

The Environmental Impact Assessment Process for Hydrocarbon Projects in Brazil and Sustainable Development

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Abstract

This article presents a critical (doctrinal) analysis of environmental impact assessment (EIA) legislation and practice surrounding the review and approval of hydrocarbon projects in Brazil in the context of sustainable development (SD). Globally, hydrocarbon exploration and production are recognized to have negative environmental impacts, and Brazil is no exception. The article investigates to what extent the Brazilian EIA system contributes to promoting the main elements of SD, such as respect for ecological integrity, meaningful stakeholder participation, and stewardship. It also examines how the social, cultural, and harmful health impacts of oil and gas exploration & production (E&P) activities could be better managed and mitigated through the EIA process. Since the adoption of the main Brazilian environmental regulatory framework for EIA through the CONAMA Resolution in 1986, there has been a general perception in the literature that EIAs are ineffective and inefficient. This article adds to the existing literature by identifying and discussing the main challenges that need to be addressed to improve the effectiveness and efficiency of EIAs in Brazil related to hydrocarbon projects under a sustainable development perspective. The article concludes that the EIA system for hydrocarbon projects is limited in its ability to properly plan and mitigate the multiple adverse impacts on the environment and affected communities, resulting in the concentration of benefits of developments in big corporations and government officials.

Keywords: Environment; Environmental impact assessment; Brazil; Hydrocarbons; Sustainable development

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عملية تقييم الأثر البيئي لمشاريع الهيدروكربون في البرازيل وللتنمية المستدامة

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ملخص

تقدم هذه المقالة تحليلاً نقدياً (فقهياً) للتشريعات والممارسات المتعلقة بتقييم الأثر البيئي (EIA) في مراجعة واعتماد مشاريع الهيدروكربونات في البرازيل في سياق التنمية المستدامة. على الصعيد العالمي، يُعترف بأن استكشاف وإنتاج الهيدروكربونات لها آثار بيئية سلبية، والبرازيل ليست استثناءً. تبحث المقالة في مدى مساهمة نظام التقييم البيئي البرازيلي في تعزيز العناصر الرئيسية للتنمية المستدامة، مثل احترام السلامة البيئية، والمشاركة الفعالة لأصحاب المصلحة، والإدارة الرشيدة. كما تناقش كيفية تحسين إدارة وتخفيف الآثار الاجتماعية والثقافية والصحية الضارة الناتجة عن أنشطة استكشاف وإنتاج النفط والغاز من خلال عملية التقييم البيئي. منذ اعتماد الإطار التنظيمي البيئي الرئيسي في البرازيل من خلال قرار CONAMA في عام 1986، سادت في الأدبيات وجهة نظر عامة بأن تقييمات الأثر البيئي غير فعالة وغير كفؤة. تضيف هذه المقالة إلى الأدبيات القائمة من خلال تحديد ومناقشة التحديات الرئيسية التي يجب معالجتها لتحسين فعالية وكفاءة تقييمات الأثر البيئي في البرازيل فيما يتعلق بمشاريع الهيدروكربونات من منظور التنمية المستدامة. وتخلص المقالة إلى أن نظام التقييم البيئي لمشاريع الهيدروكربونات محدود في قدرته على التخطيط السليم والتخفيف من الآثار السلبية المتعددة على البيئة والمجتمعات المتضررة، مما يؤدي إلى تركّز فوائد التنمية في أيدي الشركات الكبرى والمسؤولين الحكوميين.

الكلمات المفتاحية: البيئة، تقييم الأثر البيئي، البرازيل، الهيدروكربونات، التنمية المستدامة

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Introduction

This article examines legislation and practice concerning Brazil's EIA process for hydrocarbon projects in the context of SD. The EIA process considers the high environmental, social, and economic costs and benefits from a proposed project, alternative approaches, and impact mitigation measures.¹ As Hunter et al. argue, one of the main purposes of EIAs is to inform the public about proposed projects and involve them in meaningful discussions on the potential benefits and environmental and social impacts.² Equally important is the identification and deployment of safeguards to mitigate adverse environmental impacts from the proposed activity.³

Initially, the US National Environmental Policy Act of 1969⁴ required EIAs for federally funded or supported projects in the USA. Canada, Australia, New Zealand, West Germany, and France adopted EIA systems in the 1970s.⁵ The approval of the EC Directive on Environmental Impact Assessment in 1985⁶ prompted a proliferation of EIAs in Europe. Brazil adopted its main EIA regulatory framework in 1986 through CONAMA Resolution 1/86, which remains the core EIA regulation in Brazil.⁷ Brazil is an important oil and gas-producing nation. Glasson and Salvador note that Brazilian EIA law has both its strengths and weaknesses.⁸ This article examines the merits and challenges that need to be addressed by the Brazilian government in the EIA framework and process to further SD. Section 1 discusses oil and gas E&P activities in Brazil, and Section 2 assesses their potential adverse impacts. Section 3 examines the key elements of SD that will inform the analysis of the EIA framework in the context of Brazilian oil and gas E&P activities. Section 4 assesses the main environmental laws that govern oil and gas E&P activities in Brazil. Finally, Section 5 examines the extent to which the EIA process supports SD, evaluates possible lessons from Australia, and provides recommendations that can further SD.

1. Oil and Gas E&P Activities in Brazil

According to the data released by the National Agency of Petroleum, Natural Gas and Biofuels (ANP) in June 2025, offshore fields in Brazil contributed 97.6 per cent of oil production and 87.1 per

1 George Pring and Susan Y Noé, 'The Emerging International Law of Public Participation Affecting Global Mining, Energy, and Resources Development' in Donald N Zillman, Alastair R Lucas and George Pring, eds, *Human Rights in Natural Resource Development: Public Participation in the Sustainable Development of Mining and Energy Resources*, 38 (New York: Oxford University Press, 2002).

2 David Hunter, James Salzman and Durwood Zaelke, *International Environmental Law and Policy*, 250 (New York: Foundation Press, 1998).

3 Allan Ingelson and Chilenye Nwapi, 'Environmental Impact Assessment Process for Oil, Gas and Mining Projects in Nigeria: A Critical Analysis' (2014) 10:1 *Law, Environment and Development Journal*, 37.

4 42 USC §§ 4321.

5 Christopher Wood, *Environmental Impact Assessment: A Comparative Review*, 67 (London: Longman Scientific & Technical, 1995).

6 Council Directive 85/337/EEC (1985) OJ L175/40, amended by Council Directive 97/11/EC (1997) OJ L73/5.

7 CONAMA Resolution 001/86. CONAMA later approved Resolution 237/1997.

8 John Glasson and Nemesio Neves B. Salvador, 'EIA in Brazil: a procedures-practice gap. A comparative study with reference to the European Union, and especially the UK' (2000) 20 *Environmental Impact Assessment Reviews*, 191.

cent of natural gas production.⁹ The data further provided that total national production (oil + natural gas), including pre-salt, post-salt, and onshore, was 4.689 million boe/d.¹⁰

In an earlier ANP report in April 2025, Brazil's oil and gas production rose by 9.3% in March 2025 compared to the same period in 2024, reaching 4.515 million barrels of oil equivalent per day (boe/d). This growth was largely driven by pre-salt fields, which accounted for 75.7% of total production, about 3.42 million boe/d, mainly from the state-owned *Petróleo Brasileiro S.A. (Petrobras)* operated platforms in the Santos and Campos Basins.¹¹ Petrobras, created in 1953, is the leading participant in the petroleum sector. Fields operated by Petrobras, alone or in consortium with other companies, accounted for 89.76% of the total production.¹² These figures illustrate why offshore development, especially in the pre-salt deep water region, is central to Brazil's hydrocarbon agenda.

The first Brazilian oil reservoir was discovered in 1938. Until the 1960s, oil activities in Brazil were insignificant due to the lack of technology to explore for oil.¹³ Oil exploration and its related activities in Brazil have always been treated as a strategic sector for economic development and national energy security. Therefore, whether it takes a nationalistic or a more liberal economic approach, since the beginning of oil exploration, the government has exercised control over the hydrocarbon industry through Petrobras as a state monopoly.¹⁴

The 1988 Constitution significantly changed the legal regime regulating the hydrocarbon sector. The Constitution established a constitutional basis for EIA, making Brazil one of the few countries to embed EIA requirements at the highest legal level. Article 225, paragraph 1, clause IV, mandates that any work or activity potentially causing significant environmental degradation must undergo a prior environmental impact study, which must be made public and follow procedures set by law. Following a nationalistic perspective, the Constitution restrained the participation of foreign investors in oil activities.¹⁵ Article 177, paragraph 1, established a prohibition on risk service contracts or any other agreement with private companies for oil exploration, and the Brazilian Government assumed all the technical and financial risks related to oil activities, thereby reaffirming the federal monopoly of the

9 "Pre-salt oil and natural gas production sets new record in April" (5 June 2025), online: *Ministry of Mines and Energy* <https://www.gov.br/anp/pt-br/canais_atendimento/imprensa/noticias-comunicados/producao-de-petroleo-e-gas-natural-no-pre-sal-registra-novo-recorde-em-abril>

10 Ibid.

11 "Oil and gas production rises 9.3% in Brazil" (29 April 2025), online: *Guia Do Investidor*, <<https://guiadoinvestidor.com.br/noticias/producao-de-petroleo-e-gas-sobe-93-no-brasil/>>

12 "Pre-salt oil and natural gas production sets new record in April" (5 June 2025), online: *Ministry of Mines and Energy* <https://www.gov.br/anp/pt-br/canais_atendimento/imprensa/noticias-comunicados/producao-de-petroleo-e-gas-natural-no-pre-sal-registra-novo-recorde-em-abril>

13 M. Menezello, *Comentários à Lei do Petróleo, Lei Federal n. 9478, de 6-8-1997* (Atlas, 2000), 30-31.

14 D. Martins, *A regulação da Indústria do Petróleo* (Forum, 2006), 16.

15 L. Barroso, *O Direito Constitucional e a Efetividade de Suas Normas. Limites e Possibilidades da Constituição Brasileira*: (Renovar, 2000), 42.

sector.¹⁶ However, in light of increased global competition for oil and gas investment, the National Government in 1995 amended the Federal Constitution to create a new regulatory framework for oil and gas E&P activities.¹⁷ Even though the government has maintained a monopoly on development, the constitutional amendment allowed private corporations to explore for hydrocarbons under concession agreements.¹⁸ The concession model between the oil companies and the federal government was consolidated through the adoption of Federal Law 9478 in 1997, which established the ANP.¹⁹

Pre-salt offshore findings along the coastal states of Espírito Santo, Rio de Janeiro, and São Paulo have significantly increased the oil production in Brazil.²⁰ In 2010, the Government passed legislation instituting a new regulatory framework for the country's pre-salt reserves. The state-owned Pre-Sal Petróleo S.A. (PPSA) - created by Decree No. 8.063 of August 1, 2013 - was responsible for managing new pre-salt production and trading contracts in the hydrocarbon industry. The framework established a new development fund to manage Government revenues from pre-salt oil and a new production-sharing agreement (PSA) system for pre-salt reserves. Petrobras is the sole operator of each PSA, holding a minimum 30% stake in all pre-salt projects.²¹

2. Harmful Environmental Impact from Oil and Gas E&P Activities

As with other hydrocarbon-producing nations, environmental impacts from operations in Brazil can include harmful effects on air, land, and water quality, greenhouse gas emissions, waste discharges, and oil spills. Spills from offshore oil activities have caused significant damage to the marine environment and adjacent communities.

