exploration and Production Policy Department is responsible for proposing goals to the ANP regarding Brazilian reserves and the relationship between reserve and production; proposing the improvement of public policies for the exploration of oil and natural gas and the production sector in conjunction with other public administration bodies; and coordinating the preparation of studies to be used in the planning of oil and gas exploration and production activities and the planning of grants for exploratory blocks, including environmental assessment studies.

The Ministry of Foreign Affairs (MFA), also known as Itamaraty, in reference to its headquarters in Brasilia, the Itamaraty Palace, is primarily responsible for: (i) advising the President when conducting foreign relations with other countries and international bodies, (ii) foreign policy; (iii) diplomatic affairs and consular services, and (iv) attendance on commercial, economic, financial, technical, and cultural negotiations and liaison with other bodies[269].

The MFA comprises a Cabinet and a General Secretariat. The Office of Attorney, the Office of Special Diplomatic Planning, the Office of Federative and Congress Relationship, the Office of Internal Control, the Press Office, and the Rio Branco Institute, the Brazilian diplomatic academy, are all linked to the MFA's Cabinet.[270]The General Secretariat is the head of the regional and thematic Secretariats of: (i) Americas; (ii) Middle East, Europe, and Africa; (iii) Asia, Pacific, and Russia, (iv) foreign trade and financial affairs, (v) multilateral political affairs, (vi) consular services, cooperation, and culture, and (vii) administrative management.[271]

Internally, each thematic area is responsible for informing, negotiating, and monitoring international treaties and agreements related to its attribution, and implementing the foreign policy

[269] Translated from the original in Portuguese: "Art. 45. Constituem áreas de competência do Ministério das Relações Exteriores: I - assistência direta e imediata ao Presidente da República nas relações com Estados estrangeiros e com organizações internacionais; II - política internacional; III - relações diplomáticas e serviços consulares; IV - participação em negociações comerciais, econômicas, financeiras, técnicas e culturais com Estados estrangeiros e com organizações internacionais, em articulação com os demais órgãos competentes". Brazil, Law No. 13.844 of 2019.

[270] Ministério de Relações Exteriores (MRE) [Ministry of Foreign Affairs (MFA)], :Organograma". Available at: https://www.gov.br/mre/pt-br/arquivos/documentos/administrativo/organograma_mre_2022.pdf. Accessed on 10 October 2022.

[271] Ibid

established by the President[272]. When performing its duties, the MFA shall also be guided by the following principles provided by the Federal Constitution: non-intervention, self-determination, international cooperation, and the peaceful settlement of conflicts[273].

When analysing a treaty in light of the Brazilian Constitution and Brazilian foreign affairs, the Supreme Court stated that:

> The first observation to be made, therefore, is that we are facing a document produced in the context of multilateral negotiations to which the country has formally acceded and ratified. Such documents, including treaties, conventions, and agreements, assume compliance with good faith by the signatory States. This is expressed by the old legal proverb *pacta sunt servanda*. Compliance with this prescription is what allows coexistence and cooperation between sovereign nations whose interests are not always coincident[274].

The Tribunal decision later states that it is common for treaties to have a denunciation clause and, in the case the agreement is not aligned with the Brazilian policy, the State shall denounce it but not be non-compliant. Under the Brazilian State practice, international agreements may be treaties, bilateral agreements, memorandum of understanding, complementary adjustments, conventions, or protocols that create standards and regulations. These agreements fall within the exclusive power of the Federal Union[275].

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[272] MRE, "Atos internacionais" ["International Agreements"]. Available at: https://www.gov.br/mre/pt-br/assuntos/atos-internacionais. Accessed on 10 October 2022.

[273] Brazil, Federal Constitution, Article 4. "Article 4. The international relations of the Federative Republic of Brazil are governed by the following principles: I – national independence; II – prevalence of human rights; III – self-determination of the peoples; IV – non-intervention; V – equality among the states; VI – defense of peace; VII – peaceful settlement of conflicts; VIII – repudiation of terrorism and racism; IX – cooperation among peoples for the progress of mankind; X – granting of political asylum. (Translated by the author).

[274] In the original in Portuguese: "A primeira observação a ser feita, portanto, é a de que estamos diante de um documento produzido no contexto de negociações multilaterais a que o País formalmente aderiu e ratificou. Tais documentos, em que se incluem os tratados, as convenções e os acordos, pressupõem o cumprimento de boa-fé pelos Estados signatários. É o que expressa o velho brocardo pacta sunt servanda. A observância dessa prescrição é o que permite a coexistência e a cooperação entre nações soberanas cujos interesses nem sempre são coincidentes." Available at: ADPF 172 MC-REF (stf.jus.br). The case analyzes the Haia Convention of 1980.

[275] https://www.gov.br/mre/pt-br/assuntos/atos-internacionais

Paragraph 2 – National Agency of Oil, Natural Gas, and Biofuel and multilateral bodies

The National Agency of Oil, Natural Gas, and Biofuel (ANP) was enacted by law in 1997. The ANP is a special agency of the Indirect Federal Administration linked to the MME, but independent nevertheless[276]. The Agency has similar characteristics to the "independent agencies" in the United States[277], such as the Department of Energy of the Federal Energy Regulatory Commission[278]. This independency is mainly set by their board of Directors, whose members are approved by the Federal Senate and designated by the President. Members of the board shall hold office for a non-coinciding five-years term, with no reappointment for a further term[279]. The board is composed of a General Director and four Directors and it decides through the majority of votes cast.

The Agency mandate covers "from well to gas station"[280], meaning it regulates and monitors more than 110,000 companies in activities ranging from oil and natural gas prospecting in the sedimentary basins of Brazil to procedures and gas stations for ensuring the quality of fuels sold to the final consumer. In the upstream sector, meaning oil and gas exploration and exploitation, the Agency is responsible for onshore and offshore activities[281].

The performance of the ANP is based on three pillars: (i) to regulate, (ii) to contract, and (iii) to supervise. The ANP regulates by exercising its rulemaking power, in accordance with its competence established by law. All ordinances, called Resolutions, are subject to consultation and public hearings[282]. The ANP shall issue licenses for all regulated sectors and promote bidding

[276] Agency decisions are not subject to Ministry review. Agency decisions can be disputed only in the Tribunals.

[277] Almada, "Oil & Gas Industry in Brazil", p. 228.

[278] Braga, "Oil in Brazil: evolution of exploration and production", note 150.

[279] Law No. 9.478 of 1997, Article 11.

[280] In Portuguese: "do poço ao posto". Agência Nacional do Petróleo, Gás Natural e Biocombustíveis, Institucional. (10 August 2022). Available at: https://www.gov.br/anp/pt-br/acesso-a-informacao/institucional.

[281] Different from Other countries, Brazil does not have a specialized agency to deal with operational safety. For instance, there is the Petroleum Safety Authority in Norway and the Bureau of Safety and Environmental Enforcement in the United States of America. There is an autonomous body responsible for the offshore environmental issues called IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis, and onshore, each Brazilian federal state has a state environmental body.

[282] Law No. 9.478 of 1997, Article 19.

rounds and contract for the exploration and exploitation of hydrocarbons. Finally, it monitors and enforces its rules and might apply penalties for non-compliance[283].

It is the responsibility of the ANP to audit the measurement of production in the oil and gas producing fields for the purpose of calculating royalties and other government participations. Moreover, it assesses the payments and requires payment if there is any difference in the amounts due. If even in this case, there is no payment, the ANP may impose a penalty or, ultimately, may terminate the Concession Contract or the Production Sharing Agreement[284]. The way the ANP collects royalties was described in Part I.

Another important attribution of ANP is to approve the Unitization Agreement (UA). Unitization is one of the solutions a State may adopt when the reservoir is beyond the limits established for the performance of E&P activities by a company[285]. Ultimately the aim of Unitization is "to avoid individualistic, predatory and irrational oil and natural gas production"[286], thereby a higher volume of hydrocarbons can be recovered.

Braga, based on Waiver and Asmus, explains the Unitization process in three stages, as follows:

> i) the conclusion of a pre-agreement after the shared reservoir discovery or appraisal, before the declaration of commerciality; ii) the signing of the unitization agreement (UA) and the unit operating agreement (UOA)[287], generally coinciding with a development plan agreed between the parties; and iii) the redetermination of Tract Participations (TP), as established in the unitization agreement when more development and production data about the reservoir is obtained.

Usually, the unitization that is not transboundary involves only one type of Petroleum Agreement, but this is not completely true in Brazil. In the Brazilian case, the scope of the Unitization

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[283] ANP, Institucional.

[284][284] There is no precedent of terminated contract due to noncompliance with royalties, but the termination clause could be used in this case. In this case, the due process shall be followed.

[285] Luciana Braga, "The Brazilian Regulatory Systems for Unitization and Offshore Decommissioning - An Analysis of the Transnational Legal Order", p. 96 (3 November 2021). Available at: https://www.theses.fr/2021GRALE005.pdf

[286] Braga and David. "Why the unitization process is an important issue", note 149, p. 6.

[287] The UOA governs the day-to-day, similarly to a Joint Operating Agreement, such as the process of contracting goods and services by the unit operator and provides for private deals that are not relevant to the knowledge of the host State. Braga, The Brazilian Regulatory Systems for Unitization, note 285, pp.104-105.

Agreement to be approved by ANP may be a reservoir underlining areas under different legal regimes, consequently, different royalty rates, tax regimes, and obligations. Because of that, the UA might be signed for a single company, which has E&P rights over the shared deposit due to independent acquisitions[288]. This experience might be relevant if Brazil starts to produce a reservoir beneath the inner and the outer continental shelf.

The National Energy Policy Council (CNPE) is a Collegial body linked to the Presidency of the Republic and chaired by the Minister of Mines and Energy. The mission of the CNPE is to propose national energy policies and specific measures to the President. The CNPE plays an important role because it is in charge of balancing the energy matrices and establishing guidelines for import and export to meet the needs of domestic consumption of hydrocarbons and their products. To do that, it shall consider the different regions of the country, conventional or alternative sources, and available technologies[289].

The Council is composed of representatives from the following Institutions: Minister of Mines and Energy, Minister of Civil Office of the Presidency; Minister of Foreign Affairs; Ministry of the Economy; Minister of Infrastructure; Minister of Agriculture, Livestock and Supply; Minister of Science, Technology, Innovations, and Communications; Minister of the Environment; Minister for Regional Development; Chief Minister of the Institutional Security; Office of the Presidency of the Republic; and President of the Energy Research Office[290].

According to the Rules of Procedure of the CNPE, the ones who will be invited to integrate the CNPE with the right to voice and vote are: (i) a representative of the States and the Federal District appointed by the National Forum of Secretaries of States for Mines and Energy; (ii) two representatives of civil society, specialists in energy matters; and (iii) two representatives of Brazilian academic institutions, specialists in energy.[291]

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[288]Almada, “Oil & Gas Industry in Brazil”, p. 233.

[289] Brazil, Law No. 9.478 of 1999, Article 2.

[290] Brazil, Presidential Decree No. 9.675 of 2019. The Energy Research Company is a public company linked to the Ministry of Mines and Energy. Its purpose is to provide services in studies and research designed to subsidize the planning of the energy sector.

[291] CNPE, Resolution No. 14 of 2019 (24 June 2019). Federal Official Gazette (27 June 2019).

Another important role of the CNPE is to declare an area strategic for the exploration and production of oil and gas. In this case, such area shall be contracted under the Production Sharing Agreement, either through an action procedure or directly with Petrobras[292].

The Council might establish Working Groups and Technical Committees with specific objectives, with the participation of representatives of civil society, agents, and consumers, when the matter analyzed concerns them. One example of the exercise of this attribution was the Working Group formed to analyse the legal and political aspects of the production of the OCS aforementioned. The Executive Secretary shall submit the conclusions of the Technical Committees and Working Groups for the approval of the plenary of CNPE[293].

Besides the CNPE, the Inter-ministerial Commission for the Marine Resources (CIRM) is a deliberative and advisory body created in 1974 and restructured by the Decree No. 9.858 of 2019. The CIRM is responsible for coordinating all actions to implement the National Plan for Marine Resources, Brazilian Antarctic Program, and the National Coastal Management Plan.

