



# Analysis of ESG Practices in Brazilian Oil and Gas Companies

## Análise das Práticas de ESG em Empresas Brasileiras do Segmento de Petróleo e Gás

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**ABSTRACT | Objective:** To analyze the ESG practices adopted by Brazilian companies in the oil and gas sector, highlighting implemented strategies and observed impacts. **Theoretical Framework:** The concept of ESG is addressed, as well as its growing importance for companies in terms of competitiveness, reputation, and organizational resilience, based on current studies. **Method:** Adopts a qualitative approach, analyzing sustainability reports of selected companies in the oil and gas sector. Environmental, social, and governance dimensions are considered, using specific variables to consistently assess ESG practices. **Results and Conclusion:** The results reveal a variety of focuses adopted by companies regarding ESG. Some companies prioritize environmental management, while others focus on social or governance aspects. Initiatives include carbon emission reduction, waste management, workplace safety, diversity, and business ethics, among others. **Research Implications:** Provides valuable insights for oil and gas companies to enhance their ESG practices, contributing to academic advancement in understanding ESG implementation, especially in the energy sector. Socially, it highlights the relevance of corporate responsibility and sustainability for society. **Originality/Value:** This study is significant for advancing socio-environmental management, focusing on ESG practices in oil and gas companies. Its originality lies in the analysis of these companies' strategies in Brazil, providing a unique perspective on sustainability and corporate governance in the country.

**Keywords |** Corporate sustainability; ESG strategies; Oil and gas; Sustainable development.


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**RESUMO | Objetivo:** Analisar as práticas ESG adotadas por empresas brasileiras do setor de petróleo e gás, destacando as estratégias implementadas e os impactos observados. **Referencial teórico:** Aborda-se o conceito de ESG e sua crescente importância para as empresas em termos de competitividade, reputação e resiliência organizacional, com base em estudos atuais. **Método:** Adota-se uma abordagem qualitativa, com análise dos relatórios de sustentabilidade de empresas selecionadas do setor de petróleo e gás. As dimensões ambiental, social e de governança são consideradas, utilizando-se variáveis específicas para avaliar de forma consistente as práticas ESG. **Resultados e conclusão:** Os resultados revelam uma diversidade de focos adotados pelas empresas em relação ao ESG. Algumas priorizam a gestão ambiental, enquanto outras se concentram em aspectos sociais ou de governança. As iniciativas incluem redução de emissões de carbono, gestão de resíduos, segurança do trabalho, diversidade e ética nos negócios, entre outras. **Implicações da pesquisa:** Oferece insights relevantes para que empresas do setor de petróleo e gás aprimorem suas práticas ESG, contribuindo para o avanço acadêmico na compreensão da implementação do ESG, especialmente no setor energético. Do ponto de vista social, destaca a relevância da responsabilidade corporativa e da sustentabilidade para a sociedade. **Originalidade/Valor:** Este estudo é significativo para o avanço da gestão socioambiental, com foco nas práticas ESG em empresas de petróleo e gás. Sua originalidade reside na análise das estratégias dessas empresas no Brasil, proporcionando uma perspectiva singular sobre sustentabilidade e governança corporativa no país.

**Palavras-chave |** Sustentabilidade corporativa, Estratégias ESG, Petróleo e gás, Desenvolvimento sustentável

## 1 INTRODUCTION

In recent years, there has been a significant increase in consumer demand for products that promote sustainability and ethics, in addition to growing requirements from investors and regulatory bodies for greater corporate transparency and accountability (Karatzoglou et al., 2021).

In the Brazilian context, companies from various sectors have emerged as key players in the adoption and promotion of practices aimed at balancing economic, social, and environmental development. From this perspective, the concept of ESG has emerged. ESG stands for Environmental, Social, and Governance, referring to the growing trend among companies to adopt sustainability- and ethics-oriented practices (Redecker et al., 2021).

The term ESG first appeared in the financial market in the 2000s, but its relevance has grown due to concerns about socio-environmental and corporate governance issues (Evangelista Freitas, 2023). Investors realized that ESG factors affect companies' long-term financial performance (Alexandrino, 2020). Since then, ESG has expanded to influence business practices, public policies, and consumer expectations, and it is now recognized as a principle for creating sustainable value. In academia, the topic has sparked a growing number of studies across different sectors and research approaches (Martiny et al., 2024). However, no studies focusing on the oil and gas sector were found in major research databases such as Web of Science, Scopus, and Scielo.