ANP reported a record 731 environmental accidents or an average of two accidents per day in the Brazilian offshore oil and gas sector during 2024, surpassing the previous year's record high.²² ANP said the record number of accidents in 2024 was "a consequence of increased activity in the country, with the entry of several production units as well as the strong resumption of exploration and drilling of new wells."²³ Almost 53% of the incidents occurred during production installation (384), followed

16 M Rosado, *Direito do Petróleo* (Renovar, 2003), 308.

17 Constitution of the Federative Republic of Brazil 1988, amendment n. 9, online: Portal STF <https://www.stf.jus.br/arquivo/cms/legislacaoConstituicao/anexo/brazil_federal_constitution.pdf>[1988 Constitution].

18 Ibid.

19 Lais Palazzo Almada and Virginia Parente, 'Oil & Gas Industry in Brazil: A brief history and legal framework' (2013) 1:1 *Panorama of Brazilian Law*, 227.

20 Cristiano Vilardo and Emilio Lèbre La Rovere, 'Multi-project environmental impact assessment: insights from offshore oil and gas development in Brazil' (2018) 36:4 *Impact Assessment and Project Appraisal*, 361. As highlighted by the author, the presalt production jumped from 41.000 barrels a day in 2010 to a million barrels a day in May 2016.

21 U.S. Energy Information Administration, 'Background Reference: Brazil' (14 June 2021) <https://www.eia.gov/international/analysis/country/bra/background>

22 "Record level of offshore oil and gas accidents reported in Brazil" (15 April 2025), online: *World Ports Org.* <<https://www.worldports.org/record-level-of-offshore-oil-and-gas-accidents-reported-in-brazil/>>

23 Ibid.

by installation of drilling rigs (134), offshore support vessel activity (91), issues with well exploration (91), installation of subsea systems (23), and other cases of undetermined origin (8).²⁴

Brazil's heavy reliance on offshore oil, driven by prolific pre-salt reserves and technical expertise, is a rational economic strategy. Offshore operations deliver scale, energy security, and export potential. However, this evolution from historical localized spills to modern large-scale offshore spills emphasizes the need for strengthened EIA processes, emergency preparedness, and meaningful stakeholder inclusion, particularly in ecologically and socially sensitive frontier areas.

Just recently, Brazil auctioned off several land and offshore potential oil sites near the Amazon River as it aims to expand production in untapped regions despite protests from environmental and Indigenous groups. This region is considered to have high potential risk due to strong currents and the proximity to the Amazon seashore.²⁵ These developments highlight the need for stronger regulatory oversight and environmental safeguards in oil and gas E&P activities.

3. Sustainable Development and Brazil's EIA Framework

To evaluate the extent to which Brazil's environmental legislation is sufficiently robust to face the challenges imposed by the rapid developments in the oil and gas sector, this article will assess whether the Brazilian EIA framework supports SD. According to the United Nations (UN), SD is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.²⁶ For SD to be achieved, it is crucial to harmonize three core elements: economic growth, social inclusion, and environmental protection.²⁷ These elements are interconnected, and all are critical for the well-being of individuals and societies.

The analysis will focus on the following four key elements of SD based on the UN propositions from the 20th century:

Respect for ecological integrity: Ecological systems consist of micro-organisms, plants, animals, soil, water, air, and other components. Regulatory systems that respect ecological integrity prevent irreversible harm to the above-mentioned natural resources, enabling "ecosystems to renew themselves".²⁸

Support for inter-generational equity: Promoting inter-generational equity contemplates the broad

²⁴ Ibid.

²⁵ "Brazil auctions off several Amazon oil sites despite environmentalists and Indigenous protests" (18 June 2025), online: *BMM Bloomberg*, <<https://www.bnnbloomberg.ca/business/international/2025/06/18/brazil-auctions-off-several-amazon-oil-sites-despite-environmentalists-and-indigenous-protests/>>

²⁶ Sustainable Development Goals, online: United Nations < <https://www.un.org/sustainabledevelopment/development-agenda/>>

²⁷ Ibid

²⁸ World Conservation Union, U.N. Env't Programme & World Wildlife Fund for Nature, *Caring for the Earth: A Strategy for Sustainable Development* 9 (1992).

distribution of the benefits and environmental and social costs of oil exploration activities between current and future generations. What is equitable is a value judgement, but the basic principle is that broadly distributing costs and benefits will minimize social conflict. The 3rd Principle in the Rio Declaration on Environment and Development provides that “[t]he right to development must be fulfilled to equitably meet development and environmental needs of present and future generations”.²⁹

Meaningful stakeholder participation in the EIA process: Agenda 21 provides that meaningful public participation is a sine qua non for sustainable development.³⁰ Public participation in the EIA process provides an opportunity for affected persons to learn about the beneficial and negative impacts of the project, voice their concerns, and contribute ideas to minimize the negative impacts. Information contributed by stakeholders can lead to better-informed decisions that may mitigate the negative environmental impacts and reduce social conflict. After stakeholders have had the opportunity to express their opinions, they may be more inclined to accept the final decision about the project.

Stewardship: This requires broad awareness of SD objectives among government decision-makers, corporations, and individuals, and concerted action to promote SD. Those persons charged with managing and regulating hydrocarbon projects need to do so in an environmentally responsible manner.

It is worth noting that Principle 17 of the Rio Declaration on Environment and Development, adopted at the 1992 Earth Summit in Rio de Janeiro, provides that EIA, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority. Brazil not only co-authored this declaration but also enshrined its core tenets in Article 225, paragraph 1(IV) of its 1988 Constitution, which requires a prior environmental impact study for activities that may significantly degrade the environment.

However, the increasing scale of Brazil’s offshore oil and gas development, particularly in pre-salt basins and ecologically sensitive zones like the Amazon mouth, raises serious concerns about the alignment of EIA practices with both Rio Principle 17 and Brazil’s updated Nationally Determined Contributions (NDCs) under the Paris Agreement. In 2023, Brazil updated its NDC, pledging 48% emissions reductions by 2025 and 53% by 2030 relative to 2005 levels,³¹ and reaffirming a path to net-

29 United Nations General Assembly, *Rio Declaration on Environment and Development* (United Nations Conference on Environment and Development, 1992), 31 ILM 874. See also, IUCN/UNEP/WWF, *Caring for Earth: A Strategy for Sustainable Development Living* ¹⁰ (IUCN/UNEP/WWF, 1991), online: <<https://portals.iucn.org/library/efiles/documents/CFE-003.pdf>> (last visited June 15, 2017). (Defining sustainable development as ‘improving the quality of human life while living within the carrying capacity of supporting ecosystems’).

30 See the preamble to chapter 23 of Agenda 21, approved by the UN Conference on Environment and Development on 13 June 1992: Report of the United Nations Conference on Environment and Development, *Rio Declaration on Environment and Development*, UN doc A/CONF.151/26 (vols. I-III) (1992).

31 USDA Report “Sustainable Agriculture Programs in Brazil- Past Present and Future” (April 2024) <https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Sustainable+Agriculture+Programs+in+Brazil+Past+Present+and+Future_Brasilia_Brazil_BR2024-0006.pdf>

zero by 2050 goals, solidified at COP28 and reiterated at COP29 in Baku.³²

Moreover, Brazil has recently opened new offshore blocks near the Amazon, despite environmental and Indigenous opposition raising questions about whether EIAs are effectively safeguarding ecological integrity and intergenerational equity. To truly fulfill its obligations under the SDGs (notably SDG 13, 15, 16), the Paris Agreement, and its own NDC, Brazil's EIA must integrate climate impact assessments, cumulative GHG analysis, and enhance transparency, consultation, and governance safeguards. Otherwise, its EIA system risks becoming a procedural checkbox rather than a tool for sustainable, climate-aligned development.

4. Environmental Laws Related to Brazil's Oil and Gas E&P Activities

The assessment of the effectiveness of the EIA system in supporting SD will require a close analysis of the main environmental laws that govern oil and gas E&P activities in Brazil, including:

- i. 1988 Brazilian 1988 Constitution.
- ii. Federal Laws: Law 6.938/81, Law 9.478/97, Law 9.985/00, Complementary Law 140/2011.
- iii. Administrative Rules: CONAMA Resolutions 01/86, 237/97, 23/94 and 265/2000, and MMA Ordinance 422/2011.