The Brazilian National Plan for Marine Resources was updated in 2005 after different national and international scenarios and UNCLOS came into force. The Plan aims to guide the development of activities of use, exploitation, and exploitation of living, mineral, and energy resources of the territorial sea, the exclusive economic zone, and the continental shelf, according to national interests. The CIRM might establish technical groups with the objective of advising it on specific topics.[294]

The CIRM, for instance, is responsible for the PROAREA, *Programa de Prospecção e Exploração de Recursos Minerais da Área Internacional do Atlântico Sul e Equatorial* – which develops mineral research in the Area in the South and Equatorial Atlantic Sea[295] and the REMPLAC, *Programa de Avaliação da Potencialidade Mineral da Plataforma Continental Jurídica*

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[292] Law No. 12.351 of 2010, Article 2, V, and Article 8, I.

[293] CNPE. Resolution No. 14 of 2019 (24 June 2019). Federal Official Gazette (27 June 2019). Available at: https://www.gov.br/mme/pt-br/assuntos/conselhos-e-comites/cnpe/resolucoes-do-cnpe/arquivos/2019/resolucao_cnpe_14_2019_2.pdf

[294] Brazil. Presidential Decree No. 5.377 of 2005.

[295] Brazilian Navy, "Prospecção e Exploração de Recursos Minerais da Área Internacional do Atlântico Sul e Equatorial – PROAREA" [Exploration and exploitation of mineral resources in the Area of South Atlantic and Equatorial Sea]. Available at: https://www.marinha.mil.br/secirm/psrm/proarea. Accessed on 07 October 2022.

Brasileira.[296] The REMPLAC is responsible for identifying the potential of the mineral resources, mainly aggregates for immediate use in civil construction and coastal reconstruction in the EEZ. Analyzing the projects that the CIRM has developed, none of them is directly related to oil and gas in the OCS and no specific attribution in relation to this matter was given to this commission.

The main role of each body in the offshore oil and gas industry in Brazil might be summarised in Figure 7:

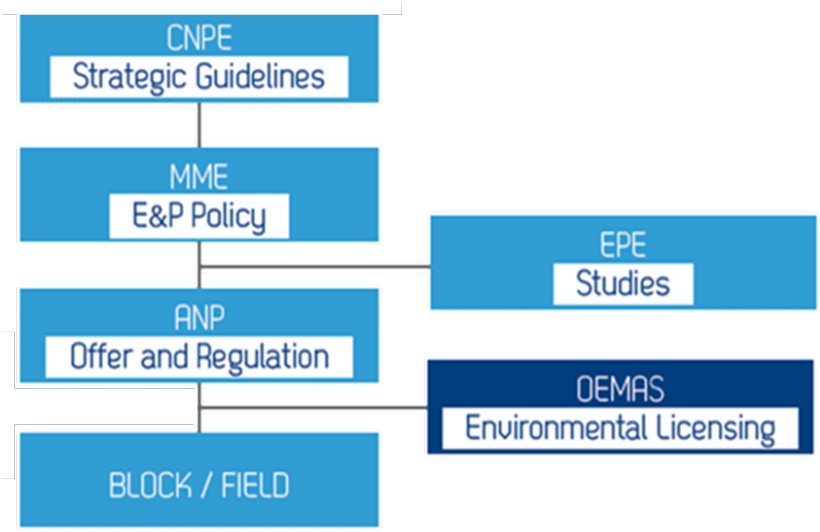

Figure 7: Brazilian regulatory structure
Source: Adapted from MME and FGV Energia. *Doing Business with the Brazilian onshore environment* (June 2020).

[296] Brazilian Navy, "Avaliação da Potencialidade Mineral da Plataforma Continental Jurídica Brasileira (REMPLAC)". [Assessment of the Mineral Potential of the Brazilian Legal Continental Shelf]. Available at: https://www.marinha.mil.br/secirm/psrm/proarea. Accessed on 07 October 2022.

CHAPTER 2. BRAZILIAN CHALLENGES

This chapter will address compatibilities and conflicts with possible interpretations of Article 82 and the Brazilian framework, focusing on the key elements and national features of royalty payments.

Section A – General provisions

Paragraph 1 – Obligation Exemption

Article 82, paragraph 3 of UNCLOS states: "A developing State which is a net importer of a mineral resource produced from its continental shelf is exempt from making such payments or contributions in respect of that mineral resource."

The wording in paragraph 3 makes it clear that the exemption applies only to (i) developing States and (ii) in respect of a mineral that the State is a net importer. Concerning the first requirement, Brazil is a great example of the difficulty in applying the rule. Mossop considers it unclear whether Brazil would be classified as a developing State for the purposes of Article 82 (3)[297]. On the other hand, Silva states that considering Brazil as a developing State "seems indisputable", even though the Brazilian author recognizes that the Brazilian government has forgone the special treatment as a developing country within the World Trade Organization and that the United States classifies Brazil as a developed country[298].

Indeed, the Brazilian situation is doubtful. It might be considered "a developing country in a distinctive position"[299]. Brazil faces a huge social inequality, thus, although the country is positioned in the high human development category with a human development index (HDI) value of 0,754 in 2021, being positioned at 87 out of 191 countries and territories, the inequality-adjusted

[297] Mossop, "*The Continental Shelf*", note 20, p. 134

[298] Silva, "Brazil and the Implementation", note 5, Footnote 31.

[299] The expression was adopted by Silva in 2014. Silva, "Dealing with Articles 76 and 82", note 42, p. 171.

HDI (IHDI) falls to 0,576 in the same year. The overall loss for Brazilian inequality-adjusted HDI was 23,6%, losing 20 positions in the rank in comparison to HDI.[300].

In the absence of the designation of an authority in the Convention, the classification as a developing State rests on the OCS State and Brazil has good reasons to be considered as a developing State. A recent report from the International Monetary Fund stated that: "Brazil's long-standing challenges of low growth, high debt, and elevated levels of poverty and inequality have been exacerbated by the pandemic"[301]. Also, the International Energy Agency (IEA) places Brazil as an emerging market and developing economy[302].

One question raised in the Final Report by the Brazilian Working Group that analyzed Article 82 was whether the status of the developing State should be considered at the moment of the signing, or of the accession of the Convention, or by the time of payments. Considering that the goal of Article 82 (3) is "to relieve developing States of the burden of providing payments in situations where they are in a vulnerable economic situation"[303], the status of the OCS State shall be analyzed by the time of payments. Whether the reason for the exemption is not in place anymore, there is no reason for the benefit. If UNCLOS is a living treaty that allows us to interpret the provisions in the light of new realities[304], there are more grounds for considering the current situation of the States when interpreting its provisions.

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[300] UNDP. "Data Center: Brazil". Available at: https://hdr.undp.org/data-center/specific-country-data#/countries/BRA (8 September 2022).

[301] International Monetary Fund. *Brazil: Staff Report for the 2021 Article IV Consultation* (20 August 2021). Available at: https://www.imf.org/-/media/Files/Publications/CR/2021/English/1BRAEA2021001.ashx. The United Nations Development Programme lists Brazil among the 33 countries in Caribbean and South America region. UNDP. "Developing Regions". Available at: https://hdr.undp.org/data-center/documentation-and-downloads. Accessed on 31 October 2022.

[302] IEA divides countries in advanced economies and emerging market and developing economies. The first one is composed by the members of Organization for Economic Co-operation and Development (OECD), plus Bulgaria, Croatia, Cyprus, Malta, and Romania. All other countries are in the second group. IEA, *World Energy Outlook* (October 2021). Available at: https://www-oecd--ilibrary-org.eu1.proxy.openathens.net/deliver/14fcb638-en.pdf?itemId=%2Fcontent%2Fpublication%2F14fcb638-en&mimeType=pdf. Brazil is pursuing to accede to OEDC. OECD, "The OECD and Brazil: "A mutually beneficial relationship". Available at: https://www.oecd.org/latin-america/countries/brazil/. Accessed on 10 October 2022.

[303] Mossop, "*The Continental Shelf*", note 20, p. 133-134.

[304] UK Parliament. UNCLOS: the law of the sea in the 21st century. Note 3.

The second requirement is being a net exporter of the mineral produced from the outer continental shelf. The EPE is responsible for energy research in Brazil and publishes information about oil and gas production, consumption, imports, and exports. Figure 8 shows oil data since 1970:

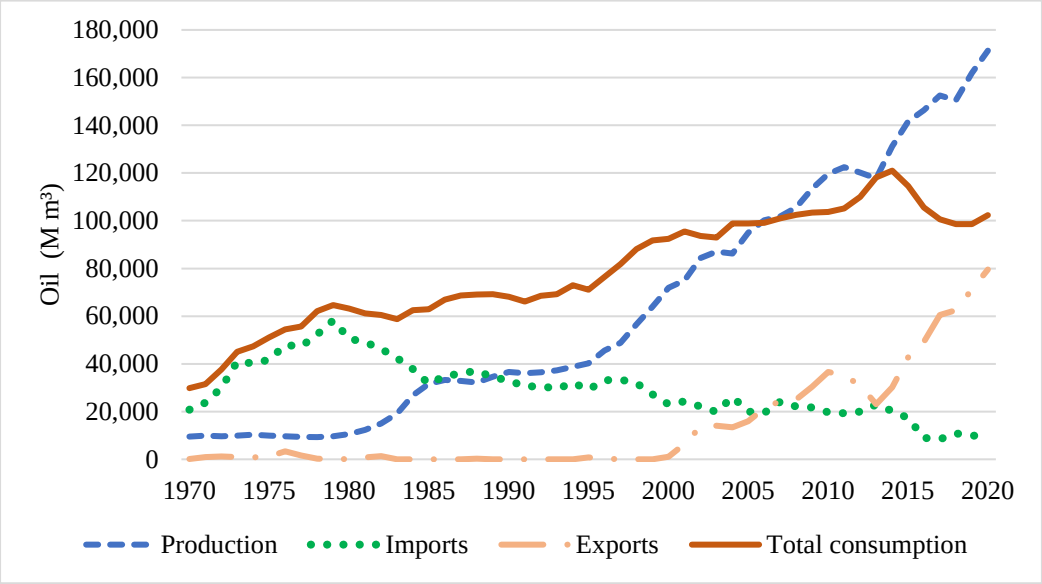

Figure 8: Brazilian oil balance
Source: Author, based on EPE, Balanço Energético Nacional 2021: ano base 2020 [National Energy Balance 2021: base year 2020] (2021)

In 2005, Brazil became self-sufficient in oil production, although the country needs to import light oil due to the characteristics of oil refinery. Most oil refinery plants in Brazil were installed in the 1970s and 1980s[305] and were developed to refine the imported light oil. The oil produced onshore and in shallow waters in Brazil is heavy and it needs to be blended with light oil to be refined domestically. Therefore, despite producing more oil than consuming it, Brazil still needs to import oil. After Petrobras discoveries in deep waters and the pre-salt cluster, Brazil is producing more light oil and the imports dropped. Since 2005, Brazil can be considered a net oil exporter.

Brazilian natural gas balance is completely different. Natural gas was less than 1% of the energy source in Brazil until 1981[306]. Later, some hydrocarbons discovery in Campos Basin, close to Rio

[305] João José Oliveira. Brasil é autossuficiente, mas importa petróleo porque não faz refinarias. [Brazil is self-sufficient, but imports oil because it does not build refineries] (25 May 2022). Available at: https://economia.uol.com.br/noticias/redacao/2022/05/20/por-que-brasil-nao-investe-em-refinarias-para-nao-importar-combustiveis.htm

[306] ANP, Evolução da Indústria Brasileira de Gás Natural: Aspectos Técnico-econômicos e jurídicos [Evolution of the Brazilian Natural Gas Industry: Technical, Economic and Legal Aspects] (27 September 2022). Available at:

de Janeiro market, allowed Petrobras to monetize that natural gas until the Federal Constitution of 1988 brought a new complex framework for natural gas[307]. According to the Brazilian constitution, the exploration and production of hydrocarbons are Union monopoly but, as a comprise rule, the Brazilian Federal States have the monopoly over the local distribution of natural gas, and oil companies are not allowed to sell it directly to consumers[308].

The development of a mature natural gas market in Brazil has always been a great challenge. After the Constitutional Amend 9 of 1995, natural gas exploration and production was regulated in a similar way to petroleum by Law No. 9.478 of 1999 and the importance of natural gas in the Brazilian energy matrix remained modest[309].