Therefore, this study focuses on Brazilian companies in the oil and gas sector, considering the major influence this sector has on the Brazilian economy. According to the National Agency of Petroleum, Natural Gas and Biofuels (ANP), in 2023, Brazil reached a record level of offshore and onshore oil production in the last five years, highlighting the sector's economic significance.

Beyond its economic importance, the choice of this sector is also justified by the need to analyze the impacts of these companies' activities, which typically occur in remote areas, requiring advanced technologies and complex operational and safety processes. Companies in this sector must invest heavily in environmental impact mitigation technologies, develop strict safety protocols, and engage with local communities to minimize the negative effects of their operations (De Melo et al., 2023). Governance in this



sector must also be robust, with clear compliance and transparency policies, due to the high risk of corruption and the need to manage licenses and concessions across multiple jurisdictions (Machado *et al.*, 2023).

Understanding the strategies adopted by companies in this sector is essential to analyze the current landscape and anticipate future trends, especially considering the nature of their operations. The oil industry faces several significant challenges related to ESG (Environmental, Social, and Governance) criteria. There is increasing environmental pressure to reduce carbon emissions throughout the oil value chain, requiring investments in clean technologies and adaptation to the global energy transition.

On the social front, oil operations impact local communities, demanding attention to issues such as population displacement and occupational safety, as well as promoting diversity and inclusion. In terms of governance, there is growing demand for transparency, integrity, and effective risk management, which are crucial for the long-term success of oil companies. Meeting these challenges will require a continued commitment to sustainability and social responsibility from companies in the sector. This includes not only implementing measures to mitigate the environmental and social impacts of their operations but also adopting innovative and collaborative management practices throughout the value chain.

Considering the relevance of the topic and the representativeness of the sector, this article seeks to answer the following research question: What are the main ESG practices adopted by Brazilian companies in the oil and gas sector? To answer this question, the objective is to analyze the ESG practices adopted by these companies, highlighting the implemented strategies and the observed impacts.

## 2 THEORETICAL FRAMEWORK

In the early 1980s, companies began to recognize the benefits of going beyond socio-environmental regulations. Many multinational corporations discovered that practices such as pollution prevention, eco-efficiency, and respect for society and workers could also generate economic profit. This period marked the beginning of corporate awareness regarding the importance of sustainability, not merely as a legal obligation but also as a profitable and socially responsible business opportunity (Redecker *et al.*, 2021). This shift in mindset brought with it a series of important implications and developments.

The recognition that social and environmental responsibility could generate profit led to a greater integration of these issues into corporate business strategies. Initiatives such as sustainability programs, corporate responsibility reports, and environmental and social certifications emerged—not only demonstrating companies' commitment to these matters but also adding value to their brand and reputation (Wang *et al.*, 2023).

According to Karatzoglou *et al.* (2021), over the past decades, awareness of the importance of sustainability has grown not only among companies but also among consumers, investors, and regulators. As a result, expectations regarding corporate practices have increased, and companies that fail to embrace sustainability risk losing competitiveness and facing negative repercussions.

Since then, both in Brazil and worldwide, there has been significant progress in understanding and implementing sustainable practices within companies, with a growing emphasis on environmental, social, and governance issues—the ESG triad (Viana *et al.*, 2022; Calderan *et al.*, 2021).

The Environmental aspect deals with practices and policies related to the use of natural resources, reduction of greenhouse gas emissions, preservation of biodiversity, sustainable resource use, waste management, energy efficiency, and other environmental concerns. Companies that adopt environmentally responsible practices can not only reduce regulatory and reputational risks but also identify opportunities for



innovation and growth in the sustainable market. Moreover, many investors and consumers are increasingly aware of environmental issues, making the environmental pillar of ESG a key consideration for the long-term success of organizations (Silva et al., 2024; Ji et al., 2023; Irigaray et al., 2022; Calderan, 2021; Koller et al., 2019).