4.1. Constitutional Provisions

The 1988 Constitution dedicates an entire chapter to the environment, including Article 225 and its paragraphs.³³ The chapter of Article 225 of the 1988 Constitution states:

“All have the right to an ecologically balanced environment, which is an asset of common use and essential to a healthy quality of life, and both the Government and the community shall have the duty to defend and preserve it for present and future generations”.³⁴

Therefore, the 1988 Constitution expressly promotes intergenerational equity in alignment with the core elements of SD. Article 225, paragraph 1 (IV) of the 1988 Constitution, also reinforces sustainable development goals by requiring a prior environmental impact study for the installation of works and activities that may cause significant degradation of the environment.³⁵ Besides, Article 225, paragraph 4 demands that the exploration of activities in protected areas, which are part of the national patrimony,

32 “Brazil announces new climate change pledge ahead of COP29 summit” (9 November 2024), online: *Reuters* <<https://www.reuters.com/sustainability/climate-energy/brazil-announces-new-climate-change-pledge-ahead-cop29-summit-2024-11-09>>

33 1988 Constitution, Chapter VI, Title VIII (Social Order).

34 See 1988 Constitution, online: Portal STF <https://www.stf.jus.br/arquivo/cms/legislacaoConstituicao/anexo/brazil_federal_constitution.pdf>

35 1988 Constitution, Article 225, paragraph 1 (IV) states: “In order to ensure the effectiveness of this right, it is incumbent upon the Government to: IV - demand in the manner prescribed by law, for the installation of works and activities which may potentially cause significant degradation of the environment, a prior environmental impact study, which shall be made public.”

must observe the preservation of the environment.³⁶

These constitutional provisions are of great importance in the context of Brazil's most recent pre-salt oil and gas E&P activities, which are being developed in ecologically sensitive areas like the Amazon basin, raising serious concerns about their potential to cause substantial harmful effects on the environment.

4.2. Federal Laws

Four federal laws regulate environmental matters that are relevant to offshore activities. These are Law 6.938/81, Law 9.478/97, Law 9.985/00, and Complementary Law 140/2011.

Law 6.938/81 was considered a pioneer step in national public life, regarding the dynamics of the environmental reality.³⁷ It established a National Environmental Policy (PNMA - Política Nacional do Meio Ambiente), designed to preserve, enhance, and restore environmental quality. Art. 6 of Law 6.938/81 introduced the National Environmental System (SISNAMA), composed of municipal, state, and federal agencies, including:

The National Environmental Council (CONAMA), which has a collegial organization structure and is a deliberative and consultative organ of SISNAMA responsible for establishing standards and criteria for the issuing of licenses for activities that effectively, or potentially, pollute the environment; deliberating on the contents of resolutions, propositions and motions to comply with the objectives of the National Environment Policy; and creating regulations.³⁸

The Brazilian Institute for Environment and Renewable Resources (IBAMA). IBAMA is a federal autarky instrument of public law that has managerial and financial autonomy. Its mission is to "protect the environment and ensure sustainability in the use of natural resources to promote an environmental quality appropriate to life."³⁹ Among its objectives are the coordination and implementation of environmental policies. As an executive institution, it works under the authority of the Ministry of Environment and Climate Change (the central organ of the system).

36 1988 Constitution, Article 225, paragraph 4, states: "The Brazilian Amazonian Forest, the Atlantic Forest, the Serra do Mar, the Pantanal Mato-Grossense and the coastal zone are part of the national patrimony, and they shall be used, as provided by law, under conditions which ensure the preservation of the environment, therein included the use of mineral resources."

37 Milaré Edis, *Direito do Ambiente: a gestão ambiental em foco: doutrina, jurisprudência, glossário*, 6 ed. (São Paulo: Editora Revista dos Tribunais, 2009), [Milaré].

38 CONAMA is composed of 5 representatives that are directly related to environmental matters: The federal government, state and municipal governments, the entrepreneurial sector and civil society, the latter is represented by members of environmental organizations, the scientific community, indigenous and traditional peoples, class organizations and labor movements. Apart from the above representatives, CONAMA also includes representatives from the State and Federal Public Ministry and the National Congress, representatives that do not have the right to vote. See CONAMA Resolutions, online: CONAMA <<https://conama.mma.gov.br/images/conteudo/CONAMA-ingles.pdf>>

39 IBAMA <<https://www.gov.br/ibama/pt-br/aceso-a-informacao/institucional/sobre-o-ibama>>

Article 9 of Law 6.938/81 sets the PNMA instruments, which include:

- setting environmental quality standards.
- assessing environmental impacts.
- licensing and revising the effective or potentially polluting activities.

It must be noted that among the innovations under Law 6.938/81, the regime of strict civil liability is of great value. Under Article 14, the duty to compensate for environmental damage does not require proof of fault on the part of the polluter but only proof of environmental damage and a causal link. Besides, the obligation to repair or indemnify may be jointly and severally borne by whoever has directly or indirectly contributed to the occurrence of the environmental damage, regardless of the degree of participation of the agent.⁴⁰ Moreover, the Federal Supreme Court (STF Theme No. 999) has already established that there is no statute of limitations for civil liability for environmental damage. Therefore, under the Brazilian legislation and jurisprudence, the civil liability for environmental damage is strict, joint and several, and unlimited.

Although the importance of Law 6.938/81 for the protection of the environment, especially regarding the establishment of a holistic approach based on the principle of SD, this legislation does not contain any specific provision related to environmental aspects of oil and gas activities. Thus, environmental regulation regarding hydrocarbon activities, onshore and offshore, is left to CONAMA, which is the environmental organ responsible for establishing rules and general criteria to be adopted for licensing activities affecting the environment.

Law 9.478 (Petroleum Law) is another relevant legislation in the context of oil and gas E&P activities in Brazil. The Petroleum Law was adopted in 1997 to regulate the concession of oil activities to private companies, as required under Article 177, paragraph 1 of the 1988 Constitution. This law regulates the National Energy Policy and establishes the ANP, which is responsible for regulating activities that integrate the Brazilian oil, natural gas, and biofuels industries and issuing exploration and production licenses.⁴¹ Chapter 1 of Law 9.478/97 contains the principles and objectives of the National Energy Policy and specifically refers to environmental protection as one of its objectives.⁴² Article 8 states that the ANP must observe compliance with the best practices regarding the protection of the environment.⁴³ Moreover, in the context of concession contracts, Article 44 of the Petroleum Law requires the oil and gas industry to adopt necessary measures to both conserve natural resources and protect the environment.⁴⁴ Under this provision, the industry must adhere to the environmental

40 STJ, Special Appeal No. 1.071.741/SP, Min. Herman Benjamin, judged on 03/24/2009, published on 12/16/2010

41 Agência Nacional do Petróleo, Gás Natural e Biocombustíveis www.gov.br/anp/en/access-information/what-is-anp

42 Article 1 (IV) of Law 9.478/97 states that: “Article 1: The national policies for the rational use of energy resources seek the following objectives: (IV) to protect the environment and to promote the conservation of energy”.

43 Law 9.478/97 (“Dispõe sobre a política energética nacional, as atividades relativas ao monopólio do petróleo, institui o Conselho Nacional de Política Energética e a Agência Nacional do Petróleo e dá outras providências”), Art. 8 (IX).

44 Ibid (Art. 44 (I)).

rules and obtain the required environmental licenses to start its activities.⁴⁵ In addition, the industry is obligated to adopt the best practices of the international oil industry and obey the rules and the applicable technical procedures.⁴⁶ Although the environmental protection rules are not organized systematically in the Petroleum Law, environmental provisions can be found in many parts of the legal document. Therefore, regulation of oil and gas E&P activities affecting the environment can be exercised by either the regulatory agency, ANP, or the environmental organ, IBAMA.⁴⁷

Law 9.985/00 regulates Article 225 of the 1988 Constitution, establishing the National System for Nature Conservation Units. The creation of nature conservation units seeks to ensure the sustainable use of natural resources in these areas, which include marine extractive reserves.⁴⁸ This legislation plays an essential role in pre-salt oil exploration, where, recently, the concession of blocks within some traditional conservation units has threatened these crucial, environmentally protected areas.

Lastly, Complementary Law No. 140 of 2011 (Lei Complementar nº 140/2011)⁴⁹ stands out as a turning point in Brazil's environmental governance. Passed to bring order to what was once a complex and overlapping regulatory landscape, this law gave teeth to the 1988 Constitution by clearly distributing environmental responsibilities among the federal, state, and municipal governments.

Before its enactment, developers and regulators often grappled with bureaucratic confusion, unsure who had the final say on environmental matters. We can imagine the possible delays, inconsistent licensing outcomes, and an erosion of trust in the system that such confusion can come with. However, LC 140/2011 proposes to change that by not only defining who does what but also ensuring that environmental authority can be exercised more transparently and effectively across Brazil.

At its core, the law outlines who licenses what in Articles 7-9. The federal government handles projects with national or cross-border significance, such as pipelines running across states or large-scale hydrocarbon developments. States oversee regionally impactful projects, and municipalities are tasked with licensing activities of local significance. This eliminates the problem of “forum shopping,” where project proponents might try to obtain a more favorable license from a more lenient authority. Instead, each tier of government now knows its lane. The law does not just divide responsibilities; it also encourages collaboration. Through shared databases, coordinated inspections, and technical cooperation, LC 140/2011 nudges different levels of government toward working together rather than stepping on each other's toes as provided in Articles 2 and 14. And perhaps most importantly for

45 Menezello (n 13), 17.

46 Law 9.478/97, Art. 44 (VI).

47 F. Garcia and H Rocha, ‘Aspectos Ambientais da Lei de Petróleo, in Moraes, Azevedo and Delmanto’ (eds), *As Leis Federais mais Importantes de Proteção ao Meio Ambiente Comentadas* (Renovar: 2005), 286.

48 Article 18 of Law no. 9.985/00 defines extractive reserve as an area used by traditional extractive communities and determines the expropriation of the private properties within its limits.

49 Complementary Law No. 140 of 2011 < https://www.planalto.gov.br/ccivil_03/leis/LCP/Lcp140.htm > (full citation including when last accessed and noting the source is in Portuguese).

industries like oil and gas, mining, and large infrastructure, it streamlines the licensing process in Articles 13-17. No more three-level sign-offs or conflicting requirements: just one competent authority, with checks and balances in place. The law also reinforces cooperation in environmental enforcement, especially when environmental damage spills across jurisdictions.