A significant milestone was the Bolivia-Brazil Gas Pipeline (GASBOL), which started operating in 1999, and the following installation of thermoelectric plants. In 2009, Brazil also began to import liquefied natural gas (LNG). To foster the natural gas market, the Petroleum Law was amended by Law No. 11.909 of 2009, known as the Natural Gas Law. The outcomes of the new framework were not the expected ones. Mainly, the law was supposed to increase the pipeline network under a concession regime through public auctions that did not take place[310].

Historically, Brazil does not export any natural gas, and the production, consumption, and imports can the seen in Figure 9.

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https://www.gov.br/anp/pt-br/assuntos/movimentacao-estocagem-e-comercializacao-de-gas-natural/estudos-e-notas-tecnicas/ibgn/evolucao-industria-gas-natural-2009.pdf

[307] Ibid.

[308] Brazil, Federal Constitution, Article 25, paragraph 2, and Article 177, I. "Article 25, paragraph 2: The local piped gas services shall be provided by the sovereign States, either directly or through a concession, in accordance with the law, the issue of a provisional measure for its regulation is prohibited". "Article 177. The following constitute a Union monopoly: I - research and mining of oil and natural gas deposits and other fluid hydrocarbons."

[309] Natural gas is 11,8% of the Total Energy Supply. EPE, Balanço Energético Nacional 2021: ano base 2020 [National Energy Balance 2021: base year 2020] (2021). Rio de Janeiro, Chart 1.3.b. Available at: https://www.epe.gov.br/sites-pt/publicacoes-dados-abertos/publicacoes/PublicacoesArquivos/publicacao-601/topico-596/BEN2021.pdf. Accessed on 31 October 2022.

[310] Maria João Rolim, Laís Palazzo Almada, and Clarissa Emanuela Leão Lima. "Efetividade da Nova Lei do Gás: regulamentações, próximos passos e o papel da ANP" in *O Novo Mercado de Gás no Brasil*. João Baptista Pinto (ed.) Rio de Janeiro: Carta Capital, 2021, p. 140.

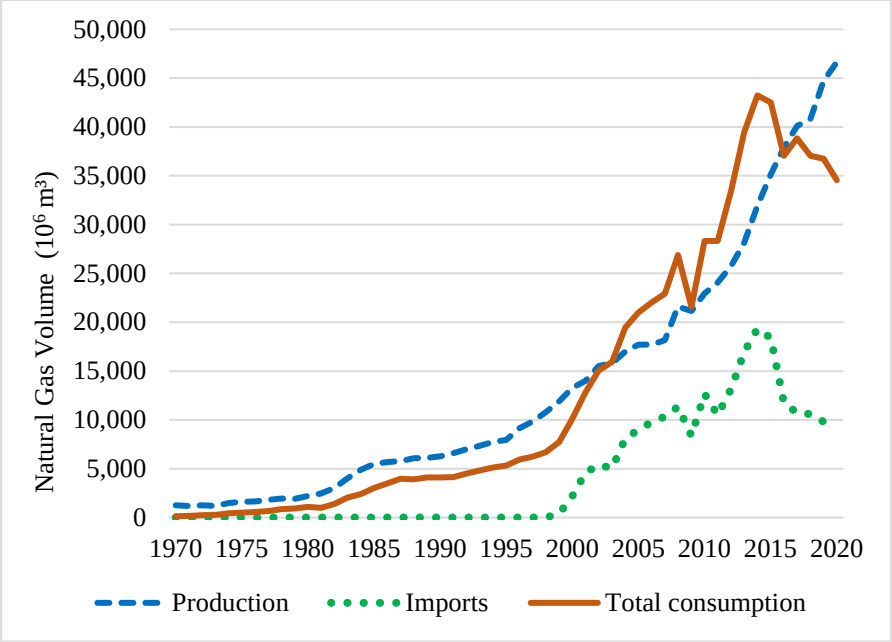

Figure 9: Brazilian natural gas balance
Source: Author, based on EPE, Balanço Energético Nacional 2021: ano base 2020 [National Energy Balance 2021: base year 2020] (2021)

In recent years, LNG imports became more relevant and pre-salt pipelines allow more natural gas to reach the shores of Brazil, increasing the national market and its efficiency[311]. After many natural gas public policies, the Brazilian Government enacted Law 14.134 of 2021, called the New Gas Law, consolidating these policies known as the New Natural Gas Market[312]. The ANP considers this law "a decisive step towards an open, liquid, and competitive market" and is working on a robust regulatory agenda to foster the natural gas market in Brazil[313].

The EPE projected the natural gas demand to 2030. In this short-term scenario, the national production will not be sufficient to attend the national demand and Brazil will remain a net natural gas importer, which can be seen in Figure 10.

[311] EPE, Brazilian Oil and Gas Report 2020/2021: trends and recent developments. Rio de Janeiro (September, 2021), p. 28.

[312] Maria João Rolim. Laís Palazzo Almada, and Clarissa Emanuela Leão Lima. "Efetividade da Nova Lei do Gás", p.140.

[313] ANP, Investments and opportunities in Brazil.

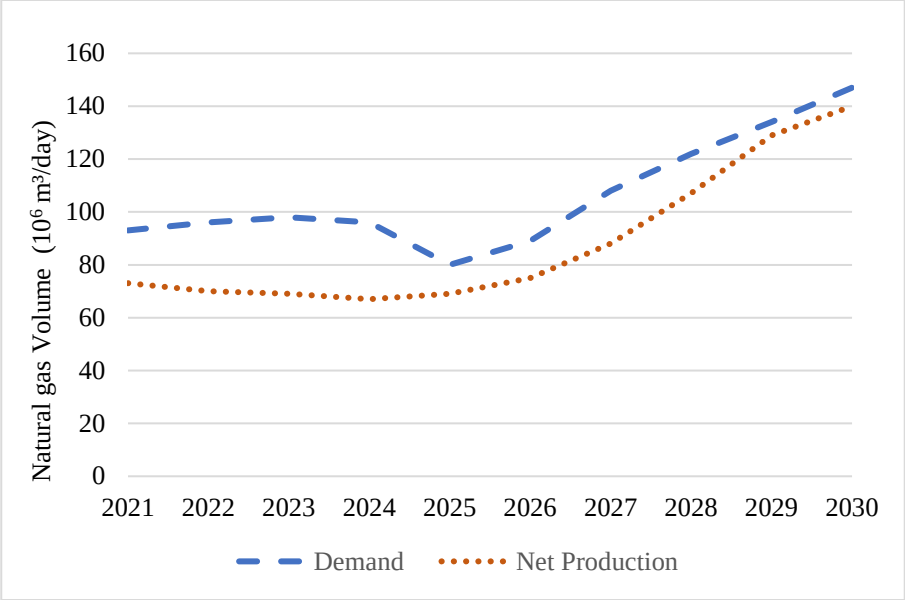

Figure 10: Brazilian natural gas demand and net production projection
Source: Author, based on MME and EPE, Plano Decenal de Expansão de Energia [Ten-Year Energy Expansion Plan 2030] (2021), Graphics 7-2 and 7-3.

If, by the time of payments Brazil is classified as a developing State and is not self-sufficient in natural gas, being a net importer, it shall benefit from the exception for this "mineral". The Brazilian legislative history of the last decades shows that Brazil has given different treatment to this hydrocarbon at the domestic level. In this context, to benefit from Article 82 (3) exemption only for natural gas would be consistent with the good faith principle[314].

By the time of payments, the Brazilian national balance shall be thoughtfully analyzed because the tendency is that the State will become a net exporter sooner or later. The issue is not irrelevant. The Brazilian Working Group estimated that, if resources similar to the ones of the pre-salt are found in the OCS, Brazil might have to pay up to 460 million dollars per year, per field as compensation for the production of petroleum and natural gas[315].

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[314] Another example of a different treatment was some contractual provisions of the 12th Bidding Round for unconventional gas, also known as shale or tight gas, such as extended the exploration phase. ANP, Edital e Modelo do contrato (12 August 2022). Available at: https://www.gov.br/anp/pt-br/rodadas-anp/rodadas-concluidas/concessao-de-blocos-exploratorios/12a-rodada-licitacoes-blocos/edital

[315] WG, Footnote 8. The United States is not party of UNCLOS. An unofficial report from The Heritage Foundation estimates that the USA revenues from the OCS may reach $92 billion over the next 50 years. (https://www.heritage.org/report/un-convention-the-law-the-sea-erodes-us-sovereignty-over-us-extended-continental-shelf). Assuming theses values, if the United States became a party of the Convention, the State might have to pay up to $52 billion through the ISA in the same period.

Paragraph 2 – Payments and currency

Under Article 82, the OCS State might make payments or contributions in kind. As detailed in Part One, 2.1.2, the areas for exploration and production of hydrocarbons in the Brazilian continental shelf beyond 200 NM were offered in the Concession Regime and can be acquired in the same regime through the Open Acreage process. Consequently, the Brazilian Government will not be entitled to any oil or gas in kind produced in this area. It is likely then that if Brazil concludes it is not entitled to the exemption, the State will opt to make payments. As described, to collect its domestic royalties, Brazil considers the prices of oil, natural gas, and its products in US dollars.

As a practical matter, Brazil should make payments also in US dollars. First, the ISA would probably refuse to accept payments in Brazilian reais, the national currency, because it is not a freely convertible currency. Second, adopting the same currency used to evaluate oil and gas production would avoid concerns about currency fluctuations.

The Brazilian Working Group, in its Final Report, considered inquiring the ISA about the possibility of oil companies making payments on behalf of the Brazilian Government. Provided that the State remains responsible for the obligation, which includes the relationship with the ISA, there is no reason to prevent the State to direct an entity to make payments. The main interest of the beneficiaries, which is to receive the correct amount on the due date, would not be affected by a provision like this. If the oil company fails to comply with the payment, the Brazilian government should comply with the obligation through the ISA and seek reimbursement at domestic level. Under the Brazilian framework, the primary obligation of the oil companies would be to the Brazilian Government.

On the other hand, it might be beneficial to the paying States. In the case of Brazil, where royalties are paid monthly, if the country receives the amount to comply with Article 82 compensation monthly, it will have to deal with currency variation from the date of receiving and the payment date. Even if the country collected the amount only annually, Brazil would face differences due to currency variation as well, because all the amounts paid to the Brazilian Government in the oil and

gas industry are done in Brazilian reais[316]. A different solution – receiving in a foreign currency – would be subject to a legislative amendment.

Making payments in US dollars directly to the ISA does not seem to be a problem for the oil and gas industry which is used for many kinds of international contracts and is a global market. Companies can also use mechanisms, such as hedging, to deal with currency fluctuation. Although being mentioned as a similar situation by one of the ISA's Reports, contributions to the International Oil Pollution Compensation Fund (IOPCF) are made by the ship owner from the Contracting States[317]. The method is analogous: once the State provides information, a private person makes the payment. But unlike the UNCLOS obligation, under IOPCF provision the State is not liable for the payments. A similar procedure could be adopted in the Brazilian case, but having the State as the main responsible for the obligation.

As said, it is the responsibility of the OCS State to the other State parties to determine the amount/volume due and to make payments or contributions in kind. From a practical perspective, it is hard to imagine that the ISA or other State party would have reasonable grounds to dispute the volumes informed by the OCS State. Assessing and monitoring the production might be challenging even for the State grating license[318]. The Nigerian Government took approximately 40 years to develop a robust method of checking the volume of resources extracted by the industry[319].

In the case of Brazil, it sounds reasonable that it adopts the same volume used to collect domestic royalties to calculate Article 82 compensation. Thus, the same rules for natural gas, flared or re-injected, shall be applied. It is important to remember that Brazilian legislation has very similar wording to the Convention, stating that the royalties are due over "the total production volume"[320].

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[316] Lei No. 9.478 of 1999, Article 47. Similarly, taxes are paid in Brazilian reais, even over transactions made in foreign currency. Brazil, National Tax Code, Law No. 5.172 of 1966, Article 162, I and Article 143.

[317] ISA, *Issues Associated with the Implementation of Article 82*, note 21, pp.30-31.

[318] Chircop notes that the OCS State and the licensing company are in the best position to determine the volume of oil produced. Aldo Chircop, "Non-Living Resources: Operationalizing Article 82", note 167, p. 401.