The Social aspect addresses social concerns and the impact of corporate activities on society, including corporate responsibility, human rights, diversity, workplace safety, and relationships with suppliers and stakeholders. It acknowledges corporate responsibilities beyond profit, highlighting the importance of treating everyone ethically. These companies often experience greater employee engagement, attract diverse talent, and build strong relationships with customers and communities, resulting in sustainable financial performance in the long term (Silva et al., 2024; Ji et al., 2023; Irigaray et al., 2022; Calderan, 2021; Koller et al., 2019).

The Governance aspect refers to companies' corporate governance structures and practices, encompassing transparency, accountability, business ethics, board independence, protection of shareholders' rights, risk management, and the adoption of good management practices. Originating from agency theory—where one person acts on behalf of another—governance plays a crucial role in building trust among investors, clients, and stakeholders. In addition to mitigating financial and legal risks, it fosters an ethical and responsible corporate culture (Silva et al., 2024; Ji et al., 2023; Irigaray et al., 2022; Calderan, 2021; Koller et al., 2019).

With the growing perception of the importance of solid governance and commitment to social and environmental responsibility, the evaluation of ESG (Environmental, Social, and Governance) practices has gained significant relevance in the global corporate landscape. This approach reflects the emerging need for companies not only to comply with regulations and stakeholder expectations but also to adopt a proactive stance toward sustainability and business ethics (Mello, 2021). The underlying purpose of ESG evaluation is to emphasize that organizational development must be a continuous, integrated, and ethical process—not limited to meeting regulatory requirements but aimed at incorporating sustainable and responsible practices into all operations.

## 2.1 ESG Indicators

Companies are challenged to demonstrate their ESG practices and commitments through annual reports that detail their actions, strategies, and results in each of the ESG dimensions (Cruz, et al., 2022). These reports are crucial tools for transparency, as they allow investors, customers, and other stakeholders to assess the real impact of the company's activities on environmental, social, and governance issues. Furthermore, the performance indicators presented in these reports offer both quantitative and qualitative insights into companies' efforts to improve their ESG performance, helping to identify areas of success and opportunities for improvement (Roque, et al., 2021; Alexandrino, 2020). The regular publication of these reports not only reinforces corporate accountability but also strengthens stakeholder trust and contributes to creating a more sustainable and ethical business environment (Sá, 2023).

An indicator is a measure that uses different metrics, such as rates, ratios, statistics, or indexes, to demonstrate the evolution of phenomena related to natural resources and assets (De Araújo, et al., 2006). ESG indicators are evaluation metrics that measure organizations' performance regarding environmental, social, and governance aspects, enabling investors, shareholders, and other stakeholders to assess companies' commitment and effectiveness in adopting sustainable and responsible practices (Lopes, et al., 2023).



Indicators from the Environmental perspective of ESG evaluate organizations' performance concerning the environmental management and impact of their activities. They include measures such as greenhouse gas emissions, water resource usage, waste management, energy efficiency, and influence on natural ecosystems.

From the Social perspective, indicators are used to measure the impact of companies' operations on society and the communities where they operate. They also analyze aspects such as workplace diversity and inclusion, fair labor practices, occupational health and safety, community engagement, respect for human rights, and positive social contributions.

From the Governance perspective, indicators assess the structure, processes, and governance culture of organizations. This includes metrics related to transparency, business ethics, board composition and independence, executive compensation, risk management, regulatory compliance, and corporate integrity policies (Cruz, et al., 2022).

### 3 RESEARCH METHODOLOGY

This study is characterized as descriptive research, where data collection, analysis, and interpretation are conducted without direct intervention from the researcher. The objective is to examine how organizations present relevant information in their ESG reports. Regarding the nature of the problem, it is applied research, in which the acquired knowledge seeks to explain how organizations can highlight environmental information in their disclosures and how such information can be evaluated.

The approach is qualitative, aiming to analyze the ESG (Environmental, Social, and Governance) practices of companies in the oil sector. Data collection was carried out through documentary analysis of the sustainability reports of the selected companies, and the analysis criteria were defined based on ESG principles. Thus, the research uses secondary data.

An initial reading of the documents was performed to obtain an overview of the information and to understand the contexts and themes addressed by each company. Then, the documents were coded according to the ESG perspectives. The coding involved marking relevant text segments and assigning codes corresponding to the categories of interest.