In conclusion, Complementary Law 140 has helped Brazil move toward a more coherent and predictable environmental licensing regime, one that not only safeguards the environment but also supports sustainable economic development by reducing legal uncertainty and improving institutional efficiency.

4.3. Administrative Rules: Environmental Licensing and EIA for Offshore Oil Exploration Activities

Environmental licensing is an administrative procedure to control activities that may interfere with the environment and establishes rights and duties for the exercise of the licensed activities.⁵⁰ EIA is a crucial tool in the environmental licensing process. It seeks to guarantee, at the early project stage, a systematic evaluation of the environmental impacts that may be caused by activities and projects for significant potential environmental degradation and provide alternatives to minimize environmental damage, at the end of the process.⁵¹ It is considered to be one of the most “remarkable instruments to manage socio-economic development through the preservation of the environmental quality, since it must be completed before the installation of the construction site or of the activity that might be the potential cause of significant degradation.”⁵² The significance of an EIA regarding oil and gas E&P activities is clear not only because of the potential, inherent, and irreversible environmental impacts that these activities can cause, but also because of the concerns of stakeholders such as local communities, the fishing industry, and the tourism industry. EIAs evolved in Brazil in response to energy development projects in the 1970s, particularly as a condition of the World Bank to finance large hydroelectric power plants.⁵³ However, it was not before 1983 that polluting sources required an EIA.⁵⁴

Before Law 140/2011 was enacted, the environmental licensing and EIA process in Brazil was mainly regulated by CONAMA’s Resolutions. Five relevant resolutions must be evaluated for this

50 L. Bezerra, *Aspectos Jurídicos da Proteção Ambiental na Indústria de Petróleo Upstream: Panorama e Reflexões*. (Revista Brasileira de Direito do Petróleo, 2006), 126.

51 Carvalho, M., ‘Avaliação de Impacto Ambiental e Licenciamento Ambiental: Instrumentos da Tutela preventiva do Meio Ambiente in Fontenelle (ed), *Temas de Direito Ambiental* (Faculdade de Direito de Campos, 2006), 44. tutela preventiva do Meio Ambiente’ in Fontenelle (ed), *Temas de Direito Ambiental* (Faculdade de Direito de Campos, 2006), 44.

52 Carvalho, M., ‘Avaliação de Impacto Ambiental e Licenciamento Ambiental: Instrumentos da Tutela preventiva do Meio Ambiente’ in Fontenelle (ed), *Temas de Direito Ambiental* (Faculdade de Direito de Campos, 2006).

53 Luiz Enrique Sánchez, *Avaliação de Impacto Ambiental – Conceitos e Métodos* (Oficina de Textos, 2020).

54 Federal Decree 88351 regulated the NEPA/1981.

article: CONAMA Resolutions 01/86, 237/97, 23/94 and 265/2000, and MMA Ordinance 422/2011.

CONAMA Resolution 01/86 is the major EIA regulation that provides for completion of an Environmental Impact Study (EIS) and its related Environmental Impact Report - known as EIA/RIMA - in accordance with art. 225, paragraph 1 (IV) of the 1988 Constitution.⁵⁵ Article 2 of the Resolution – supplemented by CONAMA Resolutions 011/86 and 005/87 - lists among activities that may potentially cause significant degradation of the environment and therefore are subject to EIA/RIMA, the petroleum exploration.⁵⁶ Article 5 of the Resolution provides for the general directives that EIA/RIMA should follow. These include, at a minimum:

- (i) contemplating all the technological and location alternatives of the project and comparing them to a hypothetical non-execution of the project,
- (ii) identifying and systematically evaluating the environmental impact generated during the implementation and operation phases of the activity,
- (iii) defining the limits of the geographical area directly and indirectly affected by the impact and considering the hydrographic basin in which it is located.⁵⁷

Therefore, CONAMA Resolution 1/86 establishes the foundational elements of the EIA, such as “the minimum content of EIS, public consultation, the need to consider both direct and indirect impacts as well as both adverse and beneficial impacts, mitigation and monitoring requirements.”⁵⁸ Following international EIA practice, the Brazilian process incorporates seven key stages: screening, scoping, EIS preparation, public hearings and participation, EIS review, a final statutory decision, and follow-up.⁵⁹

Screening involves an examination of the project by the Ministry to determine whether the project is one for which an EIA is required (according to CONAMA Resolution 1/86), or exempted, or one in which an EIA may not be carried out.

In the scoping stage, the proponent is expected to map out the scope of the intended EIA. This involves identifying the project’s potential impacts to determine whether they are beneficial or adverse. At the scoping stage, Resolution 1/86 does not require preparation of Terms of Reference for an EIS, nor does it require public participation (with a few exceptions).⁶⁰

During the EIS preparation stage, consultants may adopt a variety of EIS methods, terminology, and

55 Glasson and Salvador (n 8).

56 CONAMA Resolution 1/86 (“Dispõe sobre critérios básicos e diretrizes gerais para o Relatório de Impacto Ambiental - RIMA”), Art. 2 (VIII).

57 Antunes, P., *Proteção Ambiental nas Atividades de Exploração e Produção de Petróleo* (Lumen Iuris, 2003), 223.

58 Luis E. Sánchez and Carla Grigoletto Duarte, ‘Environmental impact assessment in Brazil: a review of its rise (and fall?)’ in *Handbook of environmental impact assessment* (Cheltenham, UK: Edward Elgar Publishing, 2022) www.elgaronline.com/edcollchap/book/9781800379633/book-part-9781800379633-30.xml

59 Ibid.

60 Ibid.

structure due to a lack of guidelines.⁶¹ Social and cultural impacts are usually not properly considered in the EIS. Furthermore, mitigation measures are frequently presented conceptually and only considered later in an environmental management plan.⁶²

Public participation will be required only during the EIS review. In this stage, proponents must provide additional information or modify the project to avoid or mitigate adverse impacts.⁶³

Once the project is approved, the environmental agency grants a preliminary license. The licenses issued during the process will be conditional on mitigation and compensation measures and monitoring programs.⁶⁴ They will need to be periodically renewed.

CONAMA Resolution 237/97 is the most important of the Resolutions concerning environmental licensing for activities that may cause environmental degradation.⁶⁵ The Resolution establishes specific rules for environmental licensing, providing minimum guidelines to be complied with during the process. Article 3 of Resolution 237/97 also prescribes that the environmental licensing of activities that may cause significant adverse impacts on the environment will depend on a previous EIA/RIMA. Article 4 of the Resolution provides that environmental licensing of works and activities that may have a significant environmental impact in national or regional territory is under IBAMA jurisdiction. This involves activities that occur in the territorial sea, continental shelf, or exclusive economic zone.⁶⁶ Therefore, according to Resolution 237/97, granting environmental licenses for offshore oil activities falls to IBAMA, the governmental institution responsible for implementing environmental policies aligning with Complementary Law 140/2011's multi-level governance structure.

According to Article 8 of CONAMA Resolution 237/97, the Brazilian government can issue the following three types of licenses:

- (i) preliminary licenses that approve concept projects and locations.
- (ii) installation licenses that authorize the setting up of the proposed activities.
- (iii) the operation license that authorizes the commencement of the project. Article 10 of CONAMA Resolution 237/97 details the licensing procedure.

CONAMA Resolution 23/94 aims to set up particular environmental licensing criteria in order to provide better control and environmental management for oil and gas activities, both onshore and offshore.⁶⁷ Article 3 of CONAMA Resolution 23/94 states that "the exploration for and mining of deposits of liquid fuels and natural gas shall depend on prior environmental licensing in terms of this

⁶¹ Ibid.

⁶² Ibid.

⁶³ Ibid.

⁶⁴ Ibid.

⁶⁵ Antunes (n 57), 217.

⁶⁶ Ibid (Art. 4 (I)).

⁶⁷ CONAMA Resolution 23/94, Preamble.

Resolution”.⁶⁸ These activities involve:

- (i) the drilling of wells for the identification of deposits and their extent.
- (ii) testing concerning economic viability.
- (iii) effective production for commercial purposes.⁶⁹

Article 5 of CONAMA 23/94 establishes that the following licenses shall be expedited:

- (i) preliminary license for drilling.
- (ii) preliminary production license for research.
- (iii) installation license.
- (iv) operating license.

For each phase of the oil project, a different environmental licensing and environmental study is required. For drilling activities, a less comprehensive study, known as the Environmental Control Report, is needed. However, it must contain a description of the drilling activity, environmental risks, and the identification of impacts and mitigating measures.⁷⁰ In a time when more countries require an environmental impact study for all stages of E&P projects, we submit that a comprehensive environmental study, such as the EIA, should be considered for offshore drilling activities as well. These activities can cause several serious environmental impacts. Furthermore, it is important to note that Resolution 23/94 does not refer to the licensing of seismic activities. There have been criticisms of whether this Resolution has been effective in establishing standards to protect environmental quality and efficiently control water and air pollution.⁷¹

CONAMA Resolution 265/2000 strengthens public participation in Brazil’s environmental licensing process by requiring public hearings specifically for oil and gas exploration and production activities in marine and coastal environments, including bays, estuaries, and the continental shelf. It builds upon the general framework established by CONAMA Resolution 23/94, tailoring it to the unique environmental risks posed by offshore petroleum operations.

Finally, MMA Ordinance No. 422/2011 was issued by the Ministry of the Environment and Climate Change on October 26, 2011. As provided in Article 1, it regulates the environmental licensing of oil and natural gas exploration and production activities that are under federal jurisdiction, including projects in marine environments, transition zones, and continental platforms.

Article 2 provides the scope of application, which includes seismic surveys (2D, 3D, 4D), perforation of exploratory and production wells, long-term testing, installation and operation of production systems,

⁶⁸ CONAMA Resolution 23/94, ART. 3.

⁶⁹ CONAMA Resolution 23/94, Art. 2.

⁷⁰ CONAMA Resolution 23/94, Art. 6.