[319] Mingay, "Article 82 of the LOS Convention", note 7, p. 343.

[320] Brazil, Presidential Decree 2.705 of 1998, Article 12.

When domestic legislation adopts such a similar provision, if the State pays less than it collects internally, it would be deemed not acting in good faith. A comparative approach has previously been adopted in international law. One example is the most favoured nation and the national treatment principles adopted by World Trade Organization (WTO)[321].

The hard question is: is paying as much as a State would collect under its royalty regime enough to comply with Article 82? In other words, is there any case in which a country might be considered in bad faith, even if it applies internationally the same methodology as it applies domestically? This is hard to imagine in the Brazilian case because the State collects royalties even over some fractions of production that other States do not[322] and only a few deductions are allowed.

It is noteworthy that Article 82 makes no mention of a global market value or local value in the case of commodities. As briefly described, the Canadian methodology studied for this thesis is exclusively based on a local market. In the case of Brazil, the valuation of oil is based on the global price, but natural gas values may be according to an "international" market, or local sales.

All oil is valued based on a calculation method that considers Brent Oil prices and the chemical difference between the oil produced and the standard Brent oil composition. For natural gas, which lacks a global market value, Brazil considers a balance of the Henry-hub price, a well-established market located in the United States, and some natural gas products prices from Mont Belvieu (Texas/USA). Again, there is a formula to compare the quality of natural gas produced and the standard natural gas and products adopted[323].

Once the ANP follows all the procedures to determine the oil and natural gas reference prices based on its regulation, it monthly publishes these prices on the website. Nevertheless, when natural gas is sold domestically and the company complies with the provisions to inform sales prices, this price is the reference price. Only a few transactions are communicated, and most of the

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[321] Wort Trade Organization. Principles of the trading system. Available at: https://www.wto.org/english/thewto_e/whatis_e/tif_e/fact2_e.htm. Accessed on 11 October 2022.

[322] One example is thar not all natural gas flared or vented is exempted from royalties' payments. Some deductions which are allowed in USA, UK, Australia, Alberta, and Nigeria area not applied in the Brazilian framework. ISA, *A Study of key terms in Article 82*, note 91, p.13.

[323] For more details, see Part One, "Brazilian Royalty Regime".

natural gas produced is valued based on the reference price set by Resolution ANP N. 875 of 2022[324].

This reference price considers the average of daily prices and the total volume produced in that month, disregarding the day of production. Even for the Special Participation calculation, which is due quarterly, the gross revenue considers each month the volume of production and each month the reference price. There is no case in which Brazil adopts an annual average price or a different methodology, such as a quarterly average.

The ILA states that there is no explicit requirement to adopt a daily price average and "the coastal State has the discretion to opt for an internationally recognized and acceptable method of calculation that is appropriate to its own policies and needs"[325]. It is a huge policy issue for Brazil to adopt a methodology similar to the one applied domestically, valuing the hydrocarbon produced each month with the average price of that month. The adoption of one single annual value for the purpose of compliance with Article 82, as suggested by Lodge[326], would deviate from the State practice and would conflict with the model of contract that proposes domestic royalty decreasing rates in the same proportion as Article 82 scale-up.

Once again, this interpretation shall be considered in good faith. First, it is consistent with the domestic State practice. Second, this methodology should not be considered more beneficial to the OCS State or the beneficiaries. A comparison made considering three offshore producing fields, *Tupi*, *Marlim Sul,* and *Golfinho*, evidences that the difference between the Brazilian methodology and an annual average price calculation is less than 1% and, in two cases, values due are higher when the annual average is considered, and lower in the other one [327].

For the Brazilian Government, the issue is more political than economic. Any difference to be supported by the Brazilian Government would be subjected to the Fiscal policy and the Budgetary

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[324] The reference price is the price used to calculate the amount of royalties due. For more details, see Part One, "Brazilian Royalty Regime".

[325] ILA, *Outer Continental Shelf*, note 66, p. 1052.

[326] Logde, "The International Seabed Authority and Article 82", p. 326. The author states that: "Perhaps the only practical method would be to calculate the value on the basis of the average price for the year."

[327] The simulation considered these three fields production and oil and gas value in 2021. The variation found was: *Tupi*, 0,06%; *Marlim Sul*, 0,09% and *Golfinho* -0,64%. The values, in Brazilian reais were calculated based on the maximun rate, 7%. The discriminated values are shown in Annex 1.

Law. This could impose more complexity to the already challenging Article 82. Although domestic issues shall not be invoked at the international level to prevent the observance of a treaty[328], in this case, the provision of the Convention is in force and being applied. The matter concerned is not in the field of validity but in the interpretation arena. The suggested interpretation can be considered in good faith and in accordance with the spirit of the Convention.

Commentators seem to agree that the OCS State shall determine when, during a 12-month period, it will make payments or contributions in kind[329]. It was also suggested a regular schedule of payments or contributions, instead of a single discharge of the obligation[330]. In the case of Brazil, the State shall analyze the convenience of making payments quarterly, the same periodicity to collect the Special Participation, to minimize commodity price fluctuation.

The Brazilian practice with the Special Participation, which also has a scale-up rate based on the year of production, might guide the interpretation of the year of production from Article 82. The due dates are fixed regardless of the commencement of production date and considering the civil year, which is calculated quarterly. For the first calculation, it is considered the period from the beginning of production until the end of that quarter[331]. Depending on the date of commencement of production, each quarter may have different rates due to the year of production.

Conversely, payments and contributions to the ISA may be made at a pre-fixed schedule, but calculations shall consider each field anniversary, following the interpretation of "site" suggested by Chircop[332]. For adjustment reasons, because royalties are usually collected monthly, the anniversary might be considered the first day of the month after the 12-month period[333].

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[328] Vienna Convention, Article 27.

[329] Mossop, "*The Continental Shelf*", note 20, p. 133. ILA, *Outer Continental Shelf,* note 66, p. 1054.

[330] ISA, *Issues Associated with the Implementation of Article 82,* note 21, p.32.

[331] Resolution ANP 870 of 2022, Article 5.

[332] Chircop. "Article 82: Payments and Contributions", note 13, para.17.

[333] Brazil has a similar rule for Special Participation: Presidential Decree No. 2.705 of 1998, Article 25: Single Paragraph. When the date of beginning of production in a given field do not coincide with the first day of a trimester of a calendar year, the special participation due in this trimester shall be calculated based on the number of elapsing days between the date of beginning of production of the field and the last day of the trimester and, for the purpose of subsequent assessments of the special participation, the number of years of production of the field, referred to in the paragraphs 1 and 2 of Article 22, will start counting from the beginning of the following trimester of the calendar year.

Aligned with international industry practice, the commencement of production shall be considered commercial production. In this case, the Brazilian general rule, that royalties are due from the beginning of commercial production shall be applied[334]. In the absence of a similar provision at the international level and considering the additional complexity of the rules, an extended well test could not be considered for the purposes of Article 82 of UNCLOS[335].

In the relationship with the ISA, Brazil shall not only agree on payment schedules but also on information flow frequency. It would probably be easier for the administrative bodies to prepare the support documentation only once a year, disclosing the total amount of production in the period, also detailed information about the value of production, the origin of the hydrocarbon, and the applicable rate.

Although there is nothing in the Convention to force the States to comply with the disclosure of this data, it can be seen as a good faith act. In the Brazilian case, it can be said that, if the reservoir is totally located on the outer continental shelf, it is possible to roughly calculate the amount due based on public data. In other words, the ANP presents on its website: (i) the monthly volume of production; (ii) the oil reference price of each steam; (iii) the gas reference price (adopted only if the information about sales is not provided); and (iv) the volume of gas flared and reinjected in each field[336].

Mingay suggests that payments and contributions under Article 82 might be interpreted by the industry as an issue of corporate social responsibility. In this sense, oil and gas companies might wish to publicly inform the payments made through the International Seabed Authority, or, at least, the amounts due under Article 82 of the Convention to take advantage of the marketing of sharing

[334] Brazil, Law No. 9.478 of 1997, Article 47.

[335] Considering the five-year grace period, any volume produced from an extended well test would not be considered for payments or compensation in kind. The importance of this matter is only relevant to determine the commencement of production.

[336] Agência Nacional de Petróleo, Gás Natural e Biocombustíveis, Painéis Dinâmicos de Produção de Petróleo e Gás Natural Período [Oil and Gas Production Dashboard. Production by field per month]. (23 August 2022). Available at: https://www.gov.br/anp/pt-br/centrais-de-conteudo/paineis-dinamicos-da-anp/paineis-dinamicos-sobre-exploracao-e-producao-de-petroleo-e-gas/paineis-dinamicos-de-producao-de-petroleo-e-gas-natural

resources with the least developed and the land-locked States. Similarly, oil and gas companies publicize greenhouse gas emissions voluntarily[337] or when required by law[338].

The OCS States that are not forbidden by law or other provisions to inform data about oil and gas production and its price or value should encourage companies to disclose information about Article 82 payments and contributions on their website to support international accountability. Countries should also consider obliging, by contract or regulation, companies to disclose OCS information on their websites. Companies capable of production on deep-water beyond 200 NM are well-structured companies and this kind of obligation probably would be a minor regulatory burden.

Section B – Transboundary resources

Onorato defines "a common petroleum deposit as a single structure or field that in part underlies the territory of two or more states", and Ong adds that transboundary resources may also be situated in a continental shelf area subject to overlapping claims[339].

In this sense, the hydrocarbon resources of the continental shelf of a State are not typical transboundary resources, as there is only a single State and all production occurs within national jurisdiction. However, some of the issues concerning resources located in the inner and outer continental shelves[340] are the same as those faced by transboundary resources.

Another hypothesis, but less likely to occur, is that the hydrocarbon resource is partially located within the national jurisdiction and partially in the Area[341]. The continental shelf is a prolongation of the land territory[342] and, because of its sediments, this is the area with the best potential for oil

[337] See: Equinor, Petróleo e Gás Natural [Oil and Natural Gas] (28 September 2022). Available at: https://www.equinor.com.br/petroleo-e-gas-natural.

[338] Law No. 12.351 of 2010, Article 29, XXI.

[339] David M Ong. "Joint Development of Common Offshore Oil and Gas Deposits: "Mere" State Practice or Customary International Law?". *The American Journal of International Law*, Vol. 93, No. 4 (October1999). p. 775.

[340] About the non-acceptance of the concept of an inner and an outer continental shelf, see note 4.

[341] The Area is the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction. UNCLOS, Article 1 (1)(1).

[342] UNCLOS, Article 76 (1).

and gas accumulation[343]. But it is not impossible that a reservoir extends beyond national jurisdiction to the Area. This situation is also slightly different from traditional transboundary resources, as there is a State on the one side and humankind, represented by the International Seabed Authority[344], on the other.

The rule of capture is not accepted as an international law principle[345], thus, production in this these circumstances depends on some level of agreement between the ISA and the coastal State, which is analysed in this chapter.

Paragraph 1 – Reservoirs located in the inner and outer continental shelf

One of the known solutions to explore and produce a transboundary oil and gas field is a Joint Development Agreement (JDA). Ong identifies three basic types of JDA. In the first, one State manages the common deposit on behalf of both States, and the other one shares in the proceeds from the exploitation. In the second, the Agreement establishes a compulsory Joint Venture between the interested States and their national or other nominated oil companies in the designated joint development zones. Finally, the third option is to create an international joint authority or commission with legal personality to license and regulate the development of the designated zone[346].

A Joint Development Agreement can be adopted to develop a common deposit of two or more States where the boundary and the continental shelf are delimited or where there are overlapping claims areas[347]. Thus, JDA is suitable for reservoirs under more than one jurisdiction, which is not

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[343] Franssen, Herman T. "Oil and Gas in the Oceans" in *International Law Studies (vol 61) Role of International Law and an Evolving Ocean Law.* Richard B. Lillich and John Norton Moore (ed), p.390. Available at: https://digital-commons.usnwc.edu/cgi/viewcontent.cgi?article=1856&context=ils.