After coding, the data were analyzed to identify recurring patterns and themes. The analysis focused on understanding how each company addresses the ESG criteria and how their strategies reflect their values and priorities. This systematic and detailed content analysis approach ensures a deep understanding of ESG practices in the oil and gas sector, highlighting both the particularities of each company and general trends in corporate sustainability.

Accordingly, specific sections were examined, such as sustainability reports, corporate policies, and social and environmental initiatives. This involved creating specific categories or criteria based on ESG principles (Environmental, Social, and Governance) for a consistent and comparative evaluation of the companies' practices. Table 1 shows the variables considered for this analysis.



**Table 1.** ESG Definitions

Dimension	Variable	Description
Environmental	Carbon Emissions	Reduction of greenhouse gas emissions along the value chain.
	Waste Management	Minimization and proper handling of waste generated by operations.
	Biodiversity Conservation	Protection and preservation of biodiversity at operational sites.
	Energy Efficiency	Adoption of practices and technologies that promote efficient energy use.
	Climate Change Adaptation	Implementation of strategies to address the impacts of climate change.
Social	Impact on Local Communities	Assessment and mitigation of the social impacts of oil operations on nearby communities.
	Occupational Health and Safety	Ensuring safe and healthy conditions for workers.
	Diversity and Inclusion	Promotion of ethnic, gender, and sexual orientation diversity in the workforce.
	Community Development	Investment in programs that benefit the development of local communities.
	Human Rights	Respect and protection of human rights in all operations and throughout the supply chain.
Governance	Transparency and Accountability	Transparent disclosure of information and accountability for the company's actions.
	Corporate Integrity	Maintaining ethical standards and integrity in operations and business relationships.
	Leadership Structure	Ensuring a solid and effective governance framework.
	Risk Management	Identification, assessment, and management of risks, including those related to operational, financial, and reputational security.
	Business Ethics	Adoption of ethical business practices and compliance with applicable laws and regulations.

Source: Adapted from Cruz, et al., (2022)

The analysis categories described in Table 1 are based on the study by Cruz et al. (2022), which provides a comprehensive model for evaluating ESG practices in companies. The companies selected for this study have a significant presence in the Brazilian market and are listed on B3 – Brasil Bolsa Balcão (2024). The companies are: Petróleo Brasileiro S.A. Petrobras, Ultrapar Participações S.A., Enauta Participações S.A., Prio S.A., Cosan S.A., 3R Petroleum Óleo e Gás S.A., Petrorecôncavo S.A., Raízen S.A., Refinaria de Petróleo Riograndense S.A., Refinaria de Petróleos Manguinhos S.A., and Vibra Energia S.A.

This research uses secondary data, and data collection was carried out through document analysis of sustainability reports available on the companies' websites. It is important to note that there is no widely available information on the ESG practices of Refinaria de Petróleo Riograndense S.A. and Refinaria de Petróleos Manguinhos S.A., making it unfeasible to include these companies in the study.

The choice to analyze sustainability reports was motivated by the need to access detailed and structured information about the companies' ESG practices, considering that these documents provide a consolidated view of ESG efforts and are an important source for evaluating how companies approach these practices.

The process of searching and analyzing the sustainability reports involved the following steps:

1. Initial Search and Selection: Sustainability reports were identified through the corporate websites of the companies.
2. Full Reading: A complete reading of the reports was conducted to gain a general understanding of the described practices and strategies.



3. Coding: Extracted information was coded according to the established categories (Environmental, Social, Governance), using a qualitative approach to identify and classify the described practices.
4. Content Analysis: A content analysis was conducted to identify patterns and trends in the ESG approaches of the analyzed companies.
5. Validation and Review: The data were reviewed to ensure the accuracy and integrity of the extracted information.

This detailed protocol ensures that the analysis of sustainability documents is rigorous and systematic, providing a clear view of the companies' ESG practices and enabling a critical assessment of their approaches and strategies.

## 4 ANALYSIS OF RESULTS

This section presents a detailed analysis of the collected data, aiming to identify relevant insights for the study. Initially, the ESG practices of each company studied are presented, followed by a comparison intended to highlight the similarities and differences among them.