⁷¹ Antunes (n 57), 236.

decommissioning of facilities, and support structures like pipelines, terminals, and platforms. Article 3 stipulates that activities must follow the three-phase licensing system: preliminary license, installation license, and operating license. Articles 4-7 state that environmental studies must be conducted, and EIA/RIMA is required where applicable. Also, Terms of Reference (ToR) are provided by IBAMA, and public hearings may be required. Furthermore, Article 8 provides that environmental licenses can cover drilling polygons, areas that include multiple wells, streamlining licensing for offshore activities. Articles 9-13 state that licenses must include environmental management conditions and IBAMA, the responsible authority for licensing, must monitor compliance.

The Ordinance formalizes offshore EIA practices, standardizing how Petrobras and other companies are regulated and encourages transparency and public participation, aligning with Principle 17 of the Rio Declaration. The Ordinance clearly allocates licensing roles to IBAMA for offshore hydrocarbon activity, aligning with Complementary Law 140/2011's multi-level governance structure. However, it lacks detailed decommissioning procedures and monitoring mechanisms during long license periods.⁷²

5. The EIA Process and Sustainable Development

This section examines the extent to which the Brazilian EIA process supports or undermines SD. Notwithstanding Brazil's comprehensive environmental laws discussed above and long-standing EIA practice, the extent to which the EIA process supports SD is limited and should be strengthened.

5.1. Limited Baseline Data Undermines Evaluation of Environmental Impacts

To support more SD by mitigating the adverse environmental impacts from oil and gas E&P activities through the EIA, respect for ecological integrity is important. Reliable baseline data is required to effectively evaluate the impacts of oil and gas E&P activities.⁷³ Numerous scholars have identified the absence of baseline data in developing countries as a significant hindrance to the completion of effective EIAs. Wood, for instance, has argued that the absence of relevant baseline data (and “the different significance attached to impacts in different countries”) is one of the strongest reasons to ensure that local experts participate in the EIA process, including local communities that have a vested interest in the project outcomes.⁷⁴ Lack of baseline data is a problem in the Brazilian EIA process. A more robust baseline is required to assess the potential impacts of projects on biodiversity effectively. According to a study conducted by Dias et al., “most of the evaluated development proposals had flaws in baseline studies used to inform impact assessments on biodiversity.”⁷⁵ The results confirmed the lack of commitment to evidence-based decision-making and suggested that the collection, use, and

72 Springer Nature Link, “Regulation in the Region” <https://link.springer.com/chapter/10.1007/978-3-031-75177-6>

73 Ingelson and Nwapi (n 3), 49.

74 Christopher Wood, ‘Environmental Impact Assessment in Developing Countries: An Overview’, (2003) 25:3 International Development Planning Review [Wood, ‘EIA: An Overview’].

75 Dias et al, ‘Are Environmental Impact Assessments effectively addressing the biodiversity issues in Brazil?’ (2022) 95 Environmental Impact Assessment Review 106801.

management of biodiversity evidence must be improved through Strategic Environmental Assessment (SEA) and EIA.⁷⁶

In addition, cumulative impacts from projects are not properly evaluated in the EIA process.⁷⁷ The EIA framework gives little attention to scoping. Usually, public agencies do not provide the Terms of Reference for the EIA of specific projects, considering their specific environmental aspects.⁷⁸ In addition, Brazil does not adopt SEA at strategic planning levels.⁷⁹ SEA is not mandatory under federal law.⁸⁰ Consequently, the system does not provide a substantive and effective assessment of cumulative effects.

Addressing this issue, scholars argue that the multi-project EIA approach adopted in the Brazilian pre-salt offshore oil and gas development “can help provide a regional and programmatic perspective to impact assessment, enabling a more qualified consideration of cumulative effects.”⁸¹ Pre-Salt Phase 2 is considered to be the first Brazilian oil and gas EIA experience of a structured cumulative effects assessment.⁸² Brazil’s pre-salt oil region, discovered by Petrobras in 2006 in the Santos Basin, has become one of the most significant deep-water oil frontiers in the world. With an estimated 16.4 billion barrels of recoverable reserves, it has attracted energy giants like Shell, BP, ExxonMobil, Chevron, and Equinor.⁸³

Early exploration faced enormous technical challenges, drilling through thick layers of salt rock, coping with intense pressures, and maintaining well integrity in complex geologies. To address these, Petrobras launched the PROSAL program, investing heavily in R&D and partnering with universities and global experts.⁸⁴

In 2010, Brazil passed the Pre-Salt Law, giving Petrobras a mandatory 30% stake in all pre-salt projects and making it the sole operator. However, this state-heavy model faced criticism for deterring foreign investment, especially after Petrobras became entangled in the massive “Operation Car Wash” corruption scandal.⁸⁵

Reforms in 2016 allowed foreign companies to operate in pre-salt fields, leading to renewed interest and multi-billion-dollar auctions. In some rounds, Petrobras opted out of its preferential right for the

⁷⁶ Ibid.

⁷⁷ Glasson and Salvador (n 8).

⁷⁸ Ibid.

⁷⁹ Vilardo and Rovere (n 20).

⁸⁰ Sánchez and Duarte (n 58).

⁸¹ Vilardo and Rovere (n 20).

⁸² Ibid.

⁸³ Yahoo Finance, “Tracing the history of exploration in the Brazilian pre-salt oil region” (August 13 2024) <<https://finance.yahoo.com/news/tracing-history-exploration-brazilian-pre-105717934>>

⁸⁴ Ibid.

⁸⁵ Ibid.

first time, signaling a shift in Brazil's energy governance. The government still oversees operations through PPSA, ensuring strategic control. Today, pre-salt production is booming, expected to account for nearly 75% of Brazil's oil output by 2025.⁸⁶

This frontier represents both economic opportunity and a delicate balancing act between energy security, foreign investment, and the environmental risks of offshore drilling.

5.2. Lack of Meaningful Public Participation in the EIA Process

The importance of meaningful public participation in the EIA process of other countries is well-established.⁸⁷ Project lenders such as the World Bank require public participation in the EIA process.⁸⁸ Public participation in EIAs is recognized in several international treaties, including the 1991 Convention on Environmental Impact Assessment in a Transboundary Context.⁸⁹ The importance of public participation in EIA processes was underscored by Sheate as follows:

They will be the people who know their own local environment and will be able to identify key areas of concern. Those concerns and fears may, in some cases, prove to be ill-founded, but if they are not identified at the earliest opportunity, they may arise at a later stage when they are more likely to lead to conflict. By involving the public as early as possible, issues may be identified that 'experts' might not have considered important.⁹⁰

In Brazil, public participation under CONAMAs Resolution 009/87 provides that "a public hearing should be held when requested by the civil body, by the Public Ministry, or by at least 50 people". However, public participation is very limited under the present legal framework.⁹¹ The legislation does not specify triggers for public hearings, leaving a broad discretion to the Public Ministry.⁹² Public consultation is only mandatory in the EIS review stage, so there is generally no consultation in the scoping phase.⁹³ Thus, the public is invited to comment on a draft prepared without input, perhaps even knowledge, leading to the so-called retroactive public participation.⁹⁴ Views raised by local communities and other stakeholders cannot be effectively addressed at this advanced stage of the EIA

86 Ibid.

87 Frances Cleaver, 'Paradoxes of Participation: Questioning Participatory Approaches to Development' (1999) 11:4 *Journal of International Development* 597.

88 George Pring, James Otto and Koh Naito, 'Trends in International Environmental Law Affecting the Minerals Industry' (1999) 17 *Journal of Energy and Natural Resources Law* 163.

89 Espoo Convention on Environmental Impact Assessment in a Transboundary Context of 25 February 1991, in force 10 September 1997 (Espoo Convention); 30 ILM 800 (1991), arts 2(6) & 4(2).

90 WR Sheate, *Environmental Impact Assessment: Law and Policy – Making an Impact II*, (London: Cameron May 1996).

91 Sánchez and Duarte (n 58). The authors refer to the following studies: Ferrer (1998), Duarte et al. (2016) and Almeida et al. (2018).

92 Ibid.

93 Ibid.

94 Ingelson and Nwapi (n 3), 51.

process. Therefore, late public involvement can result in the governmental authority merely seeking to justify results previously reached.

Affected communities frequently have difficulty accessing relevant project information.⁹⁵ Glasson notes that “EISs are not in a language accessible to the public, and there is no requirement for a nontechnical summary.”⁹⁶

Even when public participation is triggered, its influence on decision-making is debatable due to the politicized nature of the EIA process and the amount of discretion left to public authorities.⁹⁷ This leads to tokenism, a formal procedure that lacks meaningful consultation.⁹⁸

Residents potentially affected by petroleum projects could enhance the effectiveness of the EIA process by identifying the types of impacts the hydrocarbon project will have on them and the local environment, and contribute to baseline information if they are allowed to do so.⁹⁹ Information sharing is vital to an effective EIA.¹⁰⁰

5.3. Lack of attention to negative social and cultural impacts

A variety of negative social, cultural, and health impacts can arise from some oil and gas E&P activities, particularly in communities located near onshore projects. Adverse effects can include the displacement of residents in areas where energy projects are developed.¹⁰¹ Some argue that the poor evaluation and integration of social impacts in decision-making is due to the lack of legal requirements and the absence of consolidated methodological guidelines.¹⁰² In 2012, a study conducted by the Federal Courts of Account - Tribunal de Contas da União (TCU), regarding two hydroelectric plants in the Amazon, concluded that the negative social effects on resettled riverside communities, who were resettled kilometers away from the river, were not properly considered and mitigated in the assessments.¹⁰³ Likewise, little attention is paid to the social impacts of hydrocarbon projects.

Cultural and health impacts are not adequately addressed in the EIA process in Brazil. As noted by Sánchez and Duarte, cultural heritage impacts are rarely considered in the EIS. Health agencies do not require a Health Impact Assessment.¹⁰⁴ Conflicts between oil and gas corporations and indigenous

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ Ibid.

⁹⁸ A. Zhouri, ‘Justiça Ambiental, diversidade cultural e accountability: Desafios para a governança Ambiental’ (2008) 23 *Revista Brasileira de Ciências Sociais*, 97-107.