[344] UNCLOS, Article 157 (1)

[345] Ong, "Joint Development of Common Offshore", note 339, p. 777. The rule of capture recognizes ownership of oil and gas in the party that brings it to the surface regardless of where the oil and gas lay in its natural state. Kramer, Bruce M; Anderson, Owen L (2005), "The rule of capture: an oil and gas perspective" in Environmental law (Portland, Oregon), Vol.35 (4), p.899. Also see: Nigel Bankes, "Recent Framework Agreements for the Recognition and Development of Transboundary Hydrocarbon Resources". *The International Journal of Marine and Coastal Law* 29 (2014), p.675.

[346] Ong, "Joint Development of Common Offshore", note 339, p. 788-791.

[347] Ibid, p. 775.

the case for a resource underneath the inner and the outer continental shelf. There are no disputes over licensing power, security, labour, or tax regimes. There is only the need to define the amount of oil that is subject to Article 82 payment.

The other option for a common reservoir is a Unitization Agreement. Unitization might be adopted to a transboundary deposit or within the national jurisdiction. Brazil has some cases of domestic Unitization [348]. There are three types of Agreements domestically adopted to deal with transboundary resources. The first is called Annexation of an area. This is possible only when the two areas are contracted under the same regime, with the same company or consortium and the essential contractual terms are the same[349]. In this case, the newly discovered commercial area will be incorporated into the production area through a contractual amendment and the other contract will be terminated. The two areas, thus, will be only one and treated as so[350].

In the second option, the two areas are also operated by the same company or consortium, but the contractual terms, such as royalties and local content commitments, are not the same. This situation is called Individualization of Production Commitment. This procedure does not involve negotiation between parts but implies a unified operation and management. The commitment will grant compliance with: (i) percentages and local content rules, (ii) royalty payments, and (iii) other governmental participation, proportionally. Eventually, if the Contracts are not in the same regime – Concession and Production Sharing Agreement (PSA), for instance – the ANP, the regulatory body, will comprise legal parameters[351].

Finally, the most complex Unitization type is called Individualization of Production Agreement, or simply Unitization, and shall involve at least two companies. The companies shall negotiate and define the future Operator of the reservoir and the allocation of production[352]. Once again, the

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[348] PPSA, Unitização [Unitization]. Available at: https://www.presalpetroleo.gov.br/unitizacao/. Accessed on 10 October 2022.

[349] The main contractual terms for this purpose is royalty rates and local content commitment.

[350] ANP, Anexação de Áreas. [Annexation of Areas] (12 March 2021). Available at: https://www.gov.br/anp/pt-br/assuntos/exploracao-e-producao-de-oleo-e-gas/gestao-de-contratos-de-e-p/fase-de-producao/anexacao-de-areas

[351] ANP, Compromisso de Individualização da Produção [Individualization of Production Commitment] (05 October 2020). Available at: https://www.gov.br/anp/pt-br/assuntos/exploracao-e-producao-de-oleo-e-gas/gestao-de-contratos-de-e-p/fase-de-producao/compromisso-de-individualizacao-da-producao-cip.

[352] Costs allocation and other management issues will be part of the UOA See note 287.

ANP will be responsible for statutory and contractual convergence. It might happen that the resources are underneath an open area. The Federal Union will be represented by the Pre-Salt Petroleum SA (PPSA) in the case of areas located in the pre-salt polygon or strategic areas and by the ANP in the remaining areas[353].

The ANP shall set a time limit for negotiations. If companies fail to reach an agreement according to the CNPE guidelines, the ANP shall issue a technical report on how the rights and obligations relative to the shared reservoir should be appropriated. If the parties refuse to sign the Unitization Agreement, the Concession Contract or the PSA will be terminated by the ANP[354].

The example of Figure 11 illustrates a Unitization Agreement in the pre-salt area. The reservoir (green line) subject to the Individualization of Production Agreement is underneath the *Tupi* field (92,10%), the *Sul de Tupi* field (7,35%), and an open area, in blue (0,55%). The red line was added to draw attention to the boundary of these three different zones.

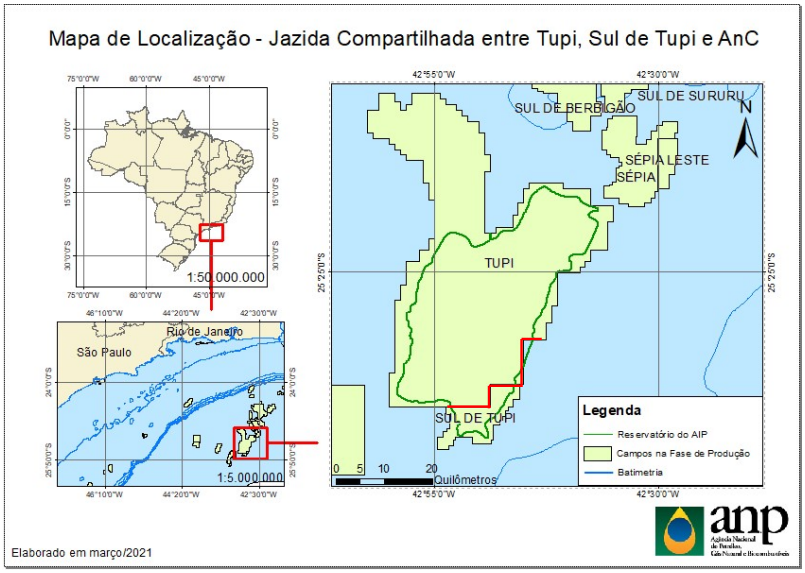

Figure 11: *Tupi* Unitization
Source: adapted from ANP, Mapa de localização – Jazida compartilhada de Tupi, Sul de Tupi e Anc. Available at: https://www.gov.br/anp/pt-br/assuntos/exploracao-e-producao-de-oleo-e-gas/gestao-de-contratos-de-e-p/fase-de-producao/ipu/mapa-tupi-sul-tupi.png

[353] Open area is an area for which E&P rights have not yet been granted. Brazil, Law No. 12.351 of 2010, Articles 34 and 35. ANP. Acordo de Individualização da Produção [Individualization of Production Agreement] (30 March 2022). Available at: https://www.gov.br/anp/pt-br/assuntos/exploracao-e-producao-de-oleo-e-gas/gestao-de-contratos-de-e-p/fase-de-producao/individualizacao-da-producao-ou-unitizacao

[354] Brazil, Law No. 12.351 of 2010, Articles 33 and 40.

An oil and gas block beneath the inner and in the outer continental shelf is a very similar situation to areas subjected to Individualization of Production Commitment. There is only one company or consortium responsible for the entire area, thus the main concern is neither the production management nor the need to define the Operator. However, it is important to determine the volume of oil and gas in each part of the continental shelf, within and beyond 200 NM.

Although the ANP relies mainly on Operator's information about the reservoir characteristics and the volumes provisionally allocated to each Contract[355], the ANP has the duty to approve all kinds of Unitization and to look for the public interest[356]. Under the Brazilian framework, data and information on Brazilian sedimentary basins are considered part of the national oil resources and are administered by ANP[357]. Therefore, the Agency has access to the geomorphological data necessary to discharge this function[358].

Considering the ISA role described in Chapter 1 of Part two, it is not expected for the Authority to make any kind of assessment of the production allocation. Still, any dispute involving the reservoir characteristic and geological or geomorphological data shall be subject to a confidentiality agreement when this data is not considered public information[359]. The map and volume of the common deposits in the pre-salt area are disclosed as an obligation established by law but do not include the reservoir characteristics[360].

Chircop suggests that this situation might impose considerable difficulties on oil companies, imposing Article 82 obligation into only part of the production[361]. As said, in the Brazilian

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[355] Similar situation occurs in the international level, in which many Agreements provide a leading role for oil companies in estimating total reserves and its apportionment. Bankes, "Recent Framework Agreements", note 345, p. 680.

[356] Braga, The Brazilian Regulatory Systems for Unitization, note 285, p. 105.

[357] Brazil, Law No. 9.478 of 1998, Article 22.

[358] In the case that Unitization includes an open area, ANP might also contract Petrobras to carry out the reservoir assessment. Brazil, Law No. 12.351 of 2010, Article 38.

[359] The confidentiality period is established in the Resolution ANP 757 of 2018. ANP, Resolution ANP No. 757 of 2018 (23 November 2018), Federal Official Gazette (26 November 2018).

[360] Brazil, Law No. 12.858 of 2013 (09 September 2013), Federal Official Gazette (10 September 2013), Article 2, paragraph 2.

[361] Chircop, "Non-Living Resources: Operationalizing Article 82", note 167, p. 401.

scenario, Operators are familiar with similar situations or even more complicated ones[362], as well as the regulatory body is. In this case, the State might determine the portion of the common deposit that is located in the OCS and apply the national royalties and Article 82 proportionally. Nevertheless, if the interpretation of Article 82 is not consistent with domestic legislation, major difficulties may arise from this situation.

Not only an administrative burden to assess the amount to be paid in this case would be imposed on the oil companies, but also the strategy adopted by the Brazilian Government to reduce the financial impact of Article 82 on the industry through the reduction of domestic royalty would be impaired[363]. In addition to the burden for operators, if the interpretation of Article 82 differs too much from the domestic practice, it might be an issue for the OSC State, imposing institutional and administrative costs that, apparently, the State is not entitled to recover[364].

Paragraph 2 – Reservoirs located in the continental shelf and the Area

UNCLOS Article 142 (2) states that: "[] In cases where activities in the Area may result in the exploitation of resources lying within national jurisdiction, the prior consent of the coastal State concerned shall be required." The first conclusion is that, provided that the coastal State consents, a common resource may be explored from the Area. But the company exploring resources from the Area is prevented from drilling in the State continental shelf without specific permission from the State for drilling in that area[365].

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[362] In the case of Article 82, accordingly to the Model Contract proposed to the 17th Bidding round, the difference is limited to royalties, due to the scale down rate and the Article 82 obligation. ANP. "Edital e Modelo do Contrato: Edital (versão em Inglês). [Tender protocol and model of the concession: Tender protocol (English version)]", (5 August 2021), Item 2.3.2. Available at: https://www.gov.br/anp/pt-br/rodadas-anp/rodadas-concluidas/concessao-de-blocos-exploratorios/17a-rodada-licitacoes-blocos/edital

[363] The oil company is designated by the Model of Concession Contract to support the financial burden of the Article 82 payments. Ibid.

[364] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p. 50.

[365] UNCLOS, Article 81. Even if the oil company do not drill within the national jurisdiction, hydrocarbons located in the coastal State continental shelf might be drained due the fugacious nature of oil and gas. "For example, a well drilled on a tract located above the lowest portion of a geologic structure, such as a water-drive reservoir produced from an anticline, cannot prevent drainage up the structure and thus cannot produce all of the oil physically located beneath that tract. Inevitably, some oil will migrate toward neighbouring lands up the geologic structure. Likewise, a well drilled on a tract located at the top of an anticline-structure will likely drain more oil than is originally in place beneath that tract." Kramer and Anderson, "The Rule of capture", p. 950.

This provision applies not only to the OCS States, but also to States which established their continental shelf to a distance of 200 NM from the baselines. So, there are two possibilities. One, the resource is located beneath the continental shelf within 200 NM and the Area. In this case, no compensation under Article 82 is due. The second one is when the reservoir is located beneath the OCS and the Area, triggering the compensation of Article 82[366]. The ISA duties in relation to the Area seem to be the same in both situations and are governed by Part XI of the Convention.

It is conceivable that a coastal State starts the exploration in the continental shelf and finds a hydrocarbon deposit that straddles the national jurisdiction[367]. The Convention expressly provides for the ISA to consult the coastal State and to conduct the activities with due regard to the rights and legitimate interests of the coastal State. The question is whether the coastal State has the same obligations. Chircop argues that the duty to consult and refrain from exploiting without consent is an international customary law and should be applied in relation to the ISA in its capacity as an intergovernmental organization[368]. Mossop considers that, arguably, the principle of mutual retraining would apply to the Authority[369].

The ISA Technical Study 4[370] highlights that if the OCS State access the resources located in the Area without resorting to Part XI procedures it will likely be a violation of the treaty. But, actually, due to the migratory nature of hydrocarbons, if there is a common deposit straddling the Area, no production might occur in the unit without complying with Part XI of the Convention[371].

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[366] Mossop recalls that: "In situation where the outer limits of the coastal State have not been concluded according to article 76 of the LOSC, both coastal States and the ISA must be particularly careful not to potentially exploit resources that may ultimately be found to belong to the other side." Mossop, "*The Continental Shelf*", note 20, p. 147.