### 4.1 ESG Practices per Company

This section presents initiatives adopted by the companies in each ESG dimension. This analysis allows for an assessment of how each company is contributing to the environmental, social, and governance areas through their specific practices, highlighting individual efforts to reduce environmental impacts, promote social justice, and maintain ethical and transparent governance. Table 2 provides a description of the initiatives developed by the companies.

**Table 2.** Descriptions of Initiatives Adopted by the Companies

Company	Environmental	Social	Governance
3R PETROLEUM ÓLEO E GÁS S.A.	Environmental Management Water Management Climate Strategy and Emissions Management Biodiversity and Ecosystems Waste Management	Stakeholder Engagement Employees Safety, Health, and Well-being Community Relations Supplier Development	Governance Structure Ethics, Integrity, and Compliance Risk Management
COSAN S.A.	Administrative Structure Policies and Commitments Ethics and Compliance Tax Controls Risk Management	Employee Profile Diversity, Equity, and Inclusion Training and Development Safety, Health, and Well-being	Administrative Structure Policies and Commitments Ethics and Compliance Tax Controls Risk Management
ENAUTA PARTICIPAÇÕES S.A.	Carbon Emission Reduction Promotion of Energy Efficiency Use of Seawater Intake for Operations Development of a Project for Global Warming Mitigation	ISO 45000 certification in health and safety, with periodic assessment of workplace hazards and risks.	Critical assessment of gender diversity in leadership, highlighting the need for greater female representation on the Board of Directors.



Company	Environmental	Social	Governance
PETROLEO BRASILEIRO S.A. PETROBRAS	Reduce Carbon Footprint Protect the Environment Transparency	Care for People Social and Environmental Projects People Health and Safety Human Rights Community Relations Corporate Citizenship and Philanthropy	Strengthening Corporate Governance Acting with Integrity Our Model Ethics, Transparency, and Integrity Bylaws, Codes, and Policies
PETRORECÔNCAVO S.A.	Environmental Accidents Remediation and Recovery Waste (Hazardous, Drilling, and Tailings) Emissions Water and Effluent Management	Human Capital Management and Talent Attraction Health, Safety, and Well-being Relations with Local Communities Social and Environmental Impacts of Surrounding Operations Diversity, Equity, and Inclusion	Business Ethics Regulatory Management
PRIO S.A.	Climate Change Operational Risk Management Environmental Management System Projects and Initiatives	Health, Safety, and Well-being Projects and Initiatives	Ethical Commitment Code of Ethics and Policies
RAIZEN S.A.	Strategy and Support Emissions and Climate Risk Management Renovabio	People Social Performance Social Investment	Internal Management and Organization Certifications Sustainable Procurement and Recognition
ULTRAPAR PARTICIPAÇÕES S.A.	Energy Transition Eco-efficient Operations	Health and Safety Community Responsibility Inclusive Culture and Diversity	Governance and Integrity Value Chain
VIBRA ENERGIA S.A.	Environmental Management Biodiversity Energy Efficiency Water and Effluents Waste and Materials Soil and Groundwater	Cultural Transformation Attraction, Retention, and Recruitment Benefits, Compensation, and Recognition Occupational Health and Safety Diversity and Inclusion	Our Governance Ethical Conduct Organizational Structure Governance Structure Risk Management Investor Relations Institutional Relations

Source: Own elaboration (2024)

As shown in Table 2, this information demonstrates how each company has its own strategies and priorities regarding ESG, reflecting the diversity of challenges and opportunities faced in the corporate market. Each company adopts a unique approach to dealing with ESG issues, reflecting its own priorities, values, and areas of operation. For example, some companies place greater emphasis on environmental management, while others focus more on social or governance issues.

This analysis of the data on ESG (Environmental, Social, and Governance) practices of the listed companies reveals a variety of approaches and focuses, reflecting the diversity of priorities and strategies of each organization.

3R Petroleum Óleo e Gás S.A. shows a strong commitment to environmental management, prioritizing areas such as water management, climate strategies, biodiversity preservation, and waste management. In the social sphere, emphasis is placed on stakeholder engagement, employee safety and well-being, as well as supplier development. In terms of governance, the governance structure, ethics, integrity, and risk management are emphasized (3R Petroleum Óleo e Gás S.A., 2024).