⁹⁹ Wood (n 83), 13.

¹⁰⁰ Ingelson and Nwapi (n 3), 49 - 50.

¹⁰¹ Ibid 48.

¹⁰² Marcelo Montaña, Renata Utsunomiya and Marcelo Marini Pereira de Souza, ‘Drawbacks of Social Impacts Assessment in Brazil: Is It Time for a New Approach?’ (2021) 12 *Journal of Environmental Protection* 1086-1101.

¹⁰³ Sánchez and Duarte (n 58).

¹⁰⁴ Ibid.

peoples or traditional communities occupying the lands explored by oil companies have arisen and remain unsettled. At the end of 2023, one day after COP 28, the ANP put 602 new oil blocks up for auction, at least 21 of which are in the Amazon River Basin. According to analysis by the Arayara International Institute, twenty-two Indigenous lands and five Quilombola territories can be negatively impacted by exploration activities in these areas, located across nine sedimentary basins.¹⁰⁵ Potentially impacted Indigenous groups include the Sateré Mawé, Munduruku, Mura, Kahyana, Kaxuyana, Tunayana and Xokleng, and the isolated peoples of Pitinga/Nhamunda-Mapuera, Rio Kaxpakuru, and Igarapé Água Fria.¹⁰⁶ Oil releases can negatively impact biodiversity, including fish, wildlife, and other aquatic resources that residents rely on for food, causing serious social and health impacts.

5.4. Lack of coordination between environmental agencies

A problem in the hydrocarbon project licensing process that undermines SD is the lack of coordination among environmental authorities. Projects must follow the procedures of a single EIA agency.¹⁰⁷ According to Resolution 237/97 and Ordinance 422/2011, the granting of environmental licenses for offshore petroleum activities falls exclusively to IBAMA. Conflicts have arisen between IBAMA and other key authorities in the licensing process, such as the Ministry of Environment and Climate Change, the Ministry of Mining, and ANP.

Article 6 of Law 6.938/81 established the National Environmental System (SISNAMA), consisting of the Ministry of Environment and Climate Change; National Environmental Council Administration (CONAMA), Brazilian Institute for Environment and Renewable Resources (IBAMA), and state and municipal entities. The Ministry of Environment and Climate Change is the central organ of the system, under which IBAMA works as the executive organ of the system. Although IBAMA is the responsible authority for environmental licensing of offshore petroleum activities, its technical decisions are challenged by Federal Ministers, which delays and interferes with the licensing process. In May 2023, during a public hearing at the Brazilian Congress, the Minister of Mines and Energy criticized IBAMA's decision to require new studies (Avaliação Ambiental de Área Sedimentar – AAAS) for oil exploration of concession blocs in the Amazon Basin.¹⁰⁸ The Minister of Mines and Energy argued that the documentation submitted by his cabinet workgroup before the auction was sufficient to authorize

105 Aimee Gabay, 'Mega oil and gas auction in the Brazilian Amazon may threaten Indigenous lands' (15 December 2023), online: Mongabay <news.mongabay.com/2023/12/mega-oil-and-gas-auction-in-brazil-may-threaten-indigenous-lands/>

106 Ibid.

107 Alberto Fonseca, Luis Enrique Sánchez, José Claudio Junqueira Ribeiro, 'Reforming EIA systems: A critical review of proposals in Brazil' (2017) 62 Environmental Impact Assessment Review, 90-97.

108 'Ministro ataca parecer do Ibama sobre extração de petróleo na foz do Amazonas' (24 May 2023), online: Senado Notícias <<https://www12.senado.leg.br/noticias/materias/2023/05/24/ministro-ataca-parecer-do-ibama-sobre-extracao-de-petroleo-na-foz-do-amazonas>>

oil exploration activities in the area.¹⁰⁹ In this case, the Minister of Environment and Climate Change was also criticized for reinforcing the technical decision adopted by IBAMA, demonstrating a lack of coordination between the federal authorities participating in the licensing process.

Alongside IBAMA, the ANP, which operates under the Mines and Energy Ministry, also has environmental jurisdiction. The ANP, though a petroleum agency created by Law 9.478/1997 to regulate the oil sector, which was lately opened to private companies, is also considered an instrument of the National Energy Policy (NEP). The NEP includes, among its objectives, environmental protection. In this sense, many of the powers granted to the agency under Article 8 of Law 9.478/97 are related, directly or indirectly, to environmental protection,¹¹⁰ such as the promotion of studies for delimiting blocks for the concession of exploration, development, and production activities.¹¹¹ However, in practice, there has been no coordination between ANP and IBAMA, especially with respect to the concession of blocks in sensitive areas. As noted by Antunes, this is because there is no previous investigation of the environmental conditions in an area to be bid on, and no primary data that could serve as an inventory of different protected areas in Brazil.¹¹² This usually creates tension among these regulatory public agencies and the purchaser of the block. The recent concession regarding 11 blocks located in the Potiguar Basin illustrates this statement. These blocks are located over the submarine mountains of the Fernando de Noronha chain, which was recognized as a World Natural Heritage site by UNESCO in 2001.¹¹³ These geological formations play a crucial role in the region's ecosystem and have been classified as an Area of Significant Ecological and Biological Importance.¹¹⁴ In December 2023, exploration of these blocks was challenged in court. The plaintiffs argued that the ANP did not carry out a proper technical assessment of the feasibility of offering the blocks. This problem must be avoided in the future to improve confidence in the Brazilian bidding process and protect such crucial environmental areas, which cannot wait for long and complex judicial battles. Lack of coordination between the above departments and agencies undermines the EIA process and SD.

5.5. Lack of Post-Assessment Hydrocarbon Project Monitoring

Preparation of an Environmental Management Plan (EMP) is required to obtain an installation or construction license. An EMP is a detailed plan and schedule of mitigation measures necessary to address the potential impacts identified through the EIA.¹¹⁵ Those measures are to be undertaken during the project to reduce adverse environmental impacts. An EMP includes specific actions needed

¹⁰⁹ Ibid.

¹¹⁰ Antunes (n 57), 175.

¹¹¹ Law 9.478/97, Art. 8 (II).

¹¹² Antunes (n 57), 252.

¹¹³ Arayara, 'Instituto Arayara takes legal action to project submarine mountains of Fernando de Noronha from oil and gas exploration' (17 November 2023) <arayara.org/arayara-takes-legal-action-to-protect-noronha/>

¹¹⁴ Ibid.

¹¹⁵ Ingelson and Nwapi (n 3), 52.

to implement the measures, the costs associated with implementation of the measures, compensatory measures available should the hydrocarbon operator fail to adequately address the adverse effects of the project, and the institutional arrangements available to implement the measures, i.e., agencies, bodies, or officers charged with implementing the measures.¹¹⁶ However, as noted by Dias and Sanchez, “follow-up was hindered by poor wording of terms and conditions of environmental licenses and ambiguous mitigation measures described in the Brazilian EIS, hampering auditing and enforcement.”¹¹⁷ An EIA process that promotes SD will provide for implementation of post-monitoring for the entire life cycle of the project as part of the EMP. After hydrocarbon project approval, it is necessary to monitor whether the proposed mitigation measures are being implemented and, if they have been, how they are working.¹¹⁸ In Brazil, the difficulty in implementing and enforcing the monitoring requirements is often related to the lack of financial resources and trained personnel within environmental agencies and organs. IBAMA – the executive key agency that coordinates environmental licensing and EIA at the federal level – still faces serious hurdles in implementing environmental policies and rules, including the ones concerning offshore oil exploration.¹¹⁹ This core environmental authority, having inherited the defects of the prior governmental organs that it replaced, is also considered to be a bureaucratic agency.¹²⁰ As noted by Glasson and Salvador, monitoring “needs to be greatly improved, and preferably should be mandatory, with periodic reports presented by developers to competent authorities.”¹²¹

5.6. Lack of Political Will and Stewardship

In Brazil, where the national petroleum company Petrobras and multinational corporations exert significant economic influence, political will is a critical factor in changing the EIA process that could further SD. The current environmental and licensing decision-making process in Brazil is strongly subject to political and business interests.¹²² Examples include the hydrocarbon concession of blocks located in the Potiguar Basin and Amazon Basin – clearly, major influential petroleum companies and investors exercise their power to speed up the approval of projects, “without proper consideration of project alternatives, impacts, and/or irregularities in the licensing process,”¹²³ enforcing the need for

116 “Environmental Impact Assessment General Procedures” (November 2007), online: *United Nations University* <<http://www.os.is/gogn/unu-gtp-sc/UNU-GTP-SC-05-28.pdf>>

117 Dias and Sanchez, ‘Deficiências na implementação de projetos submetidos à avaliação de impacto Ambiental no estado de São Paulo. *Revista de Direito Ambiental*’ (2001) 6:23, 163-204.

118 Ingelson and Nwapi (n 3), 53.

119 O. Couto, ‘Alguns Aspectos da “Lei da Transparência Ambiental” – Lei no. 10.650/2003 (ou, ainda, “Advinhe quem vem para-Jantar?”)’ in Rosado (ed), *Estudos e Pareceres do Direito do Petróleo e Gás* (Renovar, 2005), 739.

120 E. Fernandes, ‘Constitutional Environmental Rights in Brazil’ in Anderson and Boyle (eds) *Human Rights Approaches to Environmental Protection* (Claredon Press, 1996), 280.

121 Glasson and Salvador (n 8).

122 Ibid.

123 Bragagnolo et al., ‘Streamlining or sidestepping? Political pressure to revise environmental licensing and EIA in Brazil’ (2017) 65 *Environmental Impact Assessment Review*.

evidence-based simplification reforms.¹²⁴

5.7. Possible Lessons from Australia

Australia is a strong comparative model for Brazil because both countries are resource-rich federal democracies with vast offshore oil reserves and similar environmental challenges. However, Australia has developed a more advanced, integrated offshore regulatory system, notably through its independent offshore regulator, National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), robust decommissioning framework, and emphasis on public and Indigenous consultation. This makes Australia not just relevant but a practical source of tested regulatory best practices that Brazil can adapt to enhance environmental oversight and sustainable hydrocarbon development.