[367] Exploration activities not able to cause damage to the reservoir can be conducted without consent. Mossop, "*The Continental Shelf*", note 20, p. 141. Similarly, Kramer and Anderson conclude under the United States framework geophysical activities can be conducted without neighboring consent so long activities are being conducted without physical trespass. Kramer and Anderson, "The Rule of capture", p. 938.

[368] Aldo Chircop "Managing Adjacency: Some Legal Aspects of the Relationship Between the Extended Continental Shelf and the International Seabed Area", *Ocean Development & International Law*, (2011), p. 313.

[369] Mossop, "*The Continental Shelf*", note 20, p. 147

[370] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p.52.

[371] Mossop, "*The Continental Shelf*", note 20, p. 141: "a State cannot exploit a common field without affecting the neighbour's share of the resource.". See note 439 about hydrocarbons nature.

A possible solution to a reservoir located in the continental shelf and in the Area would be the adoption of a Joint Development Agreement, determining a Joint Development Zone[372]. The simplest way to do so would be for the coastal State to manage the common deposit and share the resource with the Authority. It would be necessary, though, to determine how the revenues would be shared. The solution could vary from equal sharing irrespective of the area located in the continental shelf and in the Area[373] to proportional sharing based on the area located in each zone[374], or on the volume of hydrocarbons located in each zone[375]. The last one seems to be the share that better represents the wealth of each zone. But would a JDA where the Authority confers powers to the coastal country to manage the activity be consistent with its obligations under the Convention?

A Joint Development Agreement providing for a mandatory Joint Venture by companies nominated by each party might better accommodate the functions of ISA in relation to the Area, such as inspecting installations used in connection with activities in the Area[376]. In this type of Agreement, both parties retain the power to approve hydrocarbon development in the joint zone by approving the Joint Operating Agreements[377]. The drawback, in this case, is the high negotiation costs of this kind of Agreement, especially when considering all the functions of the ISA in relation to the Area. Still, it will be necessary to determine how to allocate production because only the production from the OCS is subject to Article 82 compensation.

Finally, the third option is the establishment of an international joint authority or commission, which seems not to be an adequate solution to common deposits in the continental shelf and the Area. The ISA has no power under the convention to create a new international organization. Likewise, any organ or commission established by the Authority seems to be part of the body, as

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[372] Chircop, "Non-Living Resources: Operationalizing Article 82", note 167, p. 403.

[373] Equal sharing was the solution adopted in Agreements between Saudi Arabia and Bahrain and between Abu Dabi e Quatar. Ong, "Joint Development of Common Offshore", note 339, p. 789.

[374] Although to collect royalties Brazil adopts the volume located in each area to determine the amount of royalties due when the offshore resource is located beneath the projection lines of the territorial limits of two Brazilian Federal States. royalties will be distributed proportionally to the area of the field in each state. Brazil, Presidential Decree No. 2.705 of 1998, Article 16, sole paragraph.

[375] The usual solution adopted in Unitization Agreements.

[376] UNCLOS, Article 153 (5).

[377] Ong, "Joint Development of Common Offshore", note 339, p. 789.

it is necessary for the development of its functions. The ISA does not seem to be authorised to create a commission with another State party[378].

Another kind of approach would be a transboundary Unitization Agreement. Bankes advocates that this is "clearly the preferred means by which States and their licensees might agree to produce transboundary hydrocarbon resources"[379]. Transboundary Unitization usually adopts the same concepts as domestic Unitization[380]. Because of that, the Brazilian State might prefer getting into a Unitization Agreement[381] rather than any type of JDA. Brazil has no records of JDA or any cross-border unit development agreement. Bankes summarises regarding Unitization Agreements:

> These agreements typically address a number of different topics including: scope or coverage of the agreement, purpose and objectives, identification of transboundary accumulations and duties to exchange information, authorization for production of transboundary accumulations and the role of unitization, determination and redetermination of reserves and their allocation, technical issues (measurement, etc.), fiscal issues (royalties and taxation), infrastructure issues, environmental issues, institutions and dispute resolution, decommissioning, duration and termination.

A Unitization Agreement might be a solution to be adopted in a case-by-case scenario, in already known deposits, or future discoveries[382]. The Agreements vary in the level of detail and may be limited to the duty to reach an agreement on how to develop the reservoir as a unit[383]. Considering the low probability of a common resource underneath the continental shelf and the Area, a simple

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[378] UNCLOS, Article 158 (1) (3).

[379] Bankes "Recent Framework Agreement", note 345, p. 882. Also, Bastida and others, "Cross-border Unitization", p. 392. Mossop does not express any preference between JDA and Unitization Agreement. Mossop, "*The Continental Shelf*", note 20, p. 139-145.

[380] Bastida and others, Cross-border Unitization and Joint Development Agreements: an International Law perspective. *Houston Journal of International Law*, 2007, Vol.29 (2), p. 391.

[381] There are different views if Unitization Agreements are – or are not – a type of JDA. Mossop understanding is that Unitization is a type of JDA. Mossop, "*The Continental Shelf*", note 20, p. 141.We adopted the duality of Ong and of Bankes that do not consider Unitization as a type of JDA, but a different category.

[382] Mossop, "*The Continental Shelf*", note 20, p. 140.

[383] Ibid.

unity-of-deposit clause[384] and consulting obligations could be part of the MoU between the OCS State and the Authority or an independent Agreement.

If the coastal State signs an Agreement with the ISA, it would be important to include a clause about drilling within the national jurisdiction. Scholars have stated that exploratory activities might be conducted without neighbouring consent[385]. It is not clear, though, if drilling an exploratory well would depend on the consent of the other State or the ISA. Bankes is precise when stating that adequate knowledge and understanding of the reservoir can only be obtained by drilling wells[386]. Indeed, the presence of hydrocarbons will only be confirmed by drilling an exploratory well[387].

If Brazil, or another coastal State, is willing to develop oil and gas exploration close to the Area boundary, it is highly advisable to get into an Agreement with the ISA to provide certainty to the industry that, if there is a discovery that is also located in the Area, the company will not have to refrain from producing[388]. It is not clear if this could be a clause in the MoU between the OCS State and the Authority. An MoU may not be an appropriate agreement to set for new rights and duties and, although the duty to cooperate is recognized as customary law, the same cannot be said about getting into an agreement[389].

In any case, whether there is a commercial discovery, once the coastal State and the ISA agree on the apportionment of production and if the solution is not for equal rights, the ISA shall decide how to exercise its right over the resources from the Area. The Draft regulations on the exploitation of mineral resources in the Area are under discussion but the provision of royalty rates in this draft

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[384] Bankes, "Recent Framework Agreements", note 345, p. 672.

[385] Mossop, "*The Continental Shelf*", note 20, p. 141. Bankes, "Recent Framework Agreements", note 345, Footnote 39.

[386] Bankes, "Recent Framework Agreements", note 345, p. 680. Banks highlights that only UK-Norway and Norway-Russia has similar provisions.

[387] Cláudio José Teixeira de Lima. Processo de tomada de decisão em projetos de exploração e produção de petróleo no Brasil: uma abordagem utilizando conjuntos nebulosus. Rio de Janeiro (October 2003). Available at: http://www.ppe.ufrj.br/images/publica%C3%A7%C3%B5es/mestrado/Cl%C3%A1udio_Jos%C3%A9_Teixeira_de_Lima.pdf

[388] Bankes, "Recent Framework Agreements", note 345, p. 689. In this case, the Agreement shall have an dispute resolution clause or designate an expert assistance to make binding apportionment.

[389] Ong, "Joint Development of Common Offshore", note 339, p. 803.

only refers to polymetallic nodules, polymetallic sulphides, and cobalt-rich ferromanganese crust[390]. The cap of 7% of all production provided by Article 82 of UNCLOS does not apply to the resources in the Area. Also, there is no requirement for a grace period, a scale-up rate, or to be adopted a royalty system. The ISA shall decide how to collect its share from the hydrocarbons in the Area.

One possible solution for the Area's share in the production would be applying the same system or royalty rate as the coastal State. Although, in this case, the first thought might be that there is no sense to establish different royalty rates along the Area, it would not seem unusual for the oil and gas industry. A reason why royalty rates may vary from country to country[391] or within the same jurisdiction[392] is the geological structure and, therefore, the attractiveness of the area, which are not the same.

The other option would be to have a fixed royalty rate or income system. The disadvantage of this alternative would be that the Authority would probably incur higher regulatory and administrative costs as it could not rely on the assistance of the coastal State in assessing its share. Mossop points out that if a Unitization or a JDA is made to a common deposit underneath the Area and the outer continental shelf, the Agreement shall also address the application of Article 82[393].

It is important to bear in mind that developing the resource as a unit is the best way – if it is not the only one – to comply with UNCLOS Article 150 (b) duty to carry out the activities in the Area orderly, safely, rationally, and efficiently, and to avoid unnecessary waste.

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[390] ISA, Draft regulations on exploitation of mineral resources in the Area. Prepared by the Legal and Technical Commission. ISBA/25/C/WP.1 (Kingston, 22 March 2019).

[391] Nigeria has a 10% royalty rate for fields deeper than 200m and 7,5% for onshore and shallow waters. The country also impose Additional Royalty based on price, up to 10%. PWC. Nigeria introduces amendments to increase royalties on Deep Offshore and Inland Basin operations (November 2019). Available at: https://pwcnigeria.typepad.com/files/pwc-tax-alert_changes-to-deep-offshore-act_nov2019.pdf. For more exemples, see: https://s3.amazonaws.com/rgi-documents/4e0c1376cf92813658759cc937debc5a4868e4c8.pdf

[392] In Brazil royalty's rates are 15% under PSA and may vary from 5% to 10% in the Concession Contract. The 17th Bidding Round adopted, besides the scale-down rates for the blocks located in the OCS, rates of 5%, 7,5% and 10%. ANP, Participações Governamentais [Government Participation] (9 August 2021), Slide 9. Available at: https://www.gov.br/anp/pt-br/rodadas-anp/rodadas-concluidas/concessao-de-blocos-exploratorios/17a-rodada-licitacoes-blocos/arquivos/seminarios/apresentacoes-do-seminario_ambiental_juridico_fiscal_r17_09_08_2021.zip

[393] Mossop, "*The Continental Shelf*". note 20, p. 142.

CONCLUSION

Article 82 of the United Nations Convention on Law of the Sea (UNCLOS) is an intriguing and ambiguous provision that provides for international compensation in relation to the exploitation of non-living resources from the outer continental shelf (OCS). Oil and gas exploration and production have been moving further from the coast and States are issuing licenses in areas beyond 200 NM. Canada recently made a hydrocarbon discovery in Bay du Nord, which will likely trigger the dormant clause of UNCLOS Article 82. Brazil has offered three oil and gas blocks partially located in the OCS. The areas were not awarded. Despite that, they may be acquired at any time by the Open Acreage, a continuous process for offering exploratory blocks.

International literature is sparce and there is no guideline on the implementation of Article 82 from the International Seabed Authority (ISA). The last relevant international discussion meeting on the topic was in 2012, in Beijing. After that, the ISA issued only Technical Study 15, on the key terms in Article 82 of UNCLOS, in 2016, and Technical Study 31, which was mainly focused on the equitable sharing of financial benefits from the deep-seabed mining but had briefly considered that the distribution formulae could be adapted to Article 82 (4). Thus, in the absence of definitions and in light of the warnings that any discussion might be easier before payments and contributions start, the topic still needs considerable further study.

This thesis aimed to raise awareness of the main issues and challenges Brazil shall face in discharging its obligation under UNCLOS Article 82 exclusively for oil and gas, the primary interest of the State in the OCS. A clearer understanding of Article 82 is important to provide political and juridical stability to the oil and gas industry and to foster Brazilian development of hydrocarbon exploration and production in the OCS.

In Section 1 of the first Chapter, the thesis recalled the background and history from Article 76 to Article 82 and described the status of the Brazilian continental shelf. The compensation in Article 82 is considered a *quid pro quo* for the encroachment of the Area. By the time of negotiations, the Brazilian government considered the final outcome a great achievement. Back then, Brazil had aimed for oil and gas exploitation in the outer continental shelf and was not expecting to make any payments and contributions owing to the exemption provided for developing States.