Cosan S.A. directs its efforts towards administrative organization, policy definition and commitments, ethical and regulatory compliance, financial oversight, and risk management. In the social context, attention is focused on employee profiles, promotion of diversity and inclusion, training and development programs, as well as ensuring safety and well-being (Cosan S.A., 2024).

At Enauta Participações S.A., efforts highlight the reduction of carbon emissions, promotion of energy efficiency, use of seawater in operations, and initiatives to combat global warming. Socially, the company holds ISO 45000 certification in health and safety; however, there is a demand for greater female presence on the Board of Directors (Enauta Participações S.A., 2024).

Petrobras prioritizes reducing the carbon footprint, environmental preservation, transparency, and individual well-being. The company emphasizes socio-environmental initiatives, safety and health, respect for human rights, and community engagement. Regarding governance, there is a focus on strengthening the corporate structure, integrity and ethical conduct, as well as the implementation of internal policies and codes (Petrobras, 2024).

PetroRecôncavo S.A. stands out for environmental incident management, remediation and recovery processes, waste treatment, emissions control, and water resource management. On the social aspect, it prioritizes human capital management, employee health and safety, engagement with local communities, and promotion of diversity. In governance, the commitment to business ethics and regulatory compliance is evident (PetroRecôncavo S.A., 2024).

Prio S.A. directs its efforts towards addressing climate change, managing operational risks, implementing an environmental management system, and promoting projects and initiatives in this regard. In the social field, ethical commitment is highlighted through its code of ethics and internal policies, along with a focus on employee health, safety, and well-being (Prio S.A., 2024).

At Raízen S.A., emphasis is placed on strategy and support, emissions and climate risk management, as well as the Renovabio program. On the social side, social investments, social performance, and attention to people are highlighted. Governance focuses on management and internal organization, certifications, and stakeholder engagement (Raízen S.A., 2024).

Ultrapar Participações S.A. prioritizes energy transition, eco-efficient operations, as well as promoting health and safety, community responsibility, and diversity. Regarding governance, integrity, corporate management, value chain, and stakeholder engagement are emphasized (Ultrapar Participações S.A., 2024).

At Vibra Energia S.A., commitment to environmental management, biodiversity, energy efficiency, water and effluent treatment, waste and materials management, as well as soil and groundwater preservation is highlighted. On the social side, the company focuses on promoting cultural transformation, talent attraction and retention, benefits and recognition, ensuring health and safety at work, and promoting diversity and inclusion. Governance emphasizes ethical conduct, organizational structure, governance system, risk management, and relationships with investors and institutions (Vibra Energia S.A., 2024).

## 4.2 Comparative Analysis

The integration of sustainable practices into business strategies has raised awareness that social and environmental responsibility can be a profitable and socially responsible business opportunity (Wang et al., 2023). The analysis of ESG (Environmental, Social, and Governance) practices in companies within the oil and gas sector reveals a diversity of approaches and priorities, highlighting both similarities and significant



differences among organizations. This in-depth examination is crucial to better classify and understand companies' actions regarding sustainability and governance.

The analysis of ESG practices in oil and gas companies reveals a significant diversity of approaches and priorities, showing both similarities and marked differences among organizations. Among the similarities, the commitment to reducing carbon emissions stands out as a priority for companies such as Enauta Participações S.A., Petrobras, Raízen S.A., and Prio S.A. These companies promote energy efficiency and adopt practices to mitigate the environmental impact of their operations, aligning with the theory that environmental responsibility can generate economic and reputational value (Redecker et al., 2021).

Additionally, promoting employee health and safety is a common focus, evidenced by certifications and health and safety programs in companies like Cosan S.A., Enauta Participações S.A., PetroRecôncavo S.A., Prio S.A., and Vibra Energia S.A. Another common point is the commitment to transparency and ethics in governance, with companies such as Petrobras, Raízen S.A., Ultrapar Participações S.A., and Vibra Energia S.A. reinforcing the importance of corporate integrity and responsibility in their operations (Silva et al., 2024). Furthermore, there is a shared effort to promote diversity and inclusion in the workforce, reflected in the practices of companies like Cosan S.A., PetroRecôncavo S.A., and Vibra Energia S.A. (Koller et al., 2019).