Firstly, Australia's NOPSEMA is a globally respected model of integrated oversight. It functions independently from political influence, overseeing environment, safety, and well integrity across all offshore activities¹²⁵. Brazil's current system is split among multiple agencies and can lead to fragmented decision-making and inconsistent enforcement. It will be good to establish or empower a singular, independent offshore regulator to manage licensing, compliance, and environmental risk.

Secondly, Australia undertakes SEA-like processes before oil licensing rounds, often evaluating cumulative impacts in offshore basins¹²⁶. In contrast, Brazil focuses on project-level EIAs, with limited proactive assessment at the policy or regional scale. This can lead to underestimating systemic risks, especially in the Amazon River Basin and coastal pre-salt areas. Brazil needs to codify SEA into national law, enabling basin-wide environmental assessments to guide offshore block auctions and ensure climate and biodiversity coherence.

Lastly, Australia's offshore regulators are increasingly considering the climate impacts of new oil and gas approvals prompted by public pressure and judicial reviews. While imperfect, these trends signal a shift toward reconciling fossil fuel development with net-zero commitments. Brazil, a signatory to the Paris Agreement, has not fully integrated climate risk or carbon budgets into EIA practice. Brazil needs to add climate impact assessments into EIA procedures and link future licensing rounds with Brazil's NDCs.

Conclusion

Brazil stands at a crossroads. On one hand, its abundant hydrocarbon reserves, particularly in the pre-salt offshore basins, present immense opportunities for energy security, economic growth, and global competitiveness. On the other hand, these opportunities bring complex environmental, social, and

124 Alberto Fonseca, 'Weak participation and Ideological Exemption: The Latest Stage of EIA Simplification in Brazil?' (2023) 41:3 Impact Assessment and Project Appraisal, 199-204.

125 NOPSEMA, Australia's Offshore Energy Regulator <<https://www.nopsema.gov.au/about>>

126 "Strategic assessments of an endorsed policy, plan or program" (13 November 2024), online: *Australian Government, Department of Climate Change, Energy, the Environment and Water* <<https://www.dcceew.gov.au/environment/epbc/approvals/strategic-assessments>>

governance challenges, especially in light of global climate commitments and domestic constitutional obligations.

The article has examined Brazil's evolving EIA and licensing frameworks, emphasizing their role in promoting SD. While Brazil has made significant strides, enshrining EIA in its Constitution, operationalizing CONAMA resolutions, and introducing legal instruments such as Complementary Law 140/2011 and Ordinance 422/2011, the challenges remain. Conflicting jurisdictional mandates, limited public participation, and emerging pressures from pre-salt and Amazon basin expansions all test the robustness of Brazil's environmental governance.

In light of these realities, it becomes imperative to learn from other jurisdictions navigating similar terrains. Australia, with its independent offshore regulator (NOPSEMA), integrated environmental and safety assessments, transparent decommissioning protocols, and strong community engagement practices, offers practical lessons. Not every model is perfectly transferable, but many are adaptable.

As Brazil continues to align its energy ambitions with ecological stewardship and social justice, it must build stronger institutions, improve coherence across federal and subnational levels, and create pathways for meaningful Indigenous and civil society participation. Only through these actions can Brazil realize the promise of a hydrocarbon sector that sustains its people, respects its ecosystems, and meets the demands of a changing planet.

Bibliography

I. Books:

- Antunes, P., *Proteção Ambiental nas Atividades de Exploração e Produção de Petróleo* (Lumen Iuris, 2003).
- Barroso, L., *O Direito Constitucional e a Efetividade de Suas Normas. Limites e Possibilidades da Constituição Brasileira*: (Renovar, 2000).
- Carvalho, M., 'Avaliação de Impacto Ambiental e Licenciamento Ambiental: Instrumentos da Tutela preventiva do Meio Ambiente' in Fontenelle (ed), *Temas de Direito Ambiental* (Faculdade de Direito de Campos, 2006).
- Couto, O., 'Alguns Aspectos da "Lei da Transparência Ambiental" – Lei no. 10.650/2003 (ou, ainda, "Advinhe quem vem para-Jantar?")' in Rosado (ed), *Estudos e Pareceres do Direito do Petróleo e Gás* (Renovar, 2005).
- Crowther, D. and Güler A., eds, *The governance of risk, Developments in corporate governance and responsibility 2043-0523 v. 5* (Bingley, U.K: Emerald, 2013).
- Edwards, A.R., *The sustainability revolution: portrait of a paradigm shift* (Gabriola, BC: New Society Publishers, 2005).
- Fernandes, E., 'Constitutional Environmental Rights in Brazil' in Anderson and Boyle (eds) *Human Rights Approaches to Environmental Protection* (Claredon Press, 1996).
- Garcia F., and Rocha, H., 'Aspectos Ambientais da Lei de Petróleo, in Moraes, Azevedo and Delmanto' (eds), *As Leis Federais mais Importantes de Proteção ao Meio Ambiente Comentadas* (Renovar: 2005).
- Heck, M., *Licenciamento O., 'Ambiental e as Atividades de Exploração e Produção de Petróleo e Gás Natural'* in Valois (ed), *Temas de Direito do Petróleo e do Gás Natural* (Lumen Iuris, 2002).
- Hunter, D., Salzman, J., and Zaelke, D., *International Environmental Law and Policy*, 250 (New York: Foundation Press, 1998).
- Martins, D., *A regulação da Indústria do Petróleo* (Forum, 2006). Menezello, M., *Comentários à Lei do Petróleo, Lei Federal n. 9478, de 6-8-1997* (Atlas, 2000).
- Milaré E.M., *Direito do Ambiente: a gestão ambiental em foco: doutrina, jurisprudência, glossário*, 6 ed. (São Paulo: Editora Revista dos Tribunais, 2009).
- Muchlinski, P., *Multinational Enterprises and the Law*, 6 (Cambridge, Mass: Blackwell Publishers, 1995).
- Norgaard, Richard B., ed *Development Betrayed: The End of Progress and a Coevolutionary Revisioning of the Future* (London, New York: Routledge, 2010).
- Paulo, M., Leme, A., *Direito Ambiental Brasileiro* (17. ed. São Paulo: Malheiros, 2009).
- Pring, G. and Noé, S.Y 'The Emerging International Law of Public Participation Affecting Global Mining, Energy, and Resources Development' in Donald N Zillman, Alastair R Lucas and George

Pring, eds, *Human Rights in Natural Resource Development: Public Participation in the Sustainable Development of Mining and Energy Resources*, 38 (New York: Oxford University Press, 2002).

Rosado, M., *Direito do Petróleo* (Renovar, 2003).

Sánchez L.E., and Grigoletto C.D., ‘Environmental impact assessment in Brazil: a review of its rise (and fall?)’ in *Handbook of environmental impact assessment* (Cheltenham, UK: Edward Elgar Publishing, 2022) <www.elgaronline.com/edcollchap/book/9781800379633/book-part-9781800379633-30.xml>

Sheate, W.R., *Environmental Impact Assessment: Law and Policy – Making an Impact II*, (London: Cameron May, 1996).

Solow, R. M., *Sustainability: An Economist’s Perspective*, in *Economics of the Environment*, 180 (Robert Stavins ed., New York: WW Norton and Company, 2012).

Springer Nature Link, “Regulation in the Region”, <https://link.springer.com/chapter/10.1007/978-3-031-75177-6>.

Wood, C., *Environmental Impact Assessment: A Comparative Review*, 67 (London: Longman Scientific & Technical, 1995).

II. Articles:

Almada L.P., and Parente V., ‘Oil & Gas Industry in Brazil: A brief history and legal framework’ (2013) 1:1 *Panorama of Brazilian Law*.

Bache, S., ‘Are Appeals an Indicator of EIA Effectiveness? Ten Years of Theory and Practice in WA’ (1998) 5:3 *Australasian Journal of Environmental Management* 167.

Bezerra, L., *Aspectos Jurídicos da Proteção Ambiental na Indústria de Petróleo Upstream: Panorama e Reflexões*. *Revista Brasileira de Direito do Petróleo* (2006) 1.

Blumberg, P., ‘Accountability of Multinational Corporations: The Barriers Presented by Concepts of the Corporate Juridical Entity’ (2001) 24 *Hastings International and Comparative Law Review* 297.

Bragagnolo et al., ‘Streamlining or sidestepping? Political pressure to revise environmental licensing and EIA in Brazil’ (2017) 65 *Environmental Impact Assessment Review*.

Cleaver, F., ‘Paradoxes of Participation: Questioning Participatory Approaches to Development’ (1999) 11:4 *Journal of International Development* 597.

Dias et al, ‘Are Environmental Impact Assessments effectively addressing the biodiversity issues in Brazil?’ (2022) 95 *Environmental Impact Assessment Review* 106801.

Dias and Sanchez, ‘Deficiências na implementação de projetos submetidos à avaliação de impacto ambiental no estado de São Paulo’. *Revista de Direito Ambiental*’ (2001) 6:23, 163-204.

Dietz, S. & Neumayer, E., “Weak and strong sustainability in the SEEA: Concepts and measurement” (2007) 61:4 *Ecological Economics* 617–626, online: <<https://linkinghub.elsevier.com/retrieve/pii/S092180090600454X>>.

Elder, P.S. “Sustainability” *McGill LJ* 36 (1990): 831, 838.