In 1969, Brazil began a major integrated program of marine geological research. It was the second State to make a submission to the Commission on the Limits of the Continental Shelf (CLSC). The

Brazilian submission had initially claimed an area of 911,847 km^2. After three revised partial submissions, an area of 953,525 km^2 was added to the claim (Figure 1). In 2019, the CLCS made recommendations on the revised submission in respect of the Brazilian Southern Region with no amendments. Brazil has not yet established the outer limits of its continental shelf, because the recommendation by the CLCS on two regions are pending.

The second Section of Chapter 1 considered the key terms of UNCLOS Article 82 in light of the literature and the International Seabed Authority Technical Studies. The analysis was divided into four parts. Firstly, the section dealt with issues related to the choice between payments or contributions in kind, and the advantages and disadvantages of each option. Secondly, it explored the meaning of "annually" and suggested the adoption of an agreed schedule of payments. Additionally, it analysed the production commencement date and the grace period that together determine the applicable rate. Then the section considered the calculation basis. Finally, it dealt with the requirements for the obligation exemption.

Chapter 2 of Part one described the Brazilian framework. In the first Section, the main characteristics of the Concession and the Production Sharing regimes – such as royalty rates and applicability – were highlighted. It concluded that the Production Sharing Agreement is not likely to be adopted to the outer continental shelf. In 2021, three areas beyond 200NM were offered even though the outer limits of the continental shelf have not been established yet. Consequently, the National Energy Policy Council (CNPE) designated a Working Group (WG) to assess whether the State could offer areas beyond 200 NM. The WG correctly concluded that the exploitation of the OCS resources does not depend on the establishment of the outer limits of the continental shelf and, at the national level, it does not require any amendment to the statute law. The section also analysed the specific provisions for the OCS in the Concession Model Contract.

In the second Section, the methodology adopted by the Brazilian regulatory body to calculate the domestic royalties was detailed for both oil and natural gas. It is noteworthy that, while oil prices are based on a global market, natural gas is valued considering a local price, which corresponds with the price of gas in Louisiana (Henry hub) and of gas products in Texas (Mont Belvieu), in the United States. Then, it explained the volumes considered to assess the royalties and the cases in which any amount might be deducted. Domestically, royalties are levied on all production. The definition of volume of production states that it shall include oil or natural gas (i) lost under the

responsibility of the concessionaire, (ii) used in connection with the operation, and (iii) flared to the detriment of marketing.

Part two of this thesis dived into the Brazilian challenges. Initially, it was necessary to understand the institutional arrangements. Thus, Chapter 1 of Part two was dedicated to institutions and bodies that might be involved in the implementation of Article 82. The first section of this chapter dealt with the International Seabed Authority. It identified possible functions of the ISA *vis-à-vis* Article 82, although the complete extend of its role remains to be defined. Then, this section examined some formal instruments that the ISA might issue, or negotiate, to deal with its responsibilities in relation to the outer continental shelf. These were: an implementation Agreement, a nonbinding guideline, and a Memorandum of Understanding.

The second Section of Chapter 1, Part two, briefly described the Brazilian institutions that should be tasked with the implementation of Article 82 at various levels. The structure and functions of the Ministry of Mines and Energy and the Ministry of Foreign Affairs were described. Then, it highlighted the main competences of the National Agency of Oil, Natural Gas, and Biofuel (ANP) - the regulatory body - and other multilateral bodies, namely the National Energy Policy Council (CNPE) and the Inter-ministerial Commission for the Marine Resources (CIRM).

The last chapter of the thesis dealt more specifically with the Brazilian case and possible interpretations of Article 82. The first section analysed whether Brazil would be entitled to payments and contributions exemption based on the current scenario and the Energy Research Officer (EPE) forecasts. Then, it compared the domestic framework with some possible interpretations of Article 82. Brazil would likely opt to make payments rather than contributions in kind. The section analysed whether the volume of hydrocarbons adopted domestically to calculate royalties could be adopted for Article 82 purposes, as well as whether the methodology adopted to value oil and natural gas. It considered that they are consistent with the spirit of the Convention with minor adjustments.

Nature does not recognize boundaries or limits imposed by humans and hydrocarbons are migratory by nature. Section 2 of Chapter 2, Part two, deals with transboundary resources. Initially, the thesis examined the case in which the reservoir is completely located under the national jurisdiction, but only part of it is located beyond 200NM. Then, it studied the case in which a

reservoir is located beneath the continental shelf and the Area and some possible implications of each situation.

During the research, it was possible to conclude that some interpretations found in the literature might have a huge impact, reducing the final value of the compensations. Because of that, they shall be very carefully read and analysed. One of them is related to the grace period - the first five years of production when no compensation is due. In the Chatham House seminar, it was suggested to "stop the clock" if there is an interruption of production as a measure of equity[394]. Chircop also agreed with that interpretation "as a matter of fairness"[395]. Such an approach, however, has failed to balance the interests of the international community and it may be against the spirit of the Convention to provide compensation for the encroachment of the Area, the common heritage of humankind.

The proposition also does not give sufficient consideration to States custom, and the industry practice. In the oil and gas industry, there are many reasons for halting production, some of them are predictable and ordinary and should not influence the grace period at all. Countries like Brazil and the United States have explicit provisions that do not admit any interruption in the counting of the years of production. However, there is one case that should be considered more thoroughly and might have a different solution: an accident. Because it could be considered *force majeure*, it might eventually "stop the clock".

Similarly, the interpretation of "resources used in connection with exploitation" will directly and significantly impact the compensation of Article 82. Chircop suggests that production should not consider the resources used to enhance production, which is consistent with industry practice. However, the "use of the resource for production of energy for operations"[396], set as an example by the author, can not be accordingly considered enhanced production. The author seems to not distinguish daily operations from recovery operations. There are some procedures – secondary and improved recovery – that aim to increase productivity. These methods may use natural gas reinjection to provide an external source of the reservoir energy, increasing its natural pressure.

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[394] ISA, *Issues Associated with the Implementation of Article 82*, note 21, p.52.

[395] Chircop, "Implementation of Article 82", note 14, p. 382.

[396] Ibid.

Consequently, the "operation" in which hydrocarbon is used enhances production and increases the total compensation.

Conversely, if natural gas is used to generate energy for daily operations and it is deducted for the purposes of Article 82 compensation, the compensation would decrease. This interpretation seems to conflict with the *travaux préparatoires*, which revealed that the negotiators intended to consider the gross production. Another relevant drawback in this interpretation is that the compensation to the beneficiaries would be directly influenced by the technology adopted by the platform. Moreover, it would leave an open space for Operators, or even for the OCS State, to influence the amount of compensation by making changes in the power plant or the processing plant of the installation, swapping from another source of energy into natural gas. These facts support the idea that this kind of deduction is not consistent with the spirit of the Convention.

Having discussed these important interpretations applicable to all OCS States, the thesis analysed the steps that the Brazilian government took so far in dealing with the resources beyond 200 NM. Similar to other countries, in the 17th Bidding Round, the State gave notice to the oil industry about the possibility that Article 82 compensation might be required for the production on the OCS. In this case, the oil companies will be liable for the financial burden but may benefit from a royalty reduction domestically. Even so, the total royalty burden would increase from 10% to 11% in the eleventh year, and to 12% from the twelfth year and on (see Table 1). This measure is an important initiative to grant – or at least not to impair – the attractiveness of the project.

At this point, one juridical issue shall be addressed by the Brazilian Government. If there is high productivity, the oil company shall pay Special Participation. In this case, royalties can be deducted to calculate the amount due. It is not clear whether Article 82 compensation, also called an "international royalty", would automatically fall within the regulatory provision and would also be deductible, or not. If it demands any amendment, the General Attorney from ANP shall indicate whether it is a legislative or regulatory issue. Likewise, it has to be defined whether the adjustments to ANP competence might occur through a statutory amendment or internally, altering its Rules of Procedures[397].

[397] In Portuguese, Regimento Interno.

Although the domestic framework is not a reason to excuse an international obligation, as Chircop well observed, national policymakers shall consider the whole picture when developing contractual and legal clauses applicable to the OCS. The solution adopted by the Model Contract drafters to reduce the domestic royalties only if Article 82 compensation is triggered was a clever one, which avoids unnecessary waving of income by reducing it upfront.

The compensation will not be triggered if the reservoir is not underneath the OCS, which is possible because the blocks are only partially located beyond 200 NM or if the Brazilian State is entitled to Article 82 (3) exemption. The Convention does not nominate any authority – nor refers to a methodology – to determine if a State is entitled to the exemption, but it only states the requirements. The WG designated to analyse the legal and political aspects of oil and gas exploration in the Brazilian OCS raised the question of whether the status of the developing State should be considered at the moment of signing or accession to the Convention or by the time of payments. However, it did not answer the question, nor did it analysed whether Brazil would be entitled to the exemption. As previously discussed, the best interpretation would possibly be considering the status by the time of payments. Once the reason for the exemption is not there anymore, there is no reason for the benefit. It is important to remind that everything in Article 82 was developed taking into consideration the interests and needs of developing States, particularly the least developed and the land-locked among them. A different interpretation might be against the spirit of the Convention. Currently, although the Brazilian status is not completely clear, there are reasonable grounds for Brazil to be considered a developing State, based on the need to reduce inequalities and poverty. Whatever the State conclusion is, it might be disputed only if the State is not acting in good faith.

The Brazilian Energy balance is published every year by the Energy Research Office. The last report from the Energy Research Office shows that Brazil became self-sufficient in oil production since 2005, but it is still a net importer of natural gas (Figures 8 and 9). It is not expected for this status to change in a short-term scenario. Although it is likely that, sooner or later, Brazil would also be self-sufficient in natural gas. Just like the status of the State, its qualification as a net importer should be assessed by the time of payments and may change during the life cycle of the oil and gas field. In this case, the State should start making payments and contributions based on the year of production of the site.

In the Brazilian case, the interpretation suggested by Chircop in considering “site” as the license area seems to fit perfectly. The Brazilian framework adopts the area defined in oil and gas contracts for many purposes, including royalties. Thus, this definition would also be suitable for Article 82 implementation and consistent with the good faith principle. The concept of license area also avoids extreme interpretations of the Convention.

Although the International Law Association considers that there is no requirement for the coastal State to apply the same oil and gas valuation method it does domestically, applying the same methodology may be the best option in the Brazilian case. Firstly, it reduces the administrative costs – that apparently States are not entitled to recover – and narrows the chances of a dispute on the value used based on the good faith principle. But the main advantage of adopting the same methodology would be to maintain the balance provided by the Concession Contract to reduce domestic royalties proportionally to the compensation to be done at the international level (see Table 1).

At the domestic level, natural gas is exempted from payments when flared or vented for (i) safety reasons or (ii) proven operational needs. These are considered unavoidable losses. Nevertheless, avoidable losses might have different treatment depending on the jurisdiction. The interpretation of the Convention should take the UN Sustainable Development Goal into account. Therefore, States should consider applying a narrow interpretation, like the Brazilian one, chiefly if the financial burden will be afforded by oil companies that are in a better position to handle the natural gas flaring and venting. Not only natural gas has an important role in energy transition, but also avoiding unnecessary losses reduces greenhouse gas emissions.

When analysing the institutional arrangements, it is noteworthy that, differently from the functions of the International Seabed Authority in relation to deep seabed mining, its role in relation to Article 82 is unclear. Recently, academic studies have indicated a more administrative role to the ISA *vis-à-vis* Article 82 rather than a rulemaking function. Although the full extent of the Authority mandate is yet to be defined, some functions clearly fall within its Authority, and some others clearly do not.

Under the Convention, the Authority has no mandate to monitor and control the contributions under Article 82 nor it is answerable for the compliance of the OCS States. Besides, it is common sense that the ISA cannot impose an interpretation of Article 82 over States. On the other hand, it

is undisputed that the ISA shall make all administrative arrangements to receive payments and contributions in kind in accordance with Article 82. In doing so, the Authority should: (i) give banking instructions regarding payments, (ii) acknowledge the receipt of payment or contribution in kind; (iii) inform Member States of payments and contributions received; (iv) act as a trustee of received amounts or contributions in kind until they are distributed to beneficiaries; and (v) receive notices from the OCS States.