However, there are notable differences. Environmental management is a strong commitment area for some companies, such as 3R Petroleum Óleo e Gás S.A. and Vibra Energia S.A., which focus on aspects such as biodiversity conservation and waste management. Other companies, like Enauta Participações S.A. and Prio S.A., also invest in environmental practices but with a stronger emphasis on energy efficiency and emissions reduction (Viana et al., 2022). Regarding social aspects, companies such as Enauta Participações S.A. focus on health and safety certification, while Raízen S.A. and PetroRecôncavo S.A. invest more in community development and the promotion of diversity (Calderan et al., 2021).

Governance structure is another area with variations. Ultrapar Participações S.A. and Petrobras stand out for developing robust governance and implementing detailed internal policies. In contrast, other companies, such as Cosan S.A. and Prio S.A., focus more on ethical compliance and risk management. Additionally, companies like Raízen S.A. and Ultrapar Participações S.A. demonstrate significant commitment to innovation and the adoption of sustainable technologies, promoting energy transition and eco-efficiency. Other companies, such as Petrobras and Vibra Energia S.A., also invest in sustainable technologies but with varied focuses (Silva et al., 2024; Koller et al., 2019).

By classifying companies according to their actions and priorities in sustainability and governance, some categories can be identified. Companies leading in environmental sustainability, such as 3R Petroleum Óleo e Gás S.A. and Vibra Energia S.A., demonstrate a strong commitment to environmental management, including biodiversity conservation and waste management (Redecker et al., 2021). Those with a stronger focus on governance and transparency, like Petrobras and Ultrapar Participações S.A., reinforce governance structure and corporate ethics (Silva et al., 2024). Innovative companies in sustainable technologies, such as Raízen S.A. and Ultrapar Participações S.A., implement practices and technologies to promote energy transition and eco-efficiency (Viana et al., 2022). Finally, companies with a balanced ESG approach, like Cosan S.A., PetroRecôncavo S.A., and Prio S.A., integrate environmental, social, and governance practices with emphasis on specific areas according to their strategic priorities (Calderan et al., 2021).

This comparative analysis reveals that, despite similarities in areas of focus such as health and safety, transparency, and diversity, companies in the oil and gas sector have distinct approaches to their ESG practices. These differences reflect the specific priorities and strategies of each organization, offering a comprehensive view of sustainable and governance practices in the sector.



## 5 FINAL CONSIDERATIONS

Analyzing the ESG practices applied by companies in the oil and gas sector is crucial due to the significant impact this industry has on the environment, local communities, and corporate governance. With the increasing environmental and social awareness, stakeholders are becoming more attentive to companies' policies and practices, seeking options aligned with sustainability principles.

The study revealed a complex and diverse panorama of ESG practices in the sector, reflecting the different priorities and strategies adopted by each organization. Companies are showing a growing commitment to sustainability and social responsibility, evidenced by their initiatives to reduce carbon emissions, promote employee health and safety, and ensure transparency and ethics in governance. These practices highlight the increasing market pressure for greater transparency and accountability.

As observed, companies invest in the three ESG dimensions: environmental, social, and governance. This panorama reveals a growing trend where organizations are becoming more aware of the need to integrate these considerations into their operations. This theoretical advancement is significant as it contributes to understanding how ESG practices are applied differently within the oil and gas sector, aligning with stakeholder expectations and market demands.

The analysis contributes to the advancement of academic knowledge by identifying the diverse approaches adopted by companies and how these practices can be improved. The theory on ESG implementation in specific contexts, such as the energy sector, is deepened by highlighting the variations and similarities in companies' practices. The research demonstrates that although considerable progress has been made, awareness and effective execution are still developing. Thus, the study suggests that new research be conducted to monitor the evolution of ESG practices and compare the data presented by companies with the real impacts of their operations.

The main managerial, academic, and social contributions of this study include valuable insights for companies in the oil and gas sector regarding the development and improvement of their ESG practices. Academically, it contributes to the advancement of knowledge about ESG implementation in specific contexts, such as the oil and gas sector, helping to build theories that can be applied to other industries and sectors. Socially, the research highlights the importance of corporate responsibility and sustainability, underlining the positive impact of these practices on society as a whole.

Overall, the research offers a significant contribution to the science of socio-environmental management, especially regarding the understanding and improvement of ESG practices in oil and gas companies, helping to guide future research and business practices in the field of sustainability.

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