- Fonseca, A., ‘Weak Participation and Ideological Exemption: The Latest Stage of EIA Simplification in Brazil?’ (2023) 41:3 Impact Assessment and Project Appraisal.
- Fonseca, A., Sánchez, L.E., Ribeiro, J.C.J., ‘Reforming EIA systems: A critical review of proposals in Brazil’ (2017) 62 Environmental Impact Assessment Review.
- Glasson J., and Salvador, N.N.B., ‘EIA in Brazil: a procedures-practice gap. A comparative study with reference to the European Union, and especially the UK’ (2000) 20 Environmental Impact Assessment Reviews, 191.
- Hartwick, J., “Intergenerational Equity and the Investing of Rents from Exhaustible Resources,” 67 American Economic Review 972 (1977).
- Hediger, W., “Weak and Strong Sustainability, Environmental Conservation and Economic Growth” (2006) 19:3 Natural Resource Modeling 359–394, online: <<https://onlinelibrary.wiley.com/doi/10.1111/j.1939-7445.2006.tb00185.x>>.
- Ingelson, A., and Nwapi, C., ‘Environmental Impact Assessment Process for Oil, Gas and Mining Projects in Nigeria: A Critical Analysis’ (2014) 10:1 Law, Environment and Development Journal.
- Lieders A., A new chapter in Brazil’s oil industry: Opening the market while protecting the environment. (Georgetown International Environmental Law Review, Spring 2001).
- Moffet, J., & Bregha, F., The Role of Law Reform in the Promotion of Sustainable Development, 6 J. Environmental Law & Practice 1, 3 (1996).
- Montaño, M., Utsunomiya, R., and de Souza, M.M.P., ‘Drawbacks of Social Impacts Assessment in Brazil: Is It Time for a New Approach?’ (2021) 12 Journal of Environmental Protection 1086-1101.
- Ogunba, O.A., ‘EIA systems in Nigeria: evolution, current practice and shortcomings’ (2004) 24:6 Environmental Impact Assessment Review, 643.
- Onwuekwe, C.B., ‘Reconciling the Scramble for Foreign Direct Investments and Environmental Prudence: A Developing Country’s Nightmare’ (2006) 7:1 Journal of World Investment & Trade 115.
- Pring, G., Otto J., and Naito, K., ‘Trends in International Environmental Law Affecting the Minerals Industry’ (1999) 17 Journal of Energy and Natural Resources Law 163.
- Ratner, S.R., ‘Corporations and Human Rights: A Theory of Legal Responsibility’ (2001) 111 Yale Law Journal 461.
- Vigilo J.E., et al, ‘Not all glitters in the black gold: uncertainties and environmental threats of the Brazilian Pre-Salt’(2017)20:03Ambient.Soc.<<https://doi.org/10.1590/1809-4422ASOC58R3V2032017>>
- Vilardo C., and La Rovere E.L., ‘Multi-project environmental impact assessment: insights from offshore oil and gas development in Brazil’ (2018) 36:4 Impact Assessment and Project Appraisal at 361.
- Williams, C.C. & Millington, A.C., “The diverse and contested meanings of sustainable development” (2004) 170:2 Geographical Journal 99–104, online: <<https://rgs-ibg.onlinelibrary.wiley.com/doi/10.11>

11/j.0016-7398.2004.00111.x>.

Wood, C., 'Environmental Impact Assessment in Developing Countries: An Overview', (2003) 25:3 International Development Planning Review [Wood, 'EIA: An Overview'].

Zhou, A., 'Justiça Ambiental, diversidade cultural e accountability: Desafios para a Governança Ambiental' (2008) 23 Revista Brasileira de Ciências Sociais.

III. CASE LAW

STJ, Special Appeal No. 1.071.741/SP, Min. Herman Benjamin, judged on 03/24/2009, published on 12/16/2010.

IV. Legislations

42 USC §§ 4321.

Complementary Law 140/2011.

CONAMA Resolution 1/86.

CONAMA Resolution 23/94.

CONAMA Resolution 237/1997.

Constitution of the Federative Republic of Brazil 1988 <<http://english.tse.jus.br/arquivos/federalconstitution>>.

Council Directive 85/337/EEC (1985) OJ L175/40, amended by Council Directive 97/11/EC (1997) OJ L73/5.

Declaration of the United Nations Conference on Human Environment (1972), UN Doc.A/CONF.48/14, at 2 and Corr. 1 (1972).

Federal Decree 88351 regulated the NEPA/1981.

Federal Law No. 9478/1997.

G.A. Res. 38/161, U.N. Doc. A/RES/J 8/161 (Dec. 19, 1983).

MMA Ordinance No. 422/2011.

V. Websites

Agência Nacional do Petróleo, Gás Natural e Biocombustíveis, <www.gov.br/anp/en/access-information/what-is-anp>

Arayara, 'Instituto Arayara takes legal action to protect submarine mountains of Fernando de Noronha from oil and gas exploration' (17 November 2023) <arayara.org/arayara-takes-legal-action-to-protect-noronha/>

Australian Government, Department of Climate Change, Energy, the Environment and Water <https://www.dcceew.gov.au/environment/epbc/approvals/strategic-assessments>.

BNN Bloomberg, "Brazil auctions off several Amazon oil sites despite environmentalists and Indigenous protests" <https://www.bnnbloomberg.ca/business/international/2025/06/18/brazil-auctions-off-several->

amazon-oil-sites-despite-environmentalists-and-indigenous-protests/June 18 2025.

DLAPiper, “Environmental liability”, <https://www.dlapiperrealworld.com/law/index.html?t=sale-and-purchase&s=real-estatesalesandpubliclaw&q=environmentalliability#:~:text=6%2C938/1981%2C%20the%20existenc%20of,liable%20for%20environmental%20civil%20liability.>

Gabay, A., ‘Mega oil and gas auction in the Brazilian Amazon may threaten Indigenous lands’ (Mongabay, 15 December 2023) <news.mongabay.com/2023/12/mega-oil-and-gas-auction-in-brazil-may-threaten-indigenous-lands/>

International Trade Administration, ‘Energy Resource Guide’, (2021) <www.trade.gov/energy-resource-guide-brazil-oil-and-gas>

NOPSEMA, Australia’s Offshore Energy Regulator <https://www.nopsema.gov.au/about>

Reuters, Brazil announces new climate change pledge ahead of COP29 summit <https://www.reuters.com/sustainability/climate-energy/brazil-announces-new-climate-change-pledge-ahead-cop29-summit-2024-11-09> 09 November 2024

Senado notícias, ‘Ministro ataca parecer do Ibama sobre extração de petróleo na foz do Amazonas’ (24 May 2023), <<https://www12.senado.leg.br/noticias/materias/2023/05/24/ministro-ataca-parecer-do-ibama-sobre-extracao-de-petroleo-na-foz-do-amazonas>>

Sustainable Development Goals, <https://www.un.org/sustainabledevelopment/development-agenda/>.

Venditi, B., ‘The World’s Biggest Oil Producers in 2023’ (Visual Capitalist, 26 March 2024) <<https://www.visualcapitalist.com/the-worlds-biggest-oil-producers-in-2023/>>

World Ports Org, Record level of offshore oil and gas accidents reported in Brazil, <https://www.worldports.org/record-level-of-offshore-oil-and-gas-accidents-reported-in-brazil/> (April 15, 2025)

Yahoo Finance, “Tracing the history of exploration in the Brazilian pre-salt oil region” <https://finance.yahoo.com/news/tracing-history-exploration-brazilian-pre-105717934> August 13 2024

VI. Other Sources

Anderson S., and Cavanagh, J., ‘Top 200: The Rise of Global Corporate Power’ (Institute for Policy Studies, 4 December 2000) <https://www.iatp.org/sites/default/files/Top_200_The_Rise_of_Corporate_Global_Power.pdf>

Canadian Centre for the Study of Resource Conflicts, ‘Corporate Social Responsibility: Movements and Footprints of Canadian Mining and Exploration Firms in the Developing World’ (October 2009) <https://miningwatch.ca/sites/default/files/CSR_Movements_and_Footprints.pdf>

Espoo Convention on Environmental Impact Assessment in a Transboundary Context of 25 February 1991, in force 10 September 1997 (Espoo Convention); 30 ILM 800 (1991), arts 2(6) & 4(2).

IUCN/UNEP/WWF, Caring for Earth: A Strategy for Sustainable Development Living 10 (IUCN/UNEP/WWF, 1991), online: <<https://portals.iucn.org/library/efiles/documents/CFE-003.pdf>> (last visited June 15, 2017).

Kloff, S., and Wicks, C., 'Environmental management of offshore oil development and maritime oil transport' (2004) <[https://biblioteca.biofund.org.mz/wp-content/uploads/2018/11/1543227888-F1780.Kloff_Wicks_2004_Environmental%20Management%20Offshore%20Oil%20Development%20\(Legal%20Review%20Inc\).Pdf](https://biblioteca.biofund.org.mz/wp-content/uploads/2018/11/1543227888-F1780.Kloff_Wicks_2004_Environmental%20Management%20Offshore%20Oil%20Development%20(Legal%20Review%20Inc).Pdf)>

Ogola, P.F.A., 'Environmental Impact Assessment General Procedures', Paper presented at Short Course II on Surface Exploration for Geothermal Resources organized by UNU-GTP and KenGen, at Lake Naivasha, Kenya (2-17 November 2007) <<http://www.os.is/gogn/unu-gtp-sc/UNU-GTP-SC-05-28.pdf>>

Pierre A., et al., Public Participation: Best Practice Principles 4 Int'l Ass'n for Impact Assessment, Special Publication Series 1 (2006).

Translation of the Brazilian Constitution prepared by the staff of Brazilian Senate, (1994) <<http://www.v-brazil.com/government/laws/credits.html>>

United Nations Conference on Environment and Development, Agenda 21, Rio de Janeiro, Brazil (3-14 June 1992), online: <<https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>>.

United Nations General Assembly, Rio Declaration on Environment and Development (United Nations Conference on Environment and Development, 1992), 31 ILM 874.

United Nations, World Commission on Environment and Development, Report of the World Commission on Environment and Development: Our Common Future, U.N. Doc. A/42/427 (August 4, 1987).

U.S. Energy Information Administration, 'Background Reference: Brazil' (14 June 2021) <<https://www.eia.gov/international/analysis/country/bra/background>>

USDA Report "Sustainable Agriculture Programs in Brazil- Past Present and Future" (April 2024) <https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=Sustainable+Agriculture+Programs+in+Brazil-+Past+Present+and+Future_Brasilia_Brazil_BR2024-0006.pdf>

World Conservation Union, U.N. Env't Programme & World Wildlife Fund for Nature, Caring for the Earth: A Strategy for Sustainable Development 9 (1992).