An interesting debate in relation to the implementation of Article 82 is the power, if any, of the States Parties to the United Nations Convention on the Law of the Sea (SPLOS). Some experts at the Beijing Workshop suggested that any further authoritative interpretation should be referred to the SPLOS but this was not a consensus. Some International Law scholars acknowledge the SPLOS as a supreme body while others advocate a role limited to budgetary and administrative issues for it. Although, considering that the topic is more technical than political and that commentators have been recognizing the power of the coastal State to define many terms in Article 82, it is not likely that the SPLOS will tackle this issue.

The relationship between the ISA and the OCS State raises even more questions. The initial studies on Article 82 suggested an Implementation Agreement on Article 82. This idea was dismissed at the Beijing Workshop and replaced by two possibilities: a Memorandum of Understanding or a non-binding guidance document issued by the ISA. Despite the preference expressed for the last option, as said, by December 2022, the Authority has not yet issued any guideline in relation to Article 82 payments and contributions. Besides, the topic does not seem to be a priority in the Authority agenda.

One possible solution for States interested in making payments and contributions through the ISA would be to make a formal consultation. There is nothing in the Convention similar to the two-year rule of Section 1, paragraph 15 of the 1994 Agreement triggered by Nauru. According to this provision, the Council shall complete the adoption of rules, regulations, and procedures of exploitation in the Area within two years of the request. Still, there is a general obligation of the ISA to respond to a formal consultation.

Any consultation to be addressed to the International Seabed Authority shall be done by the Brazilian Ministry of Foreign affairs. This consultation could have a limited scope – inquiring about the possibility of oil companies making payments or contributions on behalf of the States,

for instance, or cover a wide range of issues related to Article 82. A second option would be starting the negotiations to celebrate a Memorandum of Understanding. Even though the Authority does not have the power to define the meaning of the terms in Article 82, many issues could be addressed by the OCS State and the Authority. This would be an opportunity to initiate discussions to solve some uncertainties and provide more clarity on the Article 82 provisions. For instance, an MoU might deal with: (i) the choice between payments or contributions in kind; (ii) in the case of payments, the currency of payments; (iii) payments/contributions schedule; (iv) notices to be given by the OCS State; (v) notices to be given by the ISA; and (vi) payments procedures. The question if the oil companies could make the payments or contributions on behalf of the OCS State also might be treated in the MoU along with payments/contributions procedures.

As explained, it is advisable that the oil companies are authorized to make payments or contributions on behalf of the States. This possibility should be advantageous to the OCS State and the beneficiaries. If the oil companies are allowed to discharge the obligation, the State may eventually avoid some issues– such as currency fluctuation or budgetary law procedures. Therefore, the risk of noncompliance would be reduced, which is also beneficial to the international community.

Finally, the MoU may include general provisions on transboundary resources. From the analysis of some international bilateral Agreements, it seems to be adequate to include a transboundary Unitization clause, agreeing on the duty of cooperation in developing the common reservoir in the case it straddles the Area. Brazil has no experience with Joint Development Agreements (JDA), this is the reason why the State might opt to enter into a Unitization Agreement rather than any type of JDA. Although this situation is not very likely to occur, this clause would provide stability in exploring the continental shelf near the Area.

It is also advisable that the MoU includes a clause related to drilling near the boundary and it provides for the cases when notification and consultation are required. As previously stated, the reservoir characteristics may be known only after drilling one or more exploratory wells. Despite the right of a State to drill in its continental shelf, in light of all the potential damage that drilling operations may cause, as clearly explained by Bankes, a drilling clause may prevent future disputes.

However, it is more likely for a reservoir to be located under the inner and the outer continental shelf, than to be located under the continental shelf and the Area. In this case, a JDA does not seem to be an adequate solution. Also, this is not the case to agree on the development of the reservoir as a unit, given that the reservoir is completely located under national jurisdiction. Even so, this case is similar to the ones that require Unitization within the national jurisdiction. The main issue is the allocation of production. In other words, the methodology for determining the portion of the reservoir is located on each side of the boundary. It is very convenient to set these rules before oil and gas discovery and Brazil should attempt to include these provisions in any agreement with the ISA it might get into. The question rests on whether the ISA has the power to agree on this issue.

The findings clearly suggest that, if Brazil is not exempt from payments and contributions, it would be politically advantageous and legally adequate for Brazil to adopt a system similar to its national royalties when implementing Article 82. In summary, the Brazilian framework has very similar wording to the Convention that allows to expand the domestic system to UNCLOS Article 82. Finally, the research has not identified any Brazilian provision that would be against the text and the spirit of UNCLOS.

The WG complete its mandate when it delivered the Final Report to support the 17th Bidding Round. So, in order to identify Brazilian best interests, either the CNPE should establish a new Working Group, or the Ministry of Mines and Energy should assign the issue to one of its offices. It is important to define the ideal model for the State on the Article 82 and, eventually, identify any issue that the Brazilian State deems non-negotiable. It is essential for the State to have its interests very clearly defined before getting into any kind of agreement at the international level.

After that, Brazil – or any State interested in exploiting non-living resources in the OCS – should consult the ISA on Article 82 or in relation to specific points of the article. This might be a formal consultation or the negotiation of a Memorandum of Understanding, which may have a similar result. In the first case, it would be advisable that other OCS States are notified of the response. On the other hand, if a MoU starts to be discussed, the OCS States – or at least the ones who already gave notice about oil and gas exploration and production on the OCS – should be invited

to observe the negotiations and eventually make comments. Although these instruments are not bidding, they may form the first State practice and greatly influence the other OCS States[398].

Among other issues, great attention should be paid to Sustainable Development Goal 13 - *Take urgent action to combat climate change and its impacts* - when interpreting and implementing Article 82. Financial burdens shall be established through the Article 82 levy to avoid natural gas waste and reduce greenhouse gas emissions. A study on the topic could be provided by the ISA or by the United Nations Development Programme to guide the OCS States.

Another challenging topic and possible area for future research is the enforcement and jurisdiction to deal with any dispute over the interpretation or compliance with Article 82 payments or contributions in kind. Although this thesis had a comprehensive scope and deeply analysed some aspects of Article 82, it did not take sufficient account of these issues. Finally, it is almost certain that the provisions of UNCL~~C~~OS Article 82 will be trigged in the next decades. Thus, international meetings and comparative studies should resume.

[398] As Chircop concluded: "Neither individual broad margin states, nor the Authority alone will be able to make this provision work without dose consultation and agreement." Chircop, "Non-Living Resources: Operationalizing Article 82", note 167, p. 412.

ANNEX 1 – AMOUNT DUE CONSIDERING MONTHLY AVERAGE PRICE AND ANNUALLY AVERAGE PRICE.

***Tupi* Field**						
Month	**Monthly Reference Price - Oil (R$/m3)**	**Volume - Oil (m3)**	**Reference Price Natural Gas (R$)**	**Natural Gas(m3) Royalties**	**Royalty (%)**	**Amount Due (R$)**
Jan/21	1.796,04	4.536.457,28	0,7697	678.589.229,31	7%	606.897.692,27
Feb/21	2.060,23	4.009.548,94	1,1558	566.579.657,72	7%	624.081.541,23
Mar/21	2.255,01	4.249.412,16	0,8772	677.588.077,07	7%	712.377.910,46
Apr/21	2.175,37	4.291.495,14	0,8116	669.925.211,65	7%	691.551.773,55
May/21	2.189,28	4.391.471,60	0,8269	620.054.596,12	7%	708.882.747,06
Jun/21	2.216,28	4.358.256,41	0,9106	671.450.856,52	7%	718.937.708,71
Jul/21	2.326,85	4.518.674,23	1,0567	574.782.533,86	7%	778.512.843,77
Ago/21	2.227,54	4.543.413,79	1,1107	567.723.130,16	7%	752.584.199,93
Sep/21	2.368,98	4.521.962,90	1,3016	541.962.607,04	7%	799.252.320,94
Oct/21	2.781,38	4.428.671,43	1,4917	658.329.189,32	7%	930.987.992,44
Nov/21	2.704,65	4.170.346,09	1,4125	715.365.539,49	7%	860.286.187,88
Dez/21	2.511,09	4.258.417,34	1,1869	696.346.345,38	7%	806.382.937,93
						8.990.735.856,17

	Annually Average Reference Price - Oil (R$/m3)	**Volume - Oil (m3)**	**Annually Average Reference Price - Oil (R$/m3)**	**Volume - Oil (m3)**	**Royalty (%)**	**Amount Due (R$)**
2021	2.301,0589	52.278.127,31408	1,0760	7.638.696.973,64000	7%	**8.995.993.283,25**

Difference	-0,06%

Marlim Sul Field

Month	Monthly Reference Price - Oil (R$/m3)	Volume - Oil (m3)	Reference Price Natural Gas (R$)	Natural Gas(m3) Royalties	Royalty (%)	Amount Due (R$)
Jan/21	1.718,89	563.103,13	1,0252	76.957.773,50	7%	73.276.573,03
Feb/21	1.962,65	444.546,12	1,6025	60.666.471,79	7%	67.879.409,09
Mar/21	2.141,19	490.380,11	1,1487	63.071.127,14	7%	78.571.517,43
Apr/21	2.056,63	496.537,32	1,0641	73.939.267,06	7%	76.991.259,80
May/21	2.067,78	474.054,20	1,0857	68.616.499,65	7%	73.831.366,70
Jun/21	2.100,40	436.972,82	1,1604	60.414.957,60	7%	69.154.350,10
Jul/21	2.193,29	479.041,88	1,3628	71.236.346,43	7%	80.343.305,36
Ago/21	2.093,20	510.752,51	1,4347	71.771.585,03	7%	82.045.330,86
Sep/21	2.228,97	479.462,22	1,7126	65.347.472,89	7%	82.643.289,24
Oct/21	2.620,56	506.230,87	1,9840	70.843.446,30	7%	102.701.221,34
Nov/21	2.523,51	487.982,58	1,8290	69.068.243,62	7%	95.042.742,72
Dez/21	2.352,87	514.801,20	1,5111	74.336.667,97	7%	92.651.117,97
						975.131.483,63

	Annually Average Reference Price - Oil (R$/m3)	Volume - Oil (m3)	Annually Average Reference Price - Oil (R$/m3)	Volume - Oil (m3)	Royalty (%)	Amount Due (R$)
2021	2.171,6620	5.883.864,95271	1,4101	826.269.858,98000	7%	**975.999.473,06**

Difference	-0,09%

***Golfinho* fied**						
Month	**Average Monthly Reference Price - Oil (R$/m3)**	**Volume - Oil (m3)**	**Average Monthly Reference Price - Oil (R$/m3)**	**Volume - Oil (m3)**	**Royalty (%)**	**Amount Due (R$)**
Jan/21	1.776,43	36.453,19	0,9097	1.961.258,47	7%	4.657.844,30
Feb/21	2.036,79	42.101,88	1,4857	2.248.974,43	7%	6.236.567,17
Mar/21	2.212,26	28.183,52	1,0002	1.945.785,71	7%	4.500.676,09
Apr/21	2.124,55	49.292,00	0,9213	2.627.034,49	7%	7.500.053,65
May/21	2.140,65	58.001,26	0,9471	2.886.466,30	7%	8.882.573,19
Jun/21	2.170,89	59.064,42	1,0206	3.025.150,35	7%	9.191.662,07
Jul/21	2.268,22	60.084,14	1,2168	3.209.752,32	7%	9.813.302,89
Ago/21	2.164,40	50.487,70	1,2923	2.689.179,39	7%	7.892.564,68
Sep/21	2.317,24	57.195,34	1,5641	2.968.134,19	7%	9.602.420,06
Oct/21	2.738,63	46.526,55	1,8061	2.519.569,38	7%	9.237.871,07
Nov/21	2.658,83	54.400,94	1,6546	2.748.920,22	7%	10.443.392,58
Dez/21	2.475,87	51.882,01	1,1858	2.782.561,25	7%	9.222.706,27
	2257,063067	593672,95	1,2503475	31612786,5		**97.181.634,04**

	Annually Average Reference Price - Oil (R$/m3)	**Volume - Oil (m3)**	**Annually Average Reference Price - Oil (R$/m3)**	**Volume - Oil (m3)**	**Royalty (%)**	**Amount Due (R$)**
2021	2.257,0631	593.672,95000	1,2503	31.612.786,50000	7%	**96.563.898,04**

Difference	0,64%